AI and Ethics: Ethical and Educational Perspectives for LIS

Carolin Huang, Toni Samek, and Ali Shiri

The growth of artificial intelligence (AI) technologies has affected higher education in a dramatic way, shifting the norms of teaching and learning. With these shifts come major ethical questions relating to surveillance, exacerbated social inequality, and threats to job security. This article overviews some of the discourses that are developing on the integration of AI into the higher education setting, with focus on LIS and librarianship, considers the role of LIS and librarianship in intervening in the trajectory of AI in learning and teaching, and weighs in on the place of professional LIS ethics in relation to confronting AI-led technological transformations.

Higher education is undergoing major transformations in light of developing artificial intelligence (AI) technologies, including academic analytics, student data mining, chatbots, learning management systems, emerging AI research institutes and degree programs, and of course the broad pivot to remote learning in response to COVID-19. Incentivized by the global academic enterprise and state governments, these transformations have incited much conversation on their possible societal effects. It is important that LIS programs take

a proactive and holistic interest in artificial intelligence (and machine learning or data science) directly alongside offerings and contributions in information ethics, while closely examining their own evolving local labour practices, policies, and processes. In fall 2020, the Association for Library and Information Science Education (ALISE) Information Ethics Special Interest Group, for example, was at the early stage of exploring a position statement on learning analytics with the intended potential to offer a touchstone for ALISE members to evaluate and critique the learning analytics practices of their institutions. Even before COVID-19, at the centre of many such conversations were the ethical implications of AI technologies, especially the biases that are embedded in their construction and the ubiquitous surveillance that it enables, coming at a time when the academy, including the field of

KEY POINTS:

- LIS programs, scholarship, and stakeholders have an essential role to play in intervening in AI's transformation of higher education.

- The consequences of learning analytics have become a focal point in literature on AI in higher education. The professional ethics of librarianship, grounded in concepts of social responsibility, privacy, and equity, are revealed to stand strongly in opposition to uncritical learning analytics and serve as a reminder of the social values of librarians.

- Professional ethics have been core to the LIS profession for driving critical thought and action, but there are also broader economic shifts that LIS workers must mobilize around that exceed the purview of espousing professional ethics.

library and information studies (LIS), is ramping up attention to equity, diversity, and inclusion. Stakeholders in LIS have begun to engage in these conversations in tandem with discussions on the disruptive potential of new technologies. Knowledge of the rhetorical commitments of librarianship, for example, affirmed by professional codes of ethics, helps the field of LIS be equipped for these critical discussions. In this article, we review some of these discourses on AI ethics in relation to higher education, attending to but also moving beyond professional ethics.

As we will demonstrate, conversations on AI ethics have become dominant across both public and private sectors in corporations, media, academia, and public institutions, and while the insertion of these discussions has become increasingly important, the greater structural changes on an economic level are in need of immediate attention. The broader economic shifts happening globally to higher education are integrally intertwined with the ethical implications of AI technology. Yet decisions regarding the employment of these technologies are individualized, from worker to worker, profession to profession, and institution to institution, erasing the fact that the technology-induced crises in education, employment, and ethics are provoked by the larger forces of the neoliberal economy. Without sustained attention to these broader shifts, the discourse of AI ethics can actually enable under-interrogated adoption of AI technology into the academic library and higher education setting. Mindful of these high stakes, the adoption of AI4Society as a signature research area at the University of Alberta is introduced as a recent example of a transdisciplinary academic labour initiative inclusive of LIS academics, including two authors of this article. Notably, AI4Society was launched in 2020 just as the University of Alberta began an unprecedented restructuring initiative. Initiatives such as AI4Society affirm the possibility for LIS academics to strategically engage their collaborations, academic programs, partnerships and projects in the global transdisciplinary AI endeavour with the aim of enhancing ethical education perspectives that are ever necessary to holding the higher education matrix accountable to the public good. This article argues for direct LIS academic engagement in AI scholarship as important to the educational landscape of LIS.

