Research Summary: Use of Artificial Intelligence Tools in Social Work and Child Welfare Services

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Introduction

Artificial intelligence (AI) is rapidly evolving and changing the world as we know it. In an era defined by swift technological advancements, the impact of AI reaches far and wide, impacting various sectors and industries. AI and its potential generate considerable attention, excitement, and discussion in the news. While AI has made significant strides in the corporate sector, healthcare, and transportation, its integration into social work is a topic of great importance and debate. As helping professionals with a robust code of ethics, social workers find themselves at a crossroads, faced with choices that will shape the future of their practice.[1]

New technology, such as AI, has the potential to change the work tasks of social workers significantly. As AI models continue to advance, so do their capabilities. Changes in work tasks can lead to changes in professional jurisdictions and the professions themselves.[2] Many industry leaders are nervous about their workforce relying on AI tools to make decisions that should not be made by a computer, especially in human services. Since AI is still new and continuously evolving, many states and social services agencies are still researching and exploring potential use cases or beginning to write their policies and procedures around acceptable uses of AI. While some support the use of AI tools, pointing out its many benefits, others raise concerns and emerging challenges (e.g., ethical implications, biases, data privacy, trust in their outputs, and impacts on job security) and seek to limit, control, or slow down its development. Social workers have an ethical duty to vulnerable populations, which requires monitoring and assessing the data and the assumptions used to train AI algorithms. Thus, a need emerges to attend to the social implications of an emerging generation of tools.[3]

This research summary draws on recent journal articles, news stories, and web resources to examine some of the current thinking on AI in social work and child welfare services (CWS). To summarize, most research findings seem to recommend a forward-thinking approach that is open-minded to the reality of AI's growing presence in society, that welcomes the responsible use of AI and its potential benefits in health and human services while also emphasizing that social workers must carefully evaluate its use and, when incorporating it into practice, ensure they do not abandon the human contact dimension of social work. AI can be another tool social workers use to support people. However, social worker knowledge, values, and

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[1] Goldkind, L. (2021). Social Work and Artificial Intelligence: Into the Matrix. *Social Work (New York), 66*(4), 372–374.; The Intersection of AI and Social Work: Embracing Innovation for a Better Future [Social Work AI Magic] (July 2023)
[2]Susskind, R., & Susskind, D. (2017). *The Future of the Professions: How Technology Will Transform the Work of Human Experts*. Oxford, England: Oxford University Press.
[3] Goldkind, L. (2021). Social Work and Artificial Intelligence: Into the Matrix. *Social Work (New York), 66*(4), 372–374.; Blog-Artificial Intelligence and ChatGPT for Human Services and Social Work: Dos and Don'ts [Northwoods] (October 2023).

practical expertise should continue to take center stage. Social workers can use the new field of AI to reinforce the concepts of professionalism and expertise within health and human services.[4]

Leveraging Healthcare AI Tools/Studies[5]

Many researchers have developed new predictive AI tools to assist healthcare professionals in daily activities. In some medical fields, these tools are already well-established, and widely diffused in practical routines.

- Several studies have demonstrated the high accuracy of AI models in diagnosis, prediction of the clinical course of a disease, assessment of therapeutic interventions, etc.
- In the healthcare industry, AI is increasingly used in various applications (i.e., remote patient monitoring, medical diagnostics and imaging, risk management, virtual assistants, etc.). Medical fields that rely on imaging data, such as radiology, pathology, dermatology, and ophthalmology, have already benefited from implementing AI tools.
- Tennessee-based Vanderbilt University Medical Center discovered ChatGPT could support more expedited clinical decision-making.
- The healthcare industry continues to explore expanding practical uses of AI. Not surprisingly, the United States "AI in healthcare" market is expected to grow by 36 percent between 2023 and 2030, with partnerships between Epic and Microsoft leading the way. Several healthcare organizations are already piloting this integration to draft asynchronous physician responses to patient questions in online portals.[6]
- AI implementation in the medical field has the ability to process and analyze a vast amount of data and identify non-linear correlations between them. These abilities are not achievable by human brains alone and could be incredibly helpful if implemented in the scenario of child abuse and neglect to perform three basic tasks: (a) prediction, (b) identification/ diagnosis, and (c) decision process.

A Systematic Review of the Research: AI and Child Abuse and Neglect[7]

As one of the most critical goals consists of a timely identification/diagnosis of children at risk or who are victims of child abuse and neglect, many researchers have tried to find new predictive tools to counteract the abovementioned phenomenon. However, before September 2023, the state of the art of implementing AI tools in

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[4]Susskind, R., & Susskind, D. (2017). *The Future of the Professions: How Technology Will Transform the Work of Human Experts*. Oxford, England: Oxford University Press.
[5] Lupariello, F., Sussetto, L., Di Trani, S., & Di Vella, G. (2023). Artificial Intelligence and Child Abuse and Neglect: A Systematic Review. *Children, 10*(10), 1659.
[6] Leveraging ChatGPT and Generative AI in Healthcare Analytics [Journal of the American Health Information Management Association] (June 2023)
[7] Lupariello, F., Sussetto, L., Di Trani, S., & Di Vella, G. (2023). Artificial Intelligence and Child Abuse and Neglect: A Systematic Review. *Children, 10*(10), 1659.

child abuse and neglect was unknown. In contrast to the healthcare arena described above, studies have yet to comprehensively review the types of AI models that have been developed/validated. Furthermore, no indications about the risk of bias in these studies were available. For these reasons, Lupariello et al. (2023) conducted a systematic review of the PubMed database to answer the following questions: "Which is the state of the art about the development and/or validation of AI predictive models useful to contrast child abuse and neglect phenomenon?" and "Which is the risk of bias of the included articles?"

- The authors screened 413 articles. Next, the authors excluded 330 records based on the title and abstract. The remaining 72 articles' full-text reading were used for the final inclusion/exclusion process. A total of 65 full-text articles were then excluded by authors. Thus, seven studies remained for inclusion in the systematic review.
    - See Table 1: Summary of the results where Lupariello et al. (2023) summarize the following indexes: authors, year of publication (included publications were gathered between 2020–2022, except for one article published in 2000), input data, age/sex, type of abuse, output/ prediction, AI model, dataset's size, accuracy, sensitivity, specificity and see Table 2: Definition of the risk of bias using the prediction model risk of bias assessment (PROBAST) tool for a summary of the risk of bias for each model.
    - The authors' analysis showed that the types of input data were heterogeneous (including radiologic imaging in one case, demographic and clinical characteristics in two cases, text of medical records in two cases, self-figure drawing in one case, child protection system data in one case); artificial neural networks, convolutional neural networks, and natural language processing (NLP) were used; the datasets had a median size of 2,600 cases; the risk of bias was high for all seven studies.
    - Regarding the evaluation of AI performance, accuracy was used in six studies, sensitivity in five, and specificity in four.
    - The results of the review pointed out that the implementation of AI in the child abuse and neglect field lags compared to other medical fields. Furthermore, evaluating the risk of bias suggested that future studies should provide an appropriate choice of sample size, validation, and management of overfitting, optimism, and missing data.

The National Association of Counties (NACo's) AI Exploratory Committee[8]

The NACo AI Exploratory Committee was established in June 2023 and will meet regularly through the summer of 2024. The Committee includes 14 members involved in county administration and governance. The purpose of the Committee is to assess the state of AI and the emerging policies, practices, and potential

[8] Artificial Intelligence Exploratory Committee | National Association of Counties [Webpage]

applications and consequences of AI through the lens of county government governance, operations, constituent services, innovation, public trust, privacy, security, and workforce productivity. The Committee emphasizes that America's counties need to be prepared to address AI innovations with the realization that AI technology is here to stay. Like emerging technologies of the past, county leaders recognize there will be inherent risks to mitigate and manage over time as innovation drives forward technology adoption. It will remain imperative for counties to closely monitor AI innovations and applications in the short-term as well as the long-term. Throughout the year, the NACo AI Exploratory Committee will provide updates on its website regarding AI policies, practices, and potential uses related to county governance and operations, along with releasing various guidelines for local government.[9]

Summary of Overall Themes Identified: Using AI in Social Work Practice[10]

AI is undoubtedly a technology catalyst providing various opportunities for driving innovation and transformative impact on health and human services through multiple mechanisms. When considering the pros and cons of AI integration, a balanced perspective must emerge, where AI complements the work social workers do while ensuring that their commitment to empathy, ethics, and authenticity remains at the forefront. In the field of social work, AI should be prioritized as a support tool (much like one might use a diagnostic tool or information acquired in a training or staff development course) to support and amplify human judgment, capabilities (like identifying patterns and optimizing trends and professional discretion rather than replacing them. A hybrid approach, combining AI-driven insights with social worker expertise, can lead to more informed and targeted strategies, critical decisions, and services.

- *AI may assist social workers in improving the well-being of individuals, families, and communities. Still, it needs the level of reflection, empathy, cultural competence, and critical thinking of a social worker. While AI can be a valuable tool for social workers, AI cannot supersede the human connection and care essential in social work that enables practitioners to truly connect and empower individuals, families, and communities.*
    - Social work is fundamentally about understanding and building trust, and social workers need to maintain a human-centered approach. AI should complement and enhance these essential aspects of the profession rather than overshadowing them.

[9] Counties Build AI Framework to Harness Its Potential, Bolster Protection (August 2023)
[10] Blog: Artificial Intelligence (AI) & Social Work [The Social Work Graduate] (September 2023); Meilvang, M. L. (2023). Working the Boundaries of Social Work: Artificial Intelligence and the Profession of Social Work. *Professions and Professionalism, 13*(1); The Intersection of AI and Social Work: Embracing Innovation for a Better Future [Social Work AI Magic] (July 2023)

    - The approach of being intentional with AI and using it to augment human capabilities can reduce fear and accelerate learning and adoption.
- *While AI holds great promise, it also raises legitimate concerns about privacy, bias, ethics, maintaining transparency and accountability, and the potential for harm to vulnerable populations*.
    - The collection and analysis of sensitive information about children and families must be handled with utmost care to ensure confidentiality and protect against unauthorized access.
    - As a creation of humans, any system of AI will carry forward the biases of the people who built it unless we intervene to identify and root out those biases purposefully. Several necessary steps should be taken to identify and reduce any bias in our AI platform.[11]
    - Several projects with AI within social work have sparked a debate in the media about profiling, stigmatization, and discrimination.[12] There is skepticism and fear around the possibility of negative impacts resulting from biases in the algorithms that are the backbone of AI. In predictive analytics, this may include an inherent bias against people with disabilities, people experiencing poverty, and people of color.
    - Social workers have a responsibility to continuously examine and question the effects of AI technology on vulnerable populations, ensuring that the tools used do not contribute to harm or injustice. Ethical considerations and safeguards must be in place to ensure that AI is used responsibly and does not inadvertently harm vulnerable children and families.
    - Regular audits and oversight are also necessary to monitor the impact of AI systems and address any unintended consequences or biases that may arise.
    - Users of AI must always be mindful of where, when, and how it is used. It is also important to remember that generative AI is a "learning model." While it will improve over time, users must know the limitations and risks to inform where to use these tools appropriately.
- *Many social services agencies and staff acknowledge the potential challenges and unintended consequences AI can bring but are still open to the benefits of responsibly and transparently integrating AI into their work*.
    - AI's prowess in data analysis is undeniable. Not only can AI-generated data help sort through and summarize vast amounts of data about an

[11] The Use of AI in Child Welfare Services: 5 Common Concerns [Lyssn] (2022)
[12] AI Tool Used to Spot Child Abuse Allegedly Targets Parents with Disabilities [Ars Technica] (January 2023); Oregon is Dropping an Artificial Intelligence Tool Used in Child Welfare System [NPR] (June 2022); Kristensen, K. (2022). Why the Gladsaxe-model failed—on the use of algorithms on vulnerable children. *Samfundslederskab i Skandinavien, 37*(1), 27–49. ChatGPT: Changing the Face of Human Services [Evolv Strategy Group] (August 2023)

individual's history, needs, and outcomes, but it can also identify patterns that would likely elude human observation, offering valuable perspectives. This may facilitate more specific, targeted social work interventions, including alternative strategies for social workers to consider. AI algorithms may also detect correlations that can lead to predictions about child abuse, neglect, or other risk factors. Early detection can help social workers intervene sooner, potentially preventing harm and enhancing child safety.