Context for the rise of AI development

AI development has become a global venture that has prompted mass investment of resources by countries such as the United States, China, Canada, and Israel (Horowitz, 2018; Westerheide, 2019). For instance, the media has described Canada's efforts as a distinctive ecosystem for AI development that brings together government funding, venture capital, university research initiatives, and private-sector sponsorship. The Government of Canada has invested $125 million into AI research as a part of the Pan-Canadian Artificial Intelligence Strategy 2017–2022 to help construct Canada as an international leader in AI development (CIFAR, 2017). The financial investments in AI development are unsurprising in what Morris-Suzuki (1984) once theorized as a perpetual innovation economy to describe the paradigmatic shift from material to intellectual forms of labour with the rise of software development in the 1950s and 1960s. What is distinctive about software development is that it depends on the continuous innovation of new products and production methods for generating surplus value, and on a workforce with a particular skill set that can create such

new products. This shift in production has prompted the mass commodification of knowledge and, consequently, the devaluing of intellectual labour and the increased casualization of employment, all of which define today's neoliberal economy. As Morris-Suzuki states,

> because the perpetual innovation economy involves continual alteration of productive techniques and stimulation of demand for new products, it requires a workforce which is highly flexible—easily taken up and easily discarded. It is therefore likely to be characterized by growing insecurity of employment and increased reliance by companies on a large pool of part-time, temporary and contract labour. (p. 120)

Intellectual labour for software development lowers in value so that those who never had access to specialized education in the first place are further excluded from the job market (Morris-Suzuki, 1984, p. 119). The gap between the current educational system and the increasingly technology-centred job market has been noticeable; unlike previous decades, when workers could learn to operate machines for the purpose of a job with relative ease, the knowledge needed for these fields is becoming more and more specialized, and, as a result, the wealth and skill divide is increasing (Aoun, 2017, p. 17; MIT, 2019, p. 22). A postsecondary education is not necessarily designed for, and certainly does not guarantee, a salaried job in today's contemporary economy (Aoun, 2017, p. 17), and this disparity between the education system and the job market contributes to a crisis mode in higher education, the enduring debates about vocation versus education, and the now-ubiquitous attention to performance-based funding (CAUT, 2020).

Higher education has faced a long struggle with different crises, including but not limited to university–state relations, global competition, organizational change, social inequality, ideological conflict, and financial cuts (Birnbaum & Shushok, 2001; Christopherson, Gertler, & Gray, 2014), and perhaps all these different crises culminate in the context of AI in higher education. As demonstrated by Morris-Suzuki's (1984) work on the perpetual innovation economy, new information technologies can be extremely profitable in reducing human labour costs and attracting private and public investment. Already, many universities across the world have implemented AI tools that are rapidly shifting both the teaching and learning environment and the job market. Some examples include academic analytics, which "combines select institutional data, statistical analysis, and predictive modeling to create intelligence upon which students, instructors, or administrators can change academic behavior" (Baepler & Murdoch, 2010, p. 3); data mining, which "sift[s] through data for implicit affinities and hidden patterns without a preconceived hypothesis" (Baepler & Murdoch, 2010, p. 2); chatbots, which "take a statistical approach to interpreting an incoming message and locating an appropriate response from a database of possible answers" (Gardner, 2018, para. 13); and AI learning systems, which cater the learning module to a student's performance, tracks the student's progress, and offers suggestions for improvement (D. Smith, 2013). With the growth of these tools, how these technologies contribute to the quantification of student life is of major worry (Parry, 2012). The advancement of algorithm-driven technologies, especially, has affected the educational experience from recruitment to teaching. Some postsecondary institutions, such as the University of Wisconsin-Stout, have tracking software on their websites that collects data

for admissions decisions. The software tracks the pages that one visits on the school website along with one's geographical location and then assigns an "affinity index" that estimates the visitor's level of interest. These schools are often financially struggling and are therefore seeking out students with the means to pay tuition (Parry, 2012). A study conducted by the *Washington Post* reveals that at least 44 public and private universities in the United States work with outside consulting companies to collect and analyze data on prospective students, by tracking the web activity of site users and also measuring each student's likelihood of enrolling (MacMillan & Anderson, 2019, para. 4). An American Public Media (APM) Report illuminates the growing business of predictive analytics, where a third of all all higher education institutions have bought these analytic tools and more than 30 for-profit companies are selling them (Barshay & Aslanian, 2019, para. 16).