- Additional potential benefits of integrating AI into social work include (but are not limited to) workflow optimization, improved efficiencies, reduced paperwork, and overall better outcomes for individuals and families. AI-powered systems are capable of handling more mundane administrative tasks (e.g., scheduling appointments, filling out intake forms, generating reports, writing case notes and treatment plans, updating training manuals, and synthesizing and updating policy documents).[13] By focusing on how AI can remove specific administrative and bureaucratic tasks from their workload, caseworkers can redirect more time and energy to direct service provision, including relationship-building, supporting, and advocating for the individuals and families they serve.
- Another example of AI support is a willingness to utilize AI to provide instant and 24/7 support for clients via chatbots or virtual assistants.
- Integrating AI also encourages a proactive approach to child welfare, emphasizing early identification of risks and implementing preventive interventions over disciplinary measures.[14] Predictive risk tools can be a valuable addition when used in conjunction with human judgment and ethical guidelines to make informed decisions.
    - It is crucial to carefully consider the potential benefits and drawbacks while also ensuring that the tool's use does not perpetuate biases or harm vulnerable populations.
    - Transparency, oversight, and ongoing evaluation are essential to mitigate these concerns and optimize using predictive risk tools in child welfare practice.

- *There is a realization that AI will become a reality, whether the social work profession embraces it or not, and that it will be better to be involved in the process and be up-to-date on the latest developments than be left out.*
    - Instead of fearing AI, social workers can view it as an opportunity to learn, adapt, and evolve as a profession. The profession of social work needs to justify its work and authority about AI by beginning to

[13] Note: In some of these areas, social workers will likely still have to refine AI's output to ensure it is personalized for the individual/situation (e.g., case notes, treatment plans, and progress reports).
[14] 8 ways AI and Machine Learning (ML) Are Transforming Child Welfare [Unisys] (2023)

formulate a new professional project in which social workers are involved in the development of AI systems.
    - While initial concerns about bias and privacy remain, social workers can be an advocate for responsible and transparent AI practices. It is essential to have open and honest dialogue as social work professionals about ensuring that the support and assistance received from AI aligns with social worker's ethical obligations and values. This includes participating in discussions and advocating for ongoing scrutiny and monitoring to ensure the algorithms are fair, unbiased, and respectful of privacy. There must be oversight that enhances safety and protects against short and long-term risks without stifling innovation.
    - To come to some professional agreement about how AI should or should not be used, it is imperative to adopt a collaborative approach. By working closely with AI developers and tech experts, social workers can better ensure that AI tools align with their values, reduce biases, and address ethical dilemmas head-on. They can also facilitate ongoing stakeholder input to help improve AI platforms, mitigate errors and bias, and fine-tune what will support clinicians, coaches, caseworkers, and other care providers. Social workers can be advocates for justice and equity in the creation of policies and guidelines that shape, manage, and regulate the use of AI in social work and CWS.[15]
    - It is also important for social workers to develop a solid grasp of AI technology and capabilities, which includes understanding how AI models function, their strengths and weaknesses, and the potential biases they may introduce. A key component of understanding AI is knowing the underlying training procedures and data, enabling social workers to identify potential inaccuracies, biases, and outdated information.[16] Social workers using AI also will need education on how to appropriately 'prompt' the AI tool, as well-crafted prompts improve the quality of AI-generated output.
    - As AI tools are developing rapidly, staying up-to-date with the latest advances through continuous professional development will be an ongoing need.
- *There is a need for more research studies on the work carried out by social work professionals in their engagement with AI systems and human-algorithm interactions.*

[15] Goldkind, L. (2021). Social Work and Artificial Intelligence: Into the Matrix. *Social Work (New York), 66*(4), 372–374.
[16] James, P., Lal, J., Liao, A., Magee, L., & Soldatic, K. (2023). Algorithmic Decision-making in Social Work Practice and Pedagogy: Confronting the Competency/Critique Dilemma. *Social Work Education.*; Generative AI for Social Work Students: Part II. [Medium] (April 2023)

Background: What is Artificial Intelligence (AI) and How Does It Work?[17]

Artificial intelligence (AI) is a broad term that covers many different technological systems. These technologies do a variety of things in professional practice. AI is used to analyze large amounts of data to find connections and patterns. This may include analyzing different historical data and variables or further testing and implementing AI to determine risks and prioritize resources. One distinction of AI is between fully automated decision-making systems, on the one hand, and systems that provide additional and optional information, on the other.

AI is not a single tool; rather, it is a suite of varied specific technologies and algorithms computing capacities that can perform human-like functions across settings. AI includes dynamic machine intelligence, including facial recognition (computer vision), perception (computer vision and speech recognition), whole language processing (chatbots and data-mining), predictive algorithms (algorithmic decision-support systems) and social intelligence (emotive computing and sentiment analysis), to name a few. The actual lines of code powering AI tools are commands that tell machines what to do, which can be neutral strings of directives. However, those who program the code, the data that powers outcomes, and the social systems in which these tools are deployed all inevitably reflect existing structural inequalities.[18]

As early as the 1990s, social work academicians were discussing the deployment of "expert systems," neural networks, and other predictive models for enhancing treatment outcomes in social work practice.[19] The ideas underlying machine intelligence are not new, but the computing power necessary to realize these tools has recently become powerful enough to execute programs that were formerly fantasy. AI and algorithmic decision support are rapidly evolving new technologies in public administration and social work.[20] Algorithms use pools of information to turn data points into predictions. Many child welfare agencies in the United States are

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[17] Meilvang, M. L. (2023). Working the Boundaries of Social Work: Artificial Intelligence and the Profession of Social Work. *Professions and Professionalism, 13*(1).; Blog: Artificial Intelligence (AI) & Social Work [The Social Work Graduate] (September 2023)

[18] Goldkind, L. (2021). Social Work and Artificial Intelligence: Into the Matrix. *Social Work (New York), 66*(4), 372–374.

[19] Patterson, D. A., & Cloud, R. N. (1999). The application of artificial neural networks for outcome prediction in a cohort of severely mentally ill outpatients. *Journal of Technology for Human Services, 16*(2–3), 47–61.

[20] Eubanks, V. (2018). Automating inequality: How high-tech tools profile, police, and punish the poor. St. Martin's Press.; Gillingham, P. (2019). Can predictive algorithms assist decision-making in social work with children and families? *Child Abuse Review, 28*(2), 114–126.; Ting, M. H., Chu, C. M., Zeng, G., Li, D., & Chng, G. S. (2018). Predicting recidivism among youth offenders: Augmenting professional judgment with machine learning algorithms. *Journal of Social Work, 18*(6), 631–649.

considering adopting such tools as part of their work with children and families, such as including AI in their decision-making processes.[21]

What is Natural Language Processing (NLP)?[22]

- NLP refers to the cross-section of computer science, linguistics, and machine learning that focuses on giving machines the ability to ingest and "understand" free text data such as notes, spoken words, hand-written and typed text, and other unstructured data in much of the same way as human beings can.
- Today, the number of organizations utilizing various forms of natural language processing (NLP) has exploded. The Dutch government is using NLP to mine criminal investigation records to crack cold cases, healthcare organizations are using NLP to match patients for medical trials, and the Associated Press (AP) uses NLP technology to read social media and identify news stories. The technology's sophistication, functionality, and range of uses are advancing so quickly that if you look closely, you will likely find some form of NLP at work nearly anywhere.
- Regarding child welfare, NLP can read, understand, organize, and analyze unstructured data in case notes, giving staff access to a wealth of data. This does not just mean caseworkers and supervisors have access to greater knowledge; it also means they can more readily identify risks, strengths, relationships, and social determinants of health (SDOH) affecting children and families, which is information that is uniquely described in qualitative data.

What are Large Language Models (LLM)?[23]

- An LLM is an AI algorithm that uses deep learning techniques and massively large data sets to understand, summarize, generate, and predict new content.
- LLMs are incredibly flexible. One model can perform completely different tasks, such as answering questions, summarizing documents, translating languages, completing sentences, and even facilitating the generation of novel ideas and hypotheses.
- LLMs have the potential to disrupt content creation and the way people use search engines and virtual assistants.

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[21] Meilvang, M. L. (2023). Working the Boundaries of Social Work: Artificial Intelligence and the Profession of Social Work. *Professions and Professionalism, 13*(1).; An AI Algorithm Designed for Child Welfare Could Have the Potential for Discrimination and Now the Justice Department Is Looking Into It [Fortune] (January 2023)

[22] A More Insightful Comprehensive Child Welfare Information System (CCWIS)-Integrating Natural Language Processing to Realize the Full Potential of CCWIS (July 2023)

[23] Victor, B. G., Sokol, R. L., Goldkind, L., & Perron, B. E. (2023). Recommendations for social work researchers and journal editors on the use of generative AI and large language models.; Generative AI for Social Work Students: Part I. [Medium] (March 2023); Blog: Artificial Intelligence (AI) & Social Work [The Social Work Graduate] (September 2023)

- In qualitative research, LLMs can significantly reduce the time and effort required for researchers to analyze text data manually, enabling them to focus on interpreting and contextualizing the data.
- In quantitative research, LLMs can help analysts select suitable statistical procedures for data analysis. LLMs can assist in identifying patterns and trends with writing and debugging code, data mining, identifying and categorizing different data types, and sentiment analysis (determining emotions or attitudes in a text).
- Software that is helpful in this area includes Elicit (extracting key points from an extensive collection of articles), Scite (discovery and evaluation of articles), and Semantic Scholar (connections and links between articles).
- The term generative AI is also closely connected with LLMs, which are, in fact, a type of generative AI that has been specifically architected to help generate text-based content.