On the teaching and learning side of the educational experience, intelligent tutoring systems, which are also growing in popularity, are transforming traditional pedagogies and allowing for distant learning. Seminole State College, for example, has been piloting an AI learning system called ALEKS, the acronym for Assessment and Learning Knowledge Spaces, which uses algorithms for the development and design of the curricula (D. Smith, 2013). The system learns what the student already knows and adapts its content based on their progress. The rationale for the use of these systems often revolves around increasing access to education and freeing up time for teachers who do not have time for one-on-one interaction (Larsson, 2019; McMurtrie, 2018). These learning systems, in and of themselves, are not deteriorative or weakening to learning and teaching objectives and can certainly leverage a socially responsible aim to increase access to education and diverse student populations. These aims, though, require expert initiatives coupled with ethically driven political will for socially responsible education and educational experience. Given the strong economical drive of producing new AI technologies, the aim and mission of a socially responsible education can be easily overlooked. Learning management systems and technologies, for instance, provide new ways of improving and enhancing learning and teaching in various educational contexts. Siemens et al. (2011) and Long and Siemens (2011), for instance, have proposed several advantages to such learning analytics tools, including early detection of at-risk students and generation of alerts for learners and educators; personalization and adaptation of learning processes and content; extension and enhancement of learner achievement, motivation, and confidence by providing learners with timely information about their performance and that of their peers; higher-quality learning design and improved curriculum development; and more rapid achievement of learning goals by giving learners access to tools that help them to evaluate their progress.

In a usability study of a learning analytics system, Ali Shiri (2016), a seasoned scholar in and proponent of the ethical use of learning analytics, found that while participants acknowledged that instructors and professors would be able to get a holistic sense of student learning experiences through learning analytics applications, they expressed concerns about issues such as privacy, misinterpretation of data by instructors, and the use of these tools as sole assessment mechanisms. The design and development of ethically responsible learning analytics applications should take into account the importance of such key principles as privacy, confidentiality, and anonymization and de-identification of user and student data.

Caution is required when people are recruited to superficially attractive solutions that have unforeseen problems or potentially ulterior motives. Many academics have attested to the limitations of these technologies in fostering dissent and critical thinking (McMurtrie, 2018), raising questions about the educational aims of higher education today and the role of AI technologies in relation to such aims. Their anxiety may be driven less by professional experience with AI systems and more by labour stress. A worry about what gets left out is that universities are in a desperate search to combat austerity measures by finding ways to cut positions held by actual administrative staff and teaching assistants (Popenici & Kerr, 2017, p. 4; Schejbal, 2012, p. 382).

Literature on the effects of AI on higher education

Many scholars are already engaging in more in-depth analysis of the transformations that AI will bring to the higher education setting. Popenici and Kerr (2017) argue that an academic perspective is especially needed for questioning the quick tendency to turn to technology for answers. They worry that the "richness of human knowledge and perspectives [will wither] with the monopoly of few entities" (p. 11). For Matthews (1992, p. 21), the role of education should be to take on a reflexive approach to technology so that the place of technology in society and conceptualizations of what makes us human are put into question. Thinking about the place of the human in an increasingly AI-oriented society has been central to the literature on AI in higher education (see Aoun, 2017; Popenici & Kerr, 2017; Stark & Hoffmann, 2019).

In a trend-and-topic analysis of published documents on Scopus on the subject of AI and ethics, Shiri (2019) found that the number of published documents peaked at 330 in 2018 and that data and information are among the key concepts in the discussion of AI and ethics. From these results, he suggests the scholarship on AI ethics is intimately linked to the already established fields of data ethics, computer ethics and information ethics. He argues that many of the data and information ethics−related themes and topics, such as privacy, confidentiality, trust, and moral principles and ethical concerns, have frequently appeared in the literature of AI and that the research and development of AI-based applications should be informed by the established scholarship and research conducted in the past 20 years. He proposes a broad thematic categorization of AI and Ethics as an area of research and scholarship shown in Table 1. As can be seen, each broad category has a specific set of related topics.