What is ChatGPT?[24]

- In November 2022, the company OpenAI unveiled ChatGPT (Generative Pre-trained Transformer), a publicly available generative AI tool/LLM chatbot that can converse with users. By initiating a prompt (a question or inquiry), the program scans large amounts of data to give users an answer as if chatting with a human. There is a free version (ChatGPT-3.5) and a paid version (ChatGPT-4.0 plus).
- Generative AI, or an advanced form of machine learning, draws upon a large language model (LLM) using NLP, giving applications like ChatGPT a unique ability to generate coherent, relevant, and high-quality text based on simple, plain-language prompts or questions provided by a user.
    - LLMs are trained on massive text data sets, including books, articles, and webpages. Most data is scraped from the web, so one could say that it has "read" (or, at any rate, ingested) almost everything that has ever been published online. These models use advanced deep-learning techniques to analyze and understand the patterns and structures of language. As a result, ChatGPT is relatively adept at mimicking human language, enabling it to generate human-like responses that can be used for a wide range of applications, which has encouraged many of its users to view the system as more human-like than machine-like.
    - While historic AI models leveraged machine learning to perform specific tasks, generative AI relies on algorithms that draw from patterns and relationships informed by raw data to create novel content across various domains.[25]

[24] How Generative AI – A Technology Catalyst – Is Revolutionizing Healthcare [Forbes] (2023); ChatGPT: Changing the Face of Human Services [Evolv Strategy Group] (August 2023)
[25] Victor, B. G., Sokol, R. L., Goldkind, L., & Perron, B. E. (2023). Recommendations for social work researchers and journal editors on the use of generative AI and large language models.

    - In an over-simplistic generalization, generative AI like ChatGPT uses data informed by statistical assumptions to generate the most likely response. You can input anything, and you will receive a logical and tailored output.
- ChatGPT has taken the internet by storm. Following the release of ChatGPT, AI was suddenly available and accessible to organizations and individual users in a capacity never seen before, driving leaders across industries to consider the implications and utilities of this revolutionizing technology.
- Upon its release, one of ChatGPT's most notorious limitations was that it was limited to data before September 2021, which stopped it from handling some inquiries about current developments or events, limiting the research capabilities of the software. However, as of September 2023, ChatGPT-4.0 (i.e., ChatGPT Plus) can now browse the internet to provide users with current and authoritative data (beyond September 2021), complete with direct links to sources providing users with up-to-date information for their inquiries. Additional enhanced ChatGPT capabilities and updates continue to emerge and can be found on the ChatGPT — Release Notes webpage.
- In terms of ChatGPT competition, since its release, various generative AI tools have been developed and publicized. For example, Bard is a competitor from Google, and Bing Chat and Azure OpenAI Service (OpenAI GPT-4) are Microsoft's competitors. Each uses its own language models, and all of them perform tasks that have traditionally required human intelligence. Refer to Harvard University's Generative AI Tool Comparison for more information on the capabilities of these and other AI tools.
- People may use ChatGPT or similar generative AI tools to write content/code, perform research, and organize outlines. There are everyday uses like planning a menu for the week or a wedding, and complex uses like writing articles.
- The implications and potential for this type of technology to be embedded within a diverse set of business models are significant.

Potential AI Applications in Social Work/Child Welfare Services[26]

As we look toward the future, AI is expected to play a pivotal role in social work, impacting many aspects of the profession. AI tools offer a lot of potential support in terms of improved efficiencies and data quality, in addition to more effective service delivery models. AI applications are already being pioneered in social work at the

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Journal of the Society for Social Work and Research, 14(3).; Generative AI for Social Work Students: Part I. [Medium] (March 2023)

[26] Blog: Artificial Intelligence (AI) & Social Work [The Social Work Graduate] (September 2023); ChatGPT: Changing the Face of Human Services [Evolv Strategy Group] (August 2023); Blog-Artificial Intelligence and ChatGPT for Human Services and Social Work: Dos and Don'ts [Northwoods] (October 2023); Spooner, K. (January 2023). *Artificial Intelligence & ChatGPT*. Australian Association of Social Workers: Technology and Social Work Hub

individual, mezzo, and macro levels. Outlined below are some of the ways AI can support social work and, more specifically, child welfare services (CWS).

- **Automation/Reducing Administrative Tasks:** Automation through AI can streamline routine administrative tasks and time-consuming, back-office functions, such as data entry, paperwork, and generating reports, allowing social workers to spend more time on direct service delivery.[27]
    - AI might be used to automate recurring work tasks, such as scheduling appointments, completing intake forms, writing case notes and treatment plans, updating training manuals, and synthesizing and updating policy documents.[28]
    - Furthermore, AI bots can be used to process case backlogs, identify and input changes to client information across systems (e.g., automatically updating a CalWORKs-involved family record with a new address if they change it in the CalFresh system), and flag cases that need a worker's review.
    - In addition to freeing up social workers to focus on more complex and important tasks, such as conducting in-depth assessments, building client relationships, developing personalized approaches, and collaborating with other professionals, AI automation can help agencies cut costs and ensure that essential information is documented timely and accurately.
    - For more information, refer to a related resource from Northwoods: Putting the 'Human' Back in Human Services Through Robotic Process Automation.[29]
- **Data Integration:** AI can facilitate the integration of available data from various sectors and sources, including social services records, medical records, police records, and educational records, providing a more holistic view of an individual, family, or community's current situation, needs, and strengths. One essential element of data collaboratives is how the partnering of organizations can create value from data. The utility of these alliances is predicated on a pooling of data that extends beyond simply data-sharing. AI can also process and analyze data to identify non-linear correlations between the various systems serving particular individuals and families.
- **Data Analytics and Predictive Modeling:** AI algorithms can analyze large amounts of historical data and past cases to identify patterns and trends in

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[27]Spooner K. (January 2023). *Artificial Intelligence & ChatGPT*. Australian Association of Social Workers: Technology and Social Work Hub; Generative AI for Social Work Students: Part I. [Medium] (March 2023)

[28] Note: In some of these areas, social workers will likely still need to refine AI's outputs to ensure it is accurate and personalized for the individual/situation (e.g., case notes, treatment plans, and progress reports).

[29] Blog-Artificial Intelligence and ChatGPT for Human Services and Social Work: Dos and Don'ts [Northwoods] (October 2023)

social work and CWS. This can help agencies and their social workers perform three basic tasks: prediction, identification/diagnosis, and decision processes..[30] AI can also process and analyze data to identify non-linear correlations between the various systems serving particular individuals and families.

- **Data Analytics and Predictive Modeling:** AI algorithms can analyze large amounts of historical data and past cases to identify patterns and trends in social work and CWS. This can help agencies and their social workers perform three basic tasks: prediction, identification/diagnosis, and decision processes. AI can also identify trends and patterns that can inform resource allocation, policy decisions, and staffing levels.
    - *Case Prioritization:* AI-driven data analytics can assist social workers in prioritizing their caseloads based on urgency and risk. By automatically classifying cases and assessing their severity, this can help social workers allocate their resources more effectively, ensuring that the most critical cases receive immediate attention, such as additional assessments, community support, prevention programs, or other interventions.
    - Utilizing Predictive Analytics for Child Maltreatment and Neglect:[31]
        - *Identify and Respond to Cases with Greater Risk:* Machine learning algorithms can be used to detect patterns in vast amounts of data, including factors associated with an increased risk of child maltreatment or neglect. AI-based risk assessment tools can evaluate the safety of a child's environment (e.g., socioeconomic factors, family history, caregiver behavior) by analyzing available data. This can help caseworkers make more timely and informed decisions about whether a child should remain in their current situation or be placed in foster care and also potentially prevent abuse or neglect from occurring in the first place. By identifying risk factors early, social workers can intervene with more targeted and effective approaches. AI can also flag cases where early intervention and preventative services may be crucial for individuals or families, allowing social workers to address issues before they escalate, possibly reducing the risk of any future harm.
        - *Reduce Biases and Promote Consistencies:* Predictive analytics can help reduce bias in decision-making by providing an objective assessment of risk via relying on data and statistical

[30] Verhulst, S., & Sangokoya, D. (April 2015). Data Collaboratives: Exchanging Data to Improve People's Lives [Medium]; Goldkind, L. (2021). Social Work and Artificial Intelligence: Into the Matrix. *Social Work (New York), 66*(4), 372–374.
[31] Lupariello, F., Sussetto, L., Di Trani, S., & Di Vella, G. (2023). Artificial Intelligence and Child Abuse and Neglect: A Systematic Review. *Children*, *10*(10), 1659.

analysis versus relying solely on subjective judgments, potential biases, or blind spots of individual social workers. This helps ensure that similar cases are treated parallelly and can lead to fairer and more consistent outcomes.

- *Decrease Caseloads*: AI tools can help agencies allocate their limited resources more efficiently by focusing on higher-risk cases, potentially reducing caseworker workload. Lower-risk cases can be more quickly screened out, reducing the investigative burden on caseworkers and allowing them to concentrate on more complex or high-risk cases.
- *Help Providers More Quickly and Accurately Identify Suspected Abuse:* Diagnosing suspected cases of child abuse is crucial yet challenging. The potential to incorporate AI models in the diagnostic process of these events is vast. For instance, AI tools could aid in distinguishing non-accidental fractures from accidental ones. These models could also assist radiologists in identifying bone lesions highly indicative of abuse. Furthermore, deep learning algorithms could be utilized to detect new patterns of abuse that have not yet been discovered in bones or the detection of abusive head trauma. For instance, analyzing retinal changes in patients through AI can aid in distinguishing between abused and non-abused children. In addition, in the future, healthcare professionals may be assisted by AI tools capable of suggesting a suspected diagnosis of child maltreatment by assessing different types of data, such as clinical, imaging, and anamnestic information.
- *Support Case-Planning Following Suspected Child Abuse:* After confirming a suspected case of child abuse, it is crucial to identify the most appropriate course of action to ensure the child's safety. This decision-making process, involving healthcare professionals and CWS, may include hospitalization, psychological/ neuropsychiatric interventions, foster care placement, educational support, and more. These decisions are often complex and non-linear, making it challenging to determine the best course of action. AI tools could be instrumental in developing personalized treatment plans and support strategies for children in the child welfare system, taking into account their unique history, needs, strengths, and support systems.
- *Predict Recurrance of Abuse or Neglect:* Predictive models can help assess the likelihood of recurrence of child abuse or neglect in families that have previously interacted with the CWS system. This information can help social workers tailor their approach to prevent future incidents.

- *Resource Forecasting:* Predictive analytics can help health and human service agencies forecast future resource needs based on historical data and current trends, allowing for better long-term planning and budgeting.

- **Matching Children with Caregivers/Foster Care Placements:**[32]
  - An AI tool can comb through hundreds of documents and pull out a list of people mentioned in the case that social workers could contact to help support a child. However, social worker expertise and familiarity with the case are still needed to rule out options that are not in the best interest of the child based on the family's unique circumstances. Therefore, caseworkers can save time sorting through documents to make the list but are still responsible for analyzing the information and using it to inform them of their next steps.
  - AI can also optimize the allocation of resources, such as foster care placements or adoptive families by matching them with suitable foster families. Machine learning algorithms can consider factors like the child's needs and the foster family's characteristics to make better matches. More intentionally matching children with suitable caregivers through analyzing profiles and assessing compatibility factors (e.g., location, age, cultural background, and special needs) could support better placement outcomes and stability for the child or youth.

- **Case Management and Decision Support Utilizing Natural Language Processing (NLP):** NLP algorithms can assist caseworkers in quickly extracting relevant information from text and speech included in case reports, narratives, documents, transcripts, verbal reports, and assessments. NLP can detect and even translate languages for transcribing calls and analyze text and speech to identify signs of distress or abuse in reports, interviews, and other communications from children, family members, or caregivers, which may provide additional insights to inform CWS cases. In addition, the idea of AI as decision support includes it as an element in the assessment process, providing social workers with various kinds of relevant information.[33]
  - *Decision Support:* Behind the concept of decision support with regard to AI and social work is that AI and algorithmic systems should not be the sole constituents in the assessment of cases, nor should they be decisive in complex cases within social work. They can, however, help to inform the decision-making process. Valuable information can be obtained from AI, and further, such information will help social workers

[32] Blog-Artificial Intelligence and ChatGPT for Human Services and Social Work: Dos and Don'ts [Northwoods] (October 2023)
[33] Meilvang, M. L. (2023). Working the Boundaries of Social Work: Artificial Intelligence and the Profession of Social Work. *Professions and Professionalism, 13*(1).

overcome some of their own blind spots in their work and qualify for their assessments.

- *Generative AI Chatbots:* Operationally, chatbots like ChatGPT offer significant opportunities and information for health and human services agencies.[34]
    - When taking reports, there are so many ways that data comes into an agency: IVR (interactive voice response), websites, phone, and email. It is crucial to pull information into the right places to meet regulations and reporting requirements, as well as to determine the best next action.
    - Generative AI can aid in the research and evaluation of child welfare programs and policies. By analyzing massive text data sets, including books, articles, and webpages, agencies can gain insights into what is working and what is not in the field of social work, including evidence-based interventions and promising practices in CWS. AI can also provide social workers with decision support tools that offer recommendations based on available data, research, and best practices, helping them to make more informed decisions.
    - Generative AI can assist with writing high-quality case notes or developing a blueprint for client goal-setting and treatment plans.
    - ChatGPT can also write notices that use plain language, so all clients, including youth, better understand them.
    - Social workers could use ChatGPT to brainstorm concepts for a community awareness campaign (example: “Come up with five campaigns to help county human services agencies recruit more child welfare workers”) or write business-related documents (example: “Help me write a business justification explaining why a local human services agency with high turnover needs to invest in technology to support caseworkers.”).[35]
        - ChatGPT could help caseworkers begin a brainstorm on topics such as: What community resources are available for a family that they haven’t considered before?; What medical devices could help an older adult safely navigate their home?; What’s the best care setting for an individual with certain circumstances? With each question, some of the answers likely will not apply to a client’s specific needs, so it is up to social workers to do some additional research to determine what can be filtered out.

[34] ChatGPT: Changing the Face of Human Services [Evolv Strategy Group] (August 2023)
[35] Blog-Artificial Intelligence and ChatGPT for Human Services and Social Work: Dos and Don’ts [Northwoods] (October 2023)

    - *Social Media Sentiment Analysis for Child Well-being:* AI can be used to monitor social media for signs of potential child abuse or neglect (as well as identify potential cases of cyberbullying or harassment). Sentiment analysis can help identify posts and online interactions that raise concerns and trigger appropriate follow-up actions. AI can analyze text and speech to detect signs of distress or potential issues when children communicate through various channels like social media or helplines.
    - *Semantic Video Analysis & Content Search (SVACS)*: SVACS uses machine learning and NLP to make media clips easy to query, discover and retrieve. It can also extract and classify relevant information from within the videos themselves. SVACS could assess video footage for signs of abuse or neglect, such as changes in a child or caregiver's behavior or emotional state.

- **Monitoring Families Progress:** Tracking and monitoring case plans is a very hands-on process today. Caseworkers must remember to do everything from scheduling to follow-ups, and there is a significant focus on calendars and manual inputs. AI offers the capability to integrate scheduling and notifications in one place. Traditionally, a family gets assignments and has to manually notify the caseworkers when it has been done. Then, the caseworker has to check. However, AI can now automate much of this.[36]
- **Mitigating Bias and Promoting Equity:** Another application for AI is the ability to identify and reduce bias and equity issues. AI tools can look at case trends, patterns, inconsistencies, and outliers and run tools against them. Further, it can analyze large data sets to flag inequity and bias. Some people are opposed to AI because they think bias pre-exists in the data and that making decisions based on this data could further disparities. But what if AI can help eliminate discrimination by exposing these biases?"[37]
- **Providing Chatbots and Virtual Assistants:** AI-powered chatbots (programs that simulate human responses in a conversational manner by using AI and NLP) or virtual agents/assistants may also be used to provide general information and help clients navigate the social service system.[38]
    - Chatbots and virtual assistants can provide instant information and support 24/7 to families, caregivers, and youth by answering questions, offering guidance, and referring them to appropriate resources and services. This can be particularly helpful when an actual human is not available to assist them (e.g., in after-hours situations).

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[36] ChatGPT: Changing the Face of Human Services [Evolv Strategy Group] (August 2023)
[37] Ibid.
[38] Social Work and AI: The Role of Technology in Addressing Social Challenges [Canasu Dream Foundation] (May 2023); Spooner, K. (January 2023). *Artificial Intelligence & ChatGPT*. Australian Association of Social Workers: Technology and Social Work Hub

    - Like administrative tasks, client communication can be a time-intensive, tedious, and vital component of running a successful health and human services system. It is also naturally aligned with generative AI innovation. A chatbot could also support call centers by answering simple, routine customer inquiries that do not require a human's attention or analysis, triaging non-emergency calls.
    - While many social workers and therapists may acknowledge the potential challenges brought on by this aspect of AI, AI-powered chatbots may also provide counseling or emotional support to people who might not have access to traditional therapy or may be hesitant to seek it out.[39] Chatbots might be especially useful in addressing mental health issues, where individuals may be reluctant to seek help from a human therapist due to social stigma or other barriers.
    - AI chatbots or virtual assistants can also provide support, guidance, resources, and tools to social workers, helping them to access requested information quickly and consistently.
- **Case Closure Decisions:** Child welfare agencies need to decide when it's safe to close a case. Predictive analytics can assist in making these decisions by analyzing data to determine whether the family has reduced risk factors. AI can also provide ongoing monitoring of cases, alerting social workers to changes in circumstances that may require reassessment.
- **Quality Assurance and Continuous Monitoring:** AI can assist in monitoring the quality of services provided by child welfare agencies by analyzing case records and interactions to ensure compliance with policies and best practices. Generative AI can be used to review closed cases for quality assurance and reporting.
- **Internal AI Applications within Health and Human Services Agencies:** The extensive capabilities and benefits AI presents should also be considered by Human Resources and other agency leaders to apply internally within their organizations. Some examples include:
    - Using AI to screen job applications and resumes to identify the most suitable candidates.
    - Applying AI algorithms to help personalize training curricula to workers' needs and learning preferences, helping them build the specific job skills they need to develop to be successful.
    - Implementing AI-driven assessment tools for worker skill evaluation.
    - Using AI tools to help manage the workforce efficiently by optimizing schedules and the distribution of workloads/caseloads.

[39] Lisetti, C., Amini, R., Yasavur, U., & Rishe, N. (2013). *I can help you change! An empathic virtual agent delivers behavior change health interventions*. ACM.

    - AI systems can help flag workers who have higher than average denial rates (e.g., for Eligibility Workers) or those who may need additional support or training.
    - Use AI to predict potential project risks and suggest mitigation strategies.
    - Using NLP to quickly analyze and identify key highlights from the results of employee feedback surveys.

When Using AI, What Questions Should Social Workers Ask?[40]

- How does this AI tool develop suggestions? What data was used to train the AI tool? Has data from under-represented and marginalized communities been included in the AI tool? Has the data undergone the same rigorous peer-review process as traditional research? Is the data accurate?
- Will people's privacy be respected?
- Is this AI tool the most appropriate to use in this situation?

Potential Benefits Related to the Use of AI Tools

Below is a brief summary of the key potential benefits of utilizing AI tools within social work and child welfare services (CWS). These are based on the available literature/resources reviewed for this report, in addition to results produced following a generative AI-ChatGPT-3.5 inquiry.[41]

- *Automation of routine/repetitive tasks:* AI can automate routine tasks such as data entry, paperwork, and document management, freeing up social workers to spend more time with clients and on critical decision-making.
- *Data analysis and research:* AI can assist in conducting research and analyzing data related to social issues, which can inform policy decisions and improve the overall effectiveness of social services and CWS.
- *Case management and organization:* AI tools can assist social workers in managing caseloads, scheduling appointments, and tracking client progress. This can reduce administrative burdens and allow social workers to focus more on direct client care.
- *Enhanced client communication and outreach:* AI-powered chatbots and virtual assistants can provide efficient 24/7 support and response to some client inquiries, improving accessibility to social services and reducing staff workloads due to requiring fewer human interactions.
- *Improved decision-making:* AI can help social workers make more informed and data-driven decisions by analyzing large datasets and identifying patterns and trends. This can provide an objective basis for decision-making (rather than relying solely on a social worker's subjective judgments), potentially

[40] Blog: Artificial Intelligence (AI) & Social Work [The Social Work Graduate] (September 2023)
[41] OpenAI. (2023). *ChatGPT* [Large language model].

reducing the impact of individual biases and leading to more accurate and consistent client assessments and interventions.