The categorization in Table 1 shows the emerging, complex, and multifaceted area of AI and ethics and its implications for various research and educational purposes, including LIS curriculum development and approaches to LIS teaching and learning.

The surge of literature on the subject in the last few years demonstrates the urgency of such subjects. Popenici and Kerr (2017) highlight some of the key concerns:

> Despite rapid advancements in AI, the idea that we can solely rely on technology is a dangerous path, and it is important to maintain focus on the idea that humans should identify problems, critique, identify risks, and ask important questions that can start from issues such as privacy, power structures, and control to the requirement of nurturing creativity and leaving an open door to serendipity and unexpected paths in teaching and learning. . . .

Table 1: Thematic categorization of AI and Ethics

Category	Sub-categories, instances, and examples
Data and information	Big data mining, data fusion, data analytics, data collection discrimination, information representation and retrieval
Economic and business	Business ethics, economic benefits, deskilling, efficiency, inequalities
Educational	Learning analytics, educational data mining, digital literacy, data literacy, teaching, curricula, research, intelligent tutoring systems
Experimental	Design, models, software, technologies, systems
Health/medical	Health and medical information, health records, consumer health information, drug information, eHealth, human genome, genetic testing, bioethics
Human intelligence, agency, and authority	Authority, autonomy, agency, cognition, emotions, decision-making, dignity
Legal, privacy and security	Copyright, intellectual property, laws, regulations, justice, security, data and information privacy
Philosophical/ethical/ moral	Ethical design, ethical principles and systems, validity, moral principles, conflicts, rights, morality
Societal, social, and public perceptions	Public attitudes, spaces, values, norms, benefits, concerns, trust, innovations, impact
Technological	Machine learning and intelligence, algorithms, intelligent information systems and technologies, agents, robots, cybernetics, software

> Maintaining academic skepticism on this issue is especially important in education, as this is an act that can be reduced to information delivery and recollection. (p. 3)

Yet whether or not AI can be an ethical project is debated amongst scholars. The more techno-optimist perspectives of this body of literature affirm that AI educational technologies can maximize student learning and engagement (Kinshuk, Chen, Cheng, & Chew, 2016; Scholes, 2016). The use of learning analytics, especially, has prompted varying responses, all of which are important to consider. For Scholes (2016, p. 946), learning analytics is not discriminatory because it only identifies differences and does not demean one group over another. Instead, she believes that the ethical dilemma lies in the negation of individuality and agency in learning analytics, where the idiosyncrasies of individual students are passed over (p. 953). For other scholars, the ethical issues lie in the inaccuracy of algorithms and the racial biases embedded within them (Barshay & Aslanian, 2019). For-profit analytics companies are not completely transparent with the programming of these algorithms and as a result, it is not known if risk is inappropriately distributed, over distributed, or under distributed (Barshay & Aslanian, 2019). In addition, beyond the potentially harmful consequences that predictive analytics may bring about, J. Johnson (2014) argues that the

very epistemological premise of data mining is flawed. Because of the strong tendency towards scientism, the data that are extracted from individuals are presumed to be certain and demonstrative of causal relations (p. 7). What follows in this uncontested acceptance of data mining is that these predictions become deterministic of reality: "Assuming that the relationships uncovered by data mining are inherently causal and reasonably certain can lead to ineffective actions and actions that reinforce rather than interdict causal mechanisms" (p. 7).

AI and library and information studies (LIS)