- *Predictive analytics:* AI can be valuable for helping CWS make more informed decisions about the safety and well-being of children. Analyzing historical data and identifying risk factors can be used to predict potential cases of child maltreatment or neglect. This proactive approach can allow social workers to intervene earlier and potentially prevent harm. This approach can also screen out lower-risk cases, reducing the investigative burden on caseworkers and allowing them to concentrate on more high-risk cases.
- *Personalized interventions:* AI can help tailor interventions and support services to the unique needs of each individual, child, or family. By analyzing a person's history and circumstances, LLM can help explore alternative strategies and interventions and efficiently suggest applicable evidence-based practices and the most appropriate interventions and resources for the case.
- *Professional development opportunities for staff:* AI can help social workers stay up-to-date with the latest research and evidence-based practices, providing access to new knowledge and resources. Generative AI even serves as a valuable tool at an international level by providing real-time translations and generating culturally sensitive messages, helping agencies and workers stay informed about global trends and emerging international issues, and fostering collaboration and knowledge exchange between individuals in different countries.[42]
- *Resource allocation:* AI can help optimize resource allocation by helping ensure that limited resources are directed where they are most needed and can have the most significant impact.
- *Cost savings*: By automating specific tasks and improving resource allocation, social services and CWS agencies can not only operate more efficiently but also potentially reduce costs. However, it should also be noted that implementing AI tools can be costly, and social work agencies may need to allocate resources for the initial investment, maintenance, and training.
- *Fraud detection:* AI tools may help identify fraudulent claims for social services benefits, reducing the likelihood of misusing resources.
- *Privacy protection:* AI can assist in safeguarding the privacy and confidentiality of sensitive information by implementing robust security measures and access controls.

Potential Challenges and Concerns Related to the Use of AI Tools

As a follow-up to the potential benefits of AI, below is a brief summary of key potential challenges, ethical considerations, and concerns related to utilizing AI tools

[42] Generative AI for Social Work Students: Part I. [Medium] (March 2023)

within social work and CWS that need to be addressed. These are based on the available literature/resources reviewed for this report, in addition to results produced following a generative AI-ChatGPT-3.5 inquiry.[43]

- *Resistance and fears:* Clients and social workers may be resistant to using AI tools, either due to fear, distrust, or a belief that human judgment is superior. It is important to remember that social workers have unique skills and abilities that AI lacks. Some agencies and staff express concerns that an over-reliance on AI tools may lead to a loss of the human-centered approach, nuanced judgment, and empathy caseworkers bring, which is essential to social work.
    - Example: A 2023 study of social workers in Finland explored AI as a means of predicting whether a child would need future emergency placement or be taken into custody. The twelve social workers involved found the tool did not consider the person-in-environment approach central to social work. The tool also ignored the possibility that people can and do depart from historical trajectories. Unlike AI tools, social workers do not view a client's future as determined by the past; rather, they support departures from it. In fact, AI cannot meet the demand for knowledge about a unique person in a specific context.[44]
- *Social worker job security:* For many sectors, the possibility of job loss due to the increased use of AI is a topic that cannot be ignored. Some social workers express valid apprehension that widespread AI integration might make certain aspects of their roles redundant or may eventually completely eliminate the need for human Social Workers. Such concerns about AI replacing human social workers can create job insecurity and potentially lead to increased resistance to AI adoption within the profession.[45]
    - In response to such concerns, The Future of Jobs Report 2020 by the World Economic Forum found that while machines with AI will replace about 85 million jobs in 2025, about 97 million jobs may emerge in the same year thanks to AI.[46] With this forecasting, the focus shifts to how humans can work with AI instead of being replaced by it.
- *Ethical and data privacy concerns:* AI tools may have access to highly sensitive and confidential client and family information, raising concerns about data security and privacy breaches. As generative AI applications rely on large data sets to inform their ability to create content and generate responses, concerns have been raised regarding the ownership, confidentiality, and privacy of the underlying data used to train AI models. Researchers have identified risks

[43] OpenAI. (2023). *ChatGPT* [Large language model].
[44] Lehtiniemi, T. (2023). Contextual Social Valences for Artificial Intelligence: Anticipation That Matters in Social Work. *Information, Communication and Society*.
[45] The Intersection of AI and Social Work: Embracing Innovation for a Better Future [Social Work AI Magic] (July 2023)
[46] Executive Summary-The Future of Jobs Report 2020 [World Economic Forum] (October 2020)

regarding client disclosures, opt-out ability, and data deletion as areas lacking clarity with the development and deployment of generative AI in health and human services.[47] Organizations must ensure that any data they share with generative tools doesn't violate the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and SOC 2 (a set of security standards for cloud-based software). This may require an intermediary to scrub and de-identify the data.[48] There are also ethical concerns surrounding the use of AI predictive analytics tools, especially in making potentially life-altering decisions about the welfare of children and families (further described below). Social worker professionals' commitment to ethical AI integration is essential for upholding the core values of social work and promoting the well-being of individuals and communities.[49]

- *Lack of transparency and accountability:* When AI systems make decisions, it can be challenging to understand how decisions are reached, or to identify who is responsible for and should be held accountable in case of errors or harm. When agencies and staff do not have a clear understanding of how AI models make decisions, this can make it challenging to explain and justify decisions to clients, colleagues, or other stakeholders. This lack of transparency can also be a significant barrier to establishing and maintaining accountability and trust. Social workers using AI tools should be able to explain to clients how this technology contributes to care, discuss benefits and limitations, and address their concerns.[50]
- *Errors and biases in AI algorithms/predictive analytics:* Predictive tools can make errors, resulting in both false positives (indicating risk when none exists) and false negatives (failing to identify actual risk). As a result of these errors, individuals and families labeled as "high-risk" based on AI tools may face stigmatization, even if the prediction turns out to be inaccurate. Researchers and community members have also raised concerns that some of the data powering child welfare algorithms may heighten historical biases against marginalized people within CWS.[51] AI systems can inherit biases from the data

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[47] How Generative AI – A Technology Catalyst – Is Revolutionizing Healthcare [Forbes] (2023)
[48] Note: OpenAI chatbot tools like ChatGPT do not provide the proper safety and assurance that the data entered is protected under privacy regulations like HIPAA. OpenAI still states in their Privacy Policy that the information one shares, as well as personal information they receive automatically when someone interacts with the tool, can be used to train its model and potentially be included in responses to other users who should not have access to that information. Source: Northwoods-Artificial Intelligence and ChatGPT for Human Services and Social Work: Dos and Don'ts [Blog] (October 2023)
[49] James, P., Lal, J., Liao, A., Magee, L., & Soldatic, K. (2023). Algorithmic Decision-making in Social Work Practice and Pedagogy: Confronting the Competency/Critique Dilemma. *Social Work Education*.
[50] Generative AI for Social Work Students: Part I. [Medium] (March 2023)
[51] An AI Algorithm Designed for Child Welfare Could Have the Potential for Discrimination and Now the Justice Department Is Looking Into It [Fortune] (January 2023)

they are trained on, which can perpetuate existing inequalities in social work decision-making. Generative AI platforms also may be at risk of producing a phenomenon described as a "hallucination," in which the generative AI model produces unrealistic or repetitive outputs that do not adequately or accurately capture the diversity of the data, which may lead to harmful results.[52]

    - Recommendation: It is crucial to take additional steps to ensure the quality and diversity of data used to train AI models mitigates bias and that the AI tools are representative of the diverse client populations served. Encouraging better representation and participation of underrepresented and marginalized communities in the AI development process will also allow professionals to support more inclusive practices and serve the unique requirements of a broad range of individuals and families.[53]

- *Moral and legal consequences:* As child welfare agencies in the U.S. consider adopting AI as part of their work with children and families, they are part of a widespread debate over the potential moral consequences of using AI in CWS and possible legal implications.[54] Critics of AI worry that including data points collected largely from low-income people can automate discrimination against families based on race, income, disabilities, or other external characteristics versus people's behaviors. Similar concerns have already emerged for existing predictive risk modeling tools developed for use within CWS.[55]
    - Example: The Justice Department has been scrutinizing a AI tool in use by a Pennsylvania child protective services agency in Allegheny County since 2016, called the Allegheny Family Screening Tool (AFST), over concerns that using the predictive risk modeling algorithm to enhance their child welfare call screening decision-making process and improve child safety, may be violating the Americans with Disabilities Act by allegedly discriminating against families with disabilities, including families with mental health issues. Because disability-related data points contribute to that score, critics suggest that families with disabilities are more likely to be targeted for investigations. The Justice Department's investigation could possibly turn a moral argument against using child welfare algorithms into a legal argument.[56]

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[52] How Generative AI – A Technology Catalyst – Is Revolutionizing Healthcare [Forbes] (2023)
[53] Generative AI for Social Work Students: Part I. [Medium] (March 2023)
[54] Child Welfare Algorithm Faces Justice Department Scrutiny [Associated Press] (January 2023)
[55] AI Tool Used to Spot Child Abuse Allegedly Targets Parents with Disabilities [Ars Technical] (January 2023); Kristensen, K. (2022). Why the Gladsaxe-model failed—on the use of algorithms on vulnerable children. *Samfundslederskab i Skandinavien, 37*(1), 27–49.
[56] Child Welfare Algorithm Faces Justice Department Scrutiny [Associated Press] (January 2023); DOJ Examining AI Screening Tool Used by Pa. Child Welfare Agency [PBS] (January

    - Allegheny County states its algorithm has used data points tied to disabilities in children, parents and other members of local households because they can help predict the risk that a child will be removed from their home after a maltreatment report. Additionally, prior racial bias and transparency concerns about the tool's data points have also been in the news. The county's 2016 external ethical analysis supported the county's use of the AFST algorithm as an "inevitably imperfect" but a comparatively more accurate and transparent method for assessing risk rather than relying on clinical judgment alone. The county describes its predictive risk modeling tool as a preferred resource to reduce human error for social workers benefiting from the algorithm's rapid analysis of "hundreds of data elements for each person involved in an allegation of child maltreatment." They also shared their efforts in continuing to refine the model based upon evaluation results, frequent analysis and ongoing feedback from call screening staff.[57]
    - The AFST has inspired similar tools used in Los Angeles County, California and Douglas County, Colorado. Oregon stopped using its family-screening tool over concerns that its algorithm may be exacerbating racial biases in its child welfare data.[58]
- *Cultural competence:* AI tools may struggle with understanding and respecting cultural nuances, which are essential components of effective social work practice.
- *Resource allocation:* Agencies relying on AI predictive analytics tools could potentially lead to agency resources being primarily allocated to higher-risk cases and an underinvestment in preventive efforts and services.
- *Validity and reliability:* The accuracy and reliability of AI tools in social work need to be thoroughly validated to ensure that they are making sound and evidence-based recommendations and decisions. LLMs are typically trained on large sets of text data, which may include sources from a wide range of authors and contexts. These sources may not have undergone the same rigorous peer-review process as traditional research publications, and LLMs might not be built on the most current available data.[59] Thus, if an AI system is

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2023); AI Tool Used to Spot Child Abuse Allegedly Targets Parents with Disabilities [Ars Technical] (January 2023)

[57] AI Tool Used to Spot Child Abuse Allegedly Targets Parents with Disabilities [Ars Technical] (January 2023)

[58] Oregon is Dropping an Artificial Intelligence Tool Used in Child Welfare System [NPR] (June 2022)

[59] Victor, B. G., Sokol, R. L., Goldkind, L., & Perron, B. E. (2023). Recommendations for social work researchers and journal editors on the use of generative AI and large language models

trained on inaccurate data with biases, generated AI responses will reflect that data in its results.

- *Need for regulatory frameworks and guidelines*: Advances in generative AI have far outpaced any government or regulatory response. There is a lack of regulatory frameworks and guidelines regarding AI systems, which are needed to ensure that AI systems are used responsibly and ethically, focusing on the best interests of individuals, children, and families. Moving forward, policymakers need to play an active role in mitigating the risks of AI regarding its capabilities and applications, as well as increasing transparency of AI tools and processes. Regular audits and oversight are also necessary to monitor the impact of AI systems and address any unintended consequences or biases that may arise.[60]
    - Example: Though regulation and policy implementation have been slow, Congress is beginning to assess ways to ensure that the AI revolution is deployed carefully and equitably. The *White House Office of Science and Technology Policy* emphasized that parents and social workers needed more transparency about how government agencies were deploying algorithms as part of the nation's first "AI Bill of Rights."[61] As stated in recent remarks (July 2023) on the floor of the United States Senate, on the topic of AI, Majority Leader Chuck Schumer (D-NY) stated: *"Government must play a role in making sure AI works for society's benefit. The private sector has made stunning progress innovating on AI, and Congress needs to be careful not to curb or hinder that innovation. But we are going to need guardrails, and the only agent that can do that is government."*
- *Reduced quality of academic research:* There is a potential for AI's large language models (LLM) to replace human expertise and judgment in academic research. While LLMs are powerful tools that can quickly generate large amounts of text, they lack the same level of critical thinking, reflection, and analysis as humans. As a result, the quality of research outputs could decrease.[62]
- *Workforce skill gaps and increased staff development needs*: Social workers and agencies may lack the necessary training and expertise to use and manage AI tools effectively.
    - Recommendation: As AI technologies evolve rapidly, users should engage in ongoing learning and development to stay current with the latest advances in AI tools, techniques, and ethical considerations.[63]

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[60] The Promise and Perils of AI in Child Welfare and Family Services (October 2023)
[61] How Generative AI – A Technology Catalyst – Is Revolutionizing Healthcare [Forbes] (2023);
[62] Devlieghere, J., Gillingham, & Roose, R. (2022). Dataism versus relationshipism: A social work perspective. *Nordic Social Work Research*. https://doi.org/10.1080/2156857X.2022.2052942
[63] Victor, B. G., Sokol, R. L., Goldkind, L., & Perron, B. E. (2023). Recommendations for social work researchers and journal editors on the use of generative AI and large language models

New Opportunities for Integrating AI into the ACF Comprehensive Child Welfare Information System (CCWIS)[64]

In 2016, the Administration for Children and Families (ACF) issued its CCWIS final rule, with CCWIS as the modern successor to the State Child Welfare Automated Information Systems (SACWIS), a "one-size-fits-all," function-based solution for managing child welfare caseloads and complying with federal reporting requirements. CCWIS provides child welfare leaders with the opportunity to improve the role and function of technology and data in child welfare to improve worker processes and practices and client outcomes. CWS agencies were encouraged to pursue flexible, modular, data-driven approaches that can be customized to support the individual child welfare practices that may be unique from state to state.

- CCWIS systems, their predecessors, SACWIS, and case management systems, in general, were designed to help child welfare organizations have a better understanding of the individuals and families they care for. However, these systems, old and new, lack the ability to make use of the unstructured data, or text, in case notes, despite the unstructured data often containing the most critical information. In CCWIS and SACWIS systems, an estimated 80 percent of the information about an individual or family is included in narrative form, creating large "blind spots" for caseworkers, supervisors, and leadership who critically need this information.
    - At the time CCWIS was issued, natural language processing (NLP) was turning a corner. New NLP technology was just beginning to show great promise in teaching machines to truly read and understand text-based data. Such advances in NLP are now available to help child welfare organizations access that narrative data and serve both their staff and their clients far more effectively and efficiently.
- Taking into account that ACF's design requirements for building CCWIS encourage combined and gives states and tribes broad autonomy in defining CCWIS functionality to address their specific needs combined with advances in NLP presents an opportunity to design systems that leverage structured and unstructured data to give case teams a complete view of the families and children in their care, measurably increase caseworker efficiencies and job satisfaction, strengthen content and streamline processes for agency reporting to the federal government, and achieve better outcomes for the children and families served.[65]

[64] A More Insightful Comprehensive Child Welfare Information System (CCWIS)-Integrating Natural Language Processing to Realize the Full Potential of CCWIS [Augintel] (July 2023)
[65] Ibid.

Examples: Companies Building AI Software For Social Services

Augintel's NLP Integration with CCWIS-Allegheny County, Pennsylvania Department of Human Services (DHS), Hawaii DHS and Aspiranet (California)[66]

- Augintel is a health and human services-focused software development company focused on solving longstanding problems with data, specifically narrative unstructured data. The foundation of Augintel's solution is a machine-learning-based natural language model, trained on decades of child welfare and other social services data for a thorough understanding of child welfare context, revealing key indicators in cases and across organizations to help save time and deliver the best care possible. They have pioneered the development of NLP in the HHS field to make narrative data accessible, searchable, and actionable for staff across the organization, from front-line clinicians to supervisors, quality managers, and leaders. Augintel is also being used to identify early warning signs, caseworker safety issues, fidelity to child welfare practice models, and critical statewide trends across cases.
- Augintel is currently working with states at all stages of their SACWIS and CCWIS journeys while also working with counties and nonprofits. Augintel supports the transition from existing SACWIS to a new CCWIS system. While CCWIS focuses on data quality, integration, and sharing across relevant sectors, Augintel states that innovative child welfare leaders will build NLP into their CCWIS, to ensure that the 80% of the data included in narrative text is also available, accessible, and utilized by the caseworkers.
    - Augintel provides three specific NLP capabilities: information extraction, entity recognition, and natural language search.
        - Augintel's NLP ingests notes in real-time and detects named entities, classifies sentences into sets of categories, and creates numerical representations capturing the semantic information contained within case notes.
        - By applying this to child welfare data, Augintel classifies text into specific categories such as risks, strengths, and SDOH. Within each category, there are many related concepts. For example, the risk category includes concepts such as substance use/misuse, domestic violence, and neglect. SDOH includes concepts such as education status, access to transportation, and income security. The same process labels people mentioned in the notes, quality issues, and best practices. This process is in real-time and applied to each sentence contained in the SACWIS or CCWIS system. Once all the data is processed, it's analyzed, summarized, visualized, and presented to users, delivering actionable insights.

[66] Ibid.

        - Concurrently, Augintel's natural language search provides the same functionality that internet search engines such as Google Search and Microsoft Edge do, but uniquely for the narrative data contained in CCWIS and SACWIS systems. Just as consumers can search for data across the internet, caseworkers can use Augintel to search for data buried in CCWIS and SACWIS narrative data fields.
- Further details on a few of the organizations Augintel worked with to build NLP into their CCWIS and reduce their administrative workload by an estimated 20% are described below.
    - The Department of Human Services (DHS) in Allegheny County, Pennsylvania, serves more than 1.4 million children and families who live in the Pittsburgh area and has long recognized the value of unstructured data in case notes. Katy Collins, DHS Chief Analytics Officer, says, "We have incredibly rich administrative data, but our caseworkers were continuing to find that so much of that rich information was buried within case notes and unstructured data." After turning to NLP to address the problem, DHS is finding access to that data is making a difference.
        - Allegheny County case teams now have a better understanding of the families they serve and are quickly able to identify risks and strengths as well as Social Determinants of Health (SDOH).
        - One important example of this is a history of drug use. Typically, it could take several weeks or months for a new caseworker or service provider to uncover this information because all the color, detail, and deeper descriptions of substance use live within the unstructured data.
        - Augintel NLP enables caseworkers, supervisors, and quality improvement staff with queries to identify the early warning signs and alert the right staff. The County is also seeing productivity results with field teams. Caseworkers estimate that using Augintel NLP saves them five hours per week that was previously spent combing through case notes for information and can now be spent focusing on more impactful tasks.
    - The Hawaii Department of Human Services (DHS) manages more than 2,500 child welfare cases annually. This work is supported by two information systems designed for managing cases, identifying and tracking the delivery of services, and satisfying federal reporting requirements. The duality of systems, staffing shortages, and aging technology made it exceedingly difficult for caseworkers to find critical information in case notes. Hawaii DHS leadership recognized this challenge and committed to moving to CCWIS. Still, they also knew that CCWIS system selection and implementation is a multiyear process,

and their problems were immediate. DHS leadership identified NLP as a technology that could address their current challenges and add significant value to CCWIS when implemented in the future.

- Hawaii DHS is now able to access case notes from both of their case management systems using Augintel NLP to digest, summarize, and present critical information that is often lost in the case notes. Previously, caseworkers had to click through notes one by one to try to find that information. Tiffany Kokoolani, a DHS caseworker, has found this helps her be more responsive. "A service provider called me and asked if the family had received services with them in the past. Usually, I would have to wait to return to the office to get into the file. But I was able to access Augintel and tell them right away."
- DHS leadership is also seeing improvements in practice, with caseworkers more motivated to put in strong notes because they know that it will be easy to go back and find them or for their manager or peer to find what they need quickly.
- As Hawaii DHS continues the road to delivering a new CCWIS, NLP will help to inform and verify the data contained in that system, including the identification of inactive cases, duplicate cases, and connected cases. Hawaii will also leverage its unstructured data to confirm or help complete structured data fields. When Hawaii DHS rolls out its CCWIS technology, Augintel NLP will adapt to the new system, building upon the data-centric goals for practice management envisioned in CCWIS while increasing CCWIS functionality.

- California's Aspiranet, a nonprofit organization with nine office locations across the state providing social services to more than 22,000 children, youth, and families across 42 locations, partnered with Augintel to apply its NLP software to improving the delivery of care and case supervision via enhanced access to case notes and data.[67]
  - This was particularly important for the social work staff delivering services in Aspiranet's Resource Family Division (RFD). Teams in RFD provide support, supervision, licensing, and case management services for several hundred foster and adoptive families and the children and youth in their care. Aspiranet engaged with Augintel to streamline case review and supervision by making the unstructured information contained in the case notes of a social worker easily accessible and digestible. Case notes and reports for Aspiranet's county partners are

[67] Case Study: California Child Welfare Nonprofit Improves Care Delivery with the Help of Augintel's Natural Language Processing Software [Augintel] (2022)

documented in Microsoft Word. Augintel's NLP scans those records and organizes and presents key insights, improving upon Aspiranet's previously laborious process of "page-by-page" case record reviews.
        - Augintel's NLP features provide social workers, supervisors, and specialists with the ability to search for specific information, surfacing critical insights contained in case notes. Augintel's cloud-based SaaS solution also means that Aspiranet teams can access all the information remotely on mobile devices.
        - Vernon Brown, CEO of Aspiranet stated, "Most of our social work case reporting can be found only in case notes. To be able to quickly scan and access case notes across multiple domains such as health, education, and family engagement has improved our review, training, supervision, and risk mitigation practices."
        - As a tool for supervision, supervisors are using Augintel to gain insights collected by their team, identifying areas needing improvement as well as best practices. Supervisor feedback indicates staff's use of Augintel has improved the quality of their social workers' notes, and they have learned to write notes to identify strengths and concerns better.
    - For additional Augintel examples and applications refer to the Augintel Resources Webpage.