The issues that are engaged by scholarship on AI—discriminatory algorithms, encroachment on privacy, and threat to the current labour force—are also expressed as being of major concern to the field of LIS and the library setting (Hibert, 2019). Oliphant and Brundin (2019) state that "learning analytics raises deep philosophical questions about the nature, role, and purpose of education and the university as a social institution, and the role of academic libraries in supporting teaching, learning, and research" (p. 6). In more critical strains of LIS, the ethical implications of learning analytics are beginning to be analyzed. The most obvious issue that affects librarianship is the infringement on privacy that the use of learning analytics enables (Jones, 2019a, 2019b; Jones & Salo, 2018; Prindle & Loos, 2017). While analytics have played an essential role in facilitating vendor contract negotiations, their ulterior effects can sometimes be elided by practical concerns and interests. The collection of data on students' behaviour and their personal background without consent or clear parameters puts students under unwanted surveillance. Another concern that LIS has brought up is the threat of these technologies to the library and archives professions. Using smart information technologies to facilitate access to resources transforms the traditional relationship of librarians and archivists as gatekeepers of knowledge (van Otterlo, 2018, p. 2). As van Otterlo (2018) puts it, "algorithms are . . . becoming the ultimate curators and gatekeepers in our quest for knowledge" (p. 2). Postsecondary institutions have begun to rely on the results of learning analytics to weigh the importance of libraries on student performance (Robertshaw & Asher, 2019). Robertshaw and Asher (2019) question the promises of learning analytics, which include "demonstrating the library's value and contribution to students' educational outcomes, helping to determine students at risk of dropping out or in need of additional support, identifying and providing better services, making more efficient use of resources, and improving collections management" (p. 79). From a meta-analysis of literature on the effect of library instruction and use on student attainment, retention, and grade outcomes, they find that there are major flaws in the research design and conclusions of studies on learning analytics (p. 96). Contrary to some of the researchers of the studies they examined, Robertshaw and Asher do not believe that the data on library use directly relate to student performance, nor do they believe that such data should be used to reflect the value of libraries. They find that these studies employ incorrect statistics in addition to misinterpreting statistical results; as a result, this does not make up for the ethical concerns that come with non-consensual data collection. For Robertshaw and Asher, students are the bearers of risk in these studies and

do not even reap its intended benefits; these students are instead sites of data extraction for institutions—universities but also for-profit corporations. Given the plethora of ethical concerns that affect the library and information setting, B. Johnson (2018) argues that it is ever more important that libraries support open-source AI, teach information literacy, protect personal privacy and intellectual freedom, offer employment support as the economy drastically changes, and offer social spaces for play.

Professional codes of ethics for librarianship

In some of these discussions, scholars have turned to the professional codes of librarianship to seek guidance in confronting these technologies. In the American context, for example, Jones and Salo (2018) contend that learning analytics run counter to the ethical principles in the American Library Association's *Code of Ethics* in that learning analytics hinder intellectual freedom by tracking student behaviours, prevent students from consenting to these technologies, and enable the possible misuse of student data beyond the initial educational intent (p. 305). For instance, such statistics may not be used just for improving library services, catering to the needs of students, or demonstrating the value of libraries, but also in contract negotiations with vendors (p. 305). The lack of transparency and the idea of being watched have shaped students' behaviours (p. 303). Jones and Salo adamantly emphasize that the adoption of AI technologies must abide by professional ethics (p. 315). For them, the positions of librarians in campus data management and the wider information ecology can potentially affect the design of learning analytics. Committed to principles of intellectual freedom and privacy, librarians have the technical and conceptual expertise to help shape the trajectory of learning analytics (p. 316). Jones and Salo recommend that librarians, guided in their professional ethics, participate in the design of internal policy documents and contracts with for-profit service providers and partner institutions and consequently engage in licensing discussions with content vendors. Their role could be to ensure that vendors are transparent about the data they gather, how they use it, and how long they keep it (p. 316).

In the Canadian setting, academic librarians can advocate for supporting the cutting-edge policies affirmed by the Canadian Association of University Teachers (CAUT). There are many CAUT policies that are worthy of consideration with AI adoption, including those on Academic Freedom; Equity; Human Right to Equitable Compensation; Outsourcing; Scholarly Communication; Privacy of Personal Information; Performance Metrics; Openness and Transparency in Post-Secondary Institutions; Distance (including Online) Education; and Whistleblowers and Whistleblowing. What is of value is that these policies emphasize freedom from private interests in higher education, the right to privacy, and equity. The Policy Statement on Privacy of Personal Information, for example, makes evident the need for ethics with respect to learning analytics and higher education: "Technology that facilitates the collection, storage, retrieval and linkage of personal data and information poses a threat to the protection of privacy" (CAUT, 2011, para. 2). Similarly, the Policy Statement on Openness and Transparency reveals the ethical tensions that corporate partnerships can bring about: "The principle of openness and transparency must also apply to all contractual/business relationships that are entered into by the university or college" (CAUT,

2016, para. 5). CAUT's Equity Policy Statement points to the ultimate stakes of AI adoption as it recognizes the already existing inequality embedded in all sectors of higher education:

> In the post-secondary education environment, systemic discrimination has manifested itself in barriers to access, employment, governance, inclusion, respect, and acceptance. The result has been that particular forms of knowledge production, dissemination and pedagogy have been privileged over others, a practice that has limited the scope of academic freedom and scholarship. (CAUT, 2018, para. 2)

Librarians are thus not unguided in their encounter with new AI technologies, and if anything, they play an important role in ensuring that the needs of students are met and that such technologies are not exploitative. These foundational values that characterize librarianship—intellectual freedom, privacy, and equity—are regularly discussed as ensuring the democratic ethos of public institutions and the public good. However, given that these technological transformations are happening beyond the everyday responsibilities of librarians as a part of a larger economic shift, the question of ethics needs to move beyond mere professional statements to include practices grounded in strong economic and ideological analyses, especially when we consider that association rhetoric at the local, provincial, national, and international levels carries no enforcement authority over library administrations. In Canada, for example, rhetoric of the Canadian Federation of Library Associations / Fédération canadienne des associations de bibliothèques (incorporated on May 16, 2016, under the *Canada Not-for-profit Corporations Act* as a non-soliciting corporation) can be described as a persuasion and consensus-building tool with no enforcement power to its rhetoric, as demonstrated, for example, in its code of ethics, statement on intellectual freedom, and statement on diversity and inclusion. This Canadian example has transferability internationally, given that even the International Federation of Library Associations and Institutions (IFLA) *Code of Ethics for Library and Other Information Workers* lacks enforcement power over any institutional administration. And the vast majority of national library associations, as an example, do not actually have sanctions for violations of their respective codes of ethics. Therefore, the inevitable gap between rhetoric and reality must always be recognized, in the same way it is understood that while human rights exist, they are violated every day around the world. We can move quickly and look at where seeds are planted. On September 17, 2020, the IFLA Governing Board agreed on a new statement released as the *IFLA Statement on Libraries and Artificial Intelligence*. It calls for libraries to "responsibly use AI technologies to advance their social mission" and to support "high-quality, ethical AI research." An example given is to engage this reflection in "procurement choices: purchasing AI technologies which abide by ethical standards of privacy and inclusivity. This would reaffirm the trust of users in libraries, and send a message to the AI research field by increasing the demands for ethical AI technologies" (IFLA, 2020, para 13).

Limitations of professional ethics

In the last few years, many private corporations such as Google, Facebook, Axon, Amazon, IBM, and Microsoft have launched AI ethics boards. These corporations, in addition to AI ethics research institutes at Harvard, Stanford, and MIT, have faced backlash for the

lack of diversity in their membership (Levin, 2019). These controversies have led to a re-examination of the rise of AI ethics and its effectiveness as a discourse in actually combatting discrimination (Vincent, 2019). The problem of ethics washing, where institutions espouse concern for these issues but ignore such concerns in practice, is more and more widespread in the AI industries (Metz, 2019; Vincent, 2019). McNamara, Smith, and Murphy-Hill (2018) conducted a study to measure the effectiveness of the Association for Computing Machinery's (ACM) *Code of Ethics* on software development and found that there was no difference in effect between the study group that had access to the code of ethics and the group that did not. A genealogical analysis of professional ethics in Western society is therefore needed to understand the paradigm in which ethics is situated today.

Bloom (2017) traces the rise of ethics to the rise of neoliberalism in the 1980s, when the construction of a hyper-capitalist society helped fashion particular market subjects invested in morals of individualism (p. 6). The primary questions of his investigation include "Are these nonmarket ethics challenging the hyper-capitalism of neoliberalism? If not, how are they paradoxically strengthening this present capitalist order?" (p. 3). The sustainability of market-based values espoused by this era, defined by Bloom as efficiency, competitiveness, and individual responsibility, needed to be facilitated by what he calls "non-market ethics of neoliberalism" (p. 13). Bloom uses this concept to describe values of well-being and social justice that are exacerbated by the burdens and precarity of neoliberal social life (p. 15). Thus, for Bloom, the space of ethics is not untainted by the market but integral to its survival. The neoliberal market actually encroaches upon these non-market ethics to capitalize upon well-being and principles of social justice and sell it as a product (p. 16). Anticipating Bloom's comments, Rossiter, Prilleltensky, and Walsh-Bowers (2005) also challenge the innocent space assumed by the discipline of ethics. From a postmodern perspective, they question the underlying presumptions of contemporary ethics: that the subject has full control over their decision making and that guidelines will necessarily aid their decision making in times of conflict (p. 89). They argue that "deploying the individual practitioner as the unit of analysis and action prevents us from acknowledging and analysing the social relations of ethics" (p. 92).

This reduction of ethics is especially apparent in the AI setting, where individual actors and professions, like librarians and librarianship, are charged with the responsibility of fixing a large-scale "moral and structural failing" (Bloom, 2017, p. 16). The ethical problems that AI faces are economic ones of a global scale, and the paring down of responsibility makes the project of ethical AI an impossible one (Sloane, 2019). Nicholson, Pagowsky, and Seale (2019) hone in to the particular socioeconomic context that has given rise to learning analytics in academic libraries and higher education. They argue that learning analytics "function as a form of temporal governmentality," where time is measured in purely efficiency terms and factored into these analytics to secure a particular future and minimize risk (p. 54). Their examination of LIS documents on learning analytics reveals that such documents assume and accept the futurity presented by learning analytics without intervention or critical questioning (p. 55). Learning analytics are therefore part of the fabric of neoliberal temporality, only "emphasiz[ing] quantifiable notions of success" and dictating

the trajectory of a student as future worker (p. 68). Hence, professional ethics may not be enough to mitigate or prevent the problems brought about by AI, especially because it is a part of the wider trend of an innovation-centred economy. The practice of such guidelines is not only a hindrance to the practice of ethical AI but also a masking of the embeddedness and foundation of such technologies for an exploitative economic system.

Social responsibility beyond professional ethics

If we are to understand ethics as having an integral relationship to neoliberalism, how can librarians and LIS and other academics more broadly best participate in combating the social inequalities perpetuated by AI technologies? Beyond critical reflection on the limitations of professional ethics, there are perhaps other strategies for disturbing this impending large-scale transformation. Rossiter et al. (2005), in thinking about ethics outside of professional codes and within social relations, propose that "unconstrained dialogue is a condition for increasing the centrality of ethics" (p. 99). Ethics as a process may expand the spatial and temporal possibility of structural shifts in the form of everyday confrontation, dialogue and engagement (Rossiter et al., 2005). The concerns that come with AI, therefore, cannot be contained to professional documents and ethics boards and must be considered in relation to the financial crises of higher education today. For Bloom (2017), subverting these complex systems of power means using the problem-solving capacity fostered by neoliberalism for envisioning new structural relations (p. 149). It means rejecting funding cuts to higher education, casualization of positions in the academy, education that prioritizes efficiency over quality, and increased spending on private AI research and development. Such responses would entail that librarians participate in political movements and discourses that exceed but affect the profession. Professional ethics may be useful for decisions that minimize the harm of technological tools, but it is only a slight alleviation to the much more substantial challenge of social inequality. With this in mind, the IFLA *Code of Ethics for Library and Other Information Workers* should be closely read globally. It is a notably progressive statement with its overt coverage of urgent topics such as whistleblowing, workplace speech, and gender pay equity (IFLA, 2012). These are themes that overlap with higher education and AI. The use of the phrase "information workers" in the code's title is an important acknowledgment of labour and helps connect rhetoric to reality. But, as noted above, the code lacks enforcement authority. And as LIS academics we must be vigilant in establishing this point to students (future librarians and other information workers) in our LIS programs now. Ideally, this important issue compels LIS academics to actively address closing the gap.

With these high stakes, the AI4Society signature research area project at the University of Alberta focused on AI and its applications is a timely example of a transdisciplinary academic labour initiative inclusive of LIS academics. (The four sister