Deloitte's Collaboration with Idaho's Department of Health and Welfare-Ensuring Safety and Permanency in Idaho (ESPI)[68]

- To respond to rising caseloads, decisions needed that affect child safety and family stability, and requirements to comply with national Comprehensive Child Welfare Information System (CCWIS) standards and challenges, Idaho's Department of Health and Welfare (DHW) collaborated with Deloitte to implement Ensuring Safety and Permanency in Idaho (ESPI), a CCWIS-compliant child welfare technology solution built on cloud-native Microsoft Dynamics 365 and Microsoft Power Platform.
- The department's business goals for this engagement included:
    - Managing cases and delivering services more efficiently
    - Streamlining administrative processes
    - Meeting CCWIS standards
    - Improving the department's effectiveness through data-driven decision-making
- The ESPI design leveraged existing Deloitte child welfare modules as well as child welfare best practices. This foundation made it feasible to configure a fully functioning child welfare solution that met the department's needs from the outset.

[68] Idaho Department of Health and Welfare Case Study [Deloitte US] (2023)

- Deloitte delivered the solution using an Agile methodology and a phased implementation approach, starting with intake and proceeding through other child welfare business processes—to support adoption by various user groups.
- Human-centered design guided the configuration of the solution throughout the project. Technical architecture was built on FedRAMP-compliant government cloud and, in addition to Dynamics and Power Platform, used Microsoft Azure services.
- Deloitte deployed ESPI in 24 months with three releases. Following the final release and a month-long period of after-deployment support, DHW assumed responsibility for operations and maintenance, according to plan.
- Successes included:
    - Allowed Idaho DHW to provide a modern user experience, such as mobility and a caseworker portal, and a stable, scalable cloud platform.
    - Increased caseworker ability to focus on child well-being and family engagement.
    - Optimized ongoing total cost of ownership (TCO).
    - Reduced implementation risk and supported a faster implementation timeline.

Microsoft's Leveraging of Generative AI and AI in Health & Human Services[69]

- Microsoft staff Michelle Newton (Senior Solution Architect) and Andy Pitman (Director, Health and Human Services Strategy) presented a session titled *Improving Case Management via AI* at the May 2023 American Public Human Services Association (APHSA) Conference. They focused on one of the biggest challenges in casework today: understanding a case's history quickly and accurately. Cases are ever more complex, and with caseworker turnover, making the right decisions for families in need is sometimes difficult. With generative AI, key case elements can be easily surfaced for caseworker review.
    - Via Microsoft's new Azure OpenAI Service (built on the GPT model), they introduced 'Know before you go' as a breakthrough in summarizing key case milestones.
        - 'Know before you go' provides caseworkers, supervisors, and other interested and authorized parties access to critical information, events, identification of high-risk incidents, and history of caseworker endangerment.
        - 'Know before you go' enables caseworkers to quickly pinpoint key information when time doesn't permit entire case file assessment.
        - 'Know before you go' can also be customized for any agency's policy or specific need.

[69] Microsoft & RedMane: Leveraging Generative AI and AI in Health & Human Services [Linkedin] (October 2023)

- Public Health and Social Services Solutions at Microsoft recently invited RedMane, one of its ecosystem partners, to join Microsoft in a panel discussion on the use of Generative AI (AI that can provide written, visual, and audio content from "prompts"-conversational instructions and data) in Health and Human Services (HHS). The panel took place at the October 2023 ISM + PHSA Education Conference & Expo produced by the American Public Human Services Association (APHSA) for the Information Technology Solutions Management for Human Services (ISM) and the Public Human Services Attorneys (PHSA) affinity group.[70]
    - Andy Pitman, Director of Health and Human Services Solutions at Microsoft, has observed that the most effective use of Generative AI requires an "ecosystem" approach, bringing together the best team with subject-matter experts like RedMane.
        - RedMane is a software solutions and systems integration firm that "helps health and human services organizations address their most complex challenges." Its purpose-built case management solutions seamlessly support any health and human services program, offering, among other advantages, embedded analytics, giving organizations actionable insight in real-time to improve outcomes.
        - RedMane's Director of Innovation, Paige Rosemond, explained that at the ISM and PHSA conference, Redmane featured a data insights component of its use of machine learning (ML) and artificial intelligence (AI) to provide support to child welfare services, using its own case management solution that is both "program and platform-agnostic." She also noted they are being very intentional with how they are using AI and ML.
        - "One of our primary goals is to add greater efficiencies so that workers can be in the field with the families that they're servicing. It's to enhance their ability to get the job done," said Rosemond, who served as a social worker for over twenty-five years, including as the Associate Director of Colorado's Division of Child Welfare and the Director of Child Welfare for Wake County Division of Health and Human Services, before joining RedMane.
        - Rosemond shared an example of how RedMane is using Generative AI to summarize critical information in a more accessible way so that if a caseworker is driving to a family's home and needs to know what has been happening there over the last six months, a case worker can listen to a summary of the latest information en route to the family visit.

[70] Ibid.

        - Rosemond shared some examples of how Generative AI is improving "the experiences and outcomes of not just the staff themselves, but for the families they serve."
        - "We really wanted to focus AI on supporting the overworked staff, making them more effective," said Dan Lakier, Chief Technology Officer at RedMane. "We trained the AI on contemporary concepts of best practices," explained Lakier, “to support workers throughout every interaction, so that the system is suggesting improvements, suggesting ways of doing things best."
        - "The technology is incredibly powerful, and finding the right use cases is the key," said Jeff Dolan, RedMane's General Manager for US Public Sector Business. He explained that RedMane's goal is to build a repository of good use cases where they can bring these capabilities to fruition safely and effectively.. There are a lot of opportunities for that in HHS space." He added that RedMane is focused on helping HHS agencies “meaningfully bridge that gap between the massive workloads that they have coupled with a shortage of qualified staff."
- Microsoft aims to provide technologies that empower responsible AI, AI that is transparent, reliable, and embraces enterprise standards of data protection and heightened cybersecurity.
- Refer to Microsoft's Public Health and Social Services resource page to learn more about Microsoft's Generative AI ecosystem in Health and Human Services.

Northwood’s Traverse AI in Social Services[71]

- Powered by Amazon Web Services (AWS), Traverse®is a cloud-based, commercial off-the-shelf (COTS) document management, forms management, and mobility software purpose-built for human services agencies. Traverse® uses a combination of machine learning and a social services specific ontology developed by Northwoods with industry experts to support evidence-based best practices and enable meaningful interactions with families.
    - Social Services Ontology-Northwoods social services experts apply years of frontline experience and current research into best practices, agency audits, and Child & Family Services Reviews to create social services specific concepts related to drugs, risk factors, and protective factors.
    - Machine Learning-Northwoods’ industry experts feed the concepts into best-of-breed machine learning tools and teach them to create a list of thousands of terms related to things like substance abuse, bullying, and parental resilience.

[71] Traverse-Artificial Intelligence in Social Services Explained [Northwoods] (2020)

    - Text Analytics-Using the social services terms as a guide, Traverse applies NLP to read a case file like a social services professional to provide an in-depth understanding of the past and present.
    - Enable Meaningful Interactions-Caseworkers use the information surfaced by Traverse combined with their evidence-based practices to have more meaningful interactions with families.
- Northwoods has spent years learning alongside agencies to understand how NLP and machine learning can be used in casework. In addition, as part of their ongoing innovation efforts, they are currently researching and testing potential applications for tools like ChatGPT and are exploring more about the possibilities of chatbots and generative AI.[72]
- Refer to their webpage for additional information on Traverse's ® expertise, processes, features/capabilities and customer stories.

Deloitte's Children Services Solution on the Salesforce Cloud Platform-HHS NextGen for Children Services[73]

- HHS NextGen for Children Services is a modular system built on Salesforce for administering child welfare and child care programs. It is a system that supports caseworkers so they can better support the children and families they are serving. The solution can help improve outcomes through digital engagement and collaboration capabilities and a 360-customer view that supports modern casework practices and program administration. HHS NextGen is backed by Deloitte's 20+ years of children's services implementation experience and thousands of dedicated Salesforce practitioners.
- HHS NextGen is built on the class-leading Salesforce platform; all the modern benefits of cloud technology (e.g., configurability, maintainability, and scalability) are out of the box. Furthermore, HHS NextGen adds to Salesforce a production-proven solution made specifically for Child Welfare and Child Care agencies that are ready to accelerate digital transformation.
- Solution capabilities:
    - Easily configurable modules aligned with core business functions and operations of Child Welfare and Child Care.
    - Intuitive UI/UX with a user-centric worker portal design, including public portals for mandated reporters, childcare providers, and parents.
    - Extendable with GoCase Mobile Solution for mobile and social engagement with customers and offline access for workers.
    - Built-in analytics dashboards for program integrity and workload efficiency.

[72] Blog-Artificial Intelligence and ChatGPT for Human Services and Social Work: Dos and Don'ts [Northwoods] (October 2023)
[73] Children Services Solution on the Salesforce Cloud Platform [Deloitte US] (2022)

    - Supplemented with accelerators: hundreds of baseline assets, user stories, test cases, data design, and conversion assets.

Lyssn's AI Platform for the District of Columbia Child and Family Services Agency (CFSA)[74]

- Lyssn's AI platform offers the only clinically validated AI training and quality improvement (QI) platform capable of accurately offering the insight to measure, track, report, and train on using evidence-based practices such as Motivational Interviewing and Cognitive Behavioral Therapy. Lyssn's AI is built on an extensive database of therapeutic interactions and uses evaluation tools to assess and improve fidelity to evidence-based practices.
- While most programs offer only instruction, Lyssn AI gives clinicians and others the chance to practice their skills and then receive guidance on how to improve. It provides an effective form of training: instruction, followed by practice, followed by direct feedback. The Lyssn AI platform allows comprehensive measurement and reporting not just of participation but of actual improvement in skills, as well as a comprehensive report on equity with regard to all of the population groups served by CFSA. With more than 54 metrics on everything from expressed empathy to open-ended questions to engagement, Lyssn's AI can help practitioners hone their skills while empowering organizations to support staff and programs better overall to improve patient/client engagement and outcomes.
- For the past 13+ years, Lyssn has been conducting clinical research and building the Lyssn AI platform, working hard to address bias, security, privacy, equitable access, and how AI can support humans in how they help individuals, children, and families they serve.
- Rooted in over a decade of scientific inquiry, Lyssn's technology has been validated in over 50 peer-reviewed academic publications. It is in use in clinical, social services, educational, and population health settings across the US and in the UK.
- Among the first child welfare agencies to use Lyssn's Training tools, in November 2022, the District of Columbia CFSA announced they signed on to use Lyssn's AI platform to expand the use of Motivational Interviewing in the programs it delivers and funds. Motivational Interviewing skill-building is a part of CFSA's overall commitment to increasing the use of evidence-based practices in its programs, including those funded by the Family First Prevention Services Act (FFPSA). Family First offers significant new funding for prevention services, with requirements to use evidence-based practices such as Motivational Interviewing.
    - The platform provides the agency with an affordable, easy-to-scale way to deliver Motivational Interviewing training, provide immediate

[74] Lyssn [Webpage]; DC Child and Family Services Agency to Use Artificial Intelligence in Support of Child Welfare Programs [Business Wire] (November 2022).

feedback to users, and offer detailed reporting, including reporting specifically focused on equity issues.

- The District of Columbia's CFSA represents a growing number of jurisdictions using Lyssn to support FFPSA programs. Lyssn currently supports two state-level Title IV-E Prevention Plans with its quality improvement platform, evaluating recordings to evaluate the use of evidence-based practice in actual interactions with families.

Note: This section includes selected examples, however, various other software/technology companies are providing AI NLP applications/software for social services and child welfare agencies not described above (such as Accenture, Casebook, and Unisys).

Introducing AI to School of Social Work Students

To effectively enter the conversation, social work students need real-time examples, experience, and practice to acquire the expertise required to engage with computer engineers, data scientists, and other disciplines wrestling with the opportunities and challenges of AI.[75]

- Suppose social workers wish to participate meaningfully in the infusion of AI across all aspects of human function. In that case, we will have to offer social work students and faculty a basic curriculum on the algorithm: how it works, where it is deployed and how, and what opportunities and challenges its integration presents. Existing examples include:
    - The University of Southern California's Center for AI in Society (USC CAIS) was established in September 2016 and colocates social work and computer science faculty to develop computational social science solutions, grounding research interests in real-world applications for the good of our communities. The primary goal of the USC Center for AI in Society is "to develop, test, iterate, and demonstrate how AI can be used to tackle the most difficult societal problems." They believe that a genuine partnership between computer science, operations research, social work, and community organizations can best achieve this.
        - USC CAIS is a joint venture between the USC Suzanne Dworak-Peck School of Social Work and the USC Viterbi School of Engineering.
        - Efforts include real-world intervention design and testing for real-world social and environmental problems in the United States and globally. Currently, their projects focus on seven core areas:
            - homelessness

[75] Goldkind, L. (2021). Social Work and Artificial Intelligence: Into the Matrix. *Social Work (New York), 66*(4), 372–374.

        - suicide prevention
        - substance abuse treatment and prevention
        - conservation and sustainability
        - promoting health and well-being
        - disaster planning and community resilience
        - fairness, equity, and bias
    - Their first collaborative project began with creating an algorithm to identify the most efficient peers within a social network of homeless youth for HIV prevention. How can we inform a large, potentially tangled network of homeless youth about the importance of HIV testing?
- In June 2019, the Columbia School of Social Work launched a minor in Technology, Media, and Society (EMS). The EMS minor seeks to train 21st-century social workers by providing courses, tech sector engagement, and research opportunities, as well as network development opportunities, that:
    - Raise awareness of existing and emerging technology tools.
    - Engage key stakeholders and institutions in the private, nonprofit, and public sectors involved in technology innovation, development, and policy.
    - Provide the social, conceptual, and technical fluency necessary to explore applications of artificial intelligence (e.g., machine learning, natural language processing) and other emergent technologies (e.g., virtual reality) to complex social issues.
    - Explore critical and innovative applications of media to pressing social issues.

  Students participating in the EMS minor examine how social work practice intersects with advancing technology, media, and society's most pressing problems (e.g., poverty, violence, racism, systemic bias, mental health, privacy, and safety). Their goal is to create a paradigm shift in which emergent technologies and efforts to steward public interests leverage the contributions, values, and ethics of social work. They also aim to help social work students identify their roles and contributions to emergent technology development, application, and other forms of engagement. Going beyond the infusion of ethics into technology, the course will work to ensure technology development and applications are firmly grounded in the principles of social justice, which includes integrating social work students into various technological domains.[76]

[76] Columbia School of Social Work.(2019). Launch of New Social Work Minor: Emerging Technology, Media, and Society (EMS).

Both of these initiatives showcase how Schools of Social work can invest in a future of hybrid practice by dedicating resources and faculty to developing knowledge-building that social workers will need to access to acquire awareness, skills, and confidence.[77]

Related journal articles that may also be of interest:

- Singer, J.B., Báez, J.C., & Rios, J.A. (2023). AI Creates the Message: Integrating AI Language Learning Models into Social Work Education and Practice. *Journal of Social Work Education, 59*, 294 - 302.
- Stone, C. (2023). Artificial Intelligence in Social Work Practice Education. The Potential Use of Generative AI for Learning. *The Journal of Practice Teaching and Learning, 20*(3).

Additional AI Resources for HHSAs/Child Welfare Services

- AI: A Crash Course [GovLoop] (2023)
- ChatGPT and Social Work: Be Excited, Curious, and Skeptical [The National Association of Social Workers (NASW)] (July 2023)
- Child Information Gateway: Predictive Analytics in Child Welfare [Webpage]
- Child Welfare Should Go Slow on AI [The Imprint] (July 2023)
- DataKind, a data science volunteer corps, has worked with food pantries to use historical data and machine learning algorithms to predict a client's level of dependency on the pantry. By categorizing clients based on a complex calculus of need, the organization is able to prioritize resources to intervene to avert a crisis of food insecurity before it escalates. This model could be translated across sectors and populations to improve the accuracy and efficiency of resource delivery by service organizations.[78]
- Deloitte's AI solutions in the Age of With™-Artificial Intelligence and Analytics Services [Webpage]
- Devlieghere, J., Gillingham, & Roose, R. (2022). Dataism Versus Relationshipism: A Social Work Perspective. *Nordic Social Work Research, 12*(2), p. 1-11.
- Department of Homeland Security (DHS) Looks to AI to Help Solve Child Abuse Cases [Nextgov/FCW] (October 2023)
- Generative AI Has the Potential to Transform Public Service Experiences. Will It Deliver? [LinkedIn] (July 2023)
- Govtech: Artificial Intelligence [Webpage] (2023)
- How Can AI Enhance Case Management Outcomes and Efficiency? [LinkedIn] (September 2023)
- How ChatGPT and Other LLMs Work—and Where They Could Go Next [Wired] (April 2023)

[77] Goldkind, L. (2021). Social Work and Artificial Intelligence: Into the Matrix. *Social Work (New York), 66*(4), 372–374.
[78] Ibid.

- How Policymakers Can Tackle the Complexities of AI Models [Nextgov/FCW] (June 2023)
- Improving Human-AI Partnerships in Child Welfare: Understanding Worker Practices, Challenges, and Desires for Algorithmic Decision Support [Proceedings of the 2022 ACM Conference on Human Factors in Computing Systems (CHI)] (April 2022)
- Is AI the Answer to a Better Government Experience? [GovTech] (September 2023)
- James, P., Lal, J., Liao, A., Magee, L., & Soldatic, K. (2023). Algorithmic Decision-making in Social Work Practice and Pedagogy: Confronting the Competency/Critique Dilemma. *Social Work Education*.
- Kawakami, A.,, Sivaraman, V., Cheng, HF, Stapleton, L., Cheng, Y., Qing, D., Perer, A., Wu, Z.S., Zhu, H., & Holstein, K. (April 2022). *Improving Human-AI Partnerships in Child Welfare: Understanding Worker Practices, Challenges, and Desires for Algorithmic Decision Support.* Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems.
- Lehtiniemi, T. (2023). Contextual Social Valences for Artificial Intelligence: Anticipation that Matters in Social Work. *Information, Communication, and Society*.
- Lupariello, F., Sussetto, L., Di Trani, S., & Di Vella, G. (2023). Artificial Intelligence and Child Abuse and Neglect: A Systematic Review. *Children*, *10*(10), 1659.
- Murnan, A. W., Tscholl, J. J., Ganta, R., Duah, H. O., Qasem, I., & Sezgin, E. (2023). Identification of Child Survivors of Sex Trafficking From Electronic Health Records: An Artificial Intelligence Guided Approach. *Child Maltreatment*.
- Molala, T. S., & Mbaya, T. W. (2023). Social Work and Artificial Intelligence: Towards the Electronic Social Work Field of Specialisation. *International Journal of Social Science Research and Review, 6*(4), 613-621.
- National Association of Counties (NACo's) AI Exploratory Committee [Webpage]
- National Association of Social Workers (NASW): AI and Social Work [Webpage]
- The ChatGPT Bot is Causing Panic Now – but it'll Soon Be as Mundane as Excel. [The Guardian] (January 2023)
- Generative AI for Social Work Students: Part I. [Medium] (March 2023)
- Generative AI for Social Work Students: Part II. [Medium] (April 2023)
- SACHS Literature Review: Predictive Analytics in Human Services [The Academy for Professional Excellence] (February 2016)
- Singer, J.B., Báez, J.C., & Rios, J.A. (2023). AI Creates the Message: Integrating AI Language Learning Models into Social Work Education and Practice. *Journal of Social Work Education, 59*, 294 - 302.
- Social Work and AI: The Role of Technology in Addressing Social Challenges [Canasu Dream Foundation] (May 2023)
- Social Work AI Magic: AI For Social Workers-A Social Work Revolution [Webpage]

- Stone, C. (2023). Artificial Intelligence in Social Work Practice Education. The Potential Use of Generative AI for Learning. *The Journal of Practice Teaching and Learning, 20*(3).
- Podcast: Tech Alphabet Soup and Child Welfare [The Imprint] (June 2023)
- The Use of AI in Child Welfare Services: 5 Common Concerns [Lyssn] (July 2022)
- Thomas-Oxtoby, S. (June 2023). How the field of social work is adapting to modern technologies like virtual reality, A.I. Fortune.
- Tuisku, O., Pekkarinen, S., Hennala, L., & Melkas, H. (2023). Decision-makers' Attitudes Toward the Use of Care Robots in Welfare Services. *AI & Society*, *38*(4), 1739–1752.
- Unisys: Discover the Limitless Potential of AI Technology [Webpage]
- Using Algorithms in Child Welfare: Promise, Confusion and Controversy [Child Welfare Monitor] (April 2023)

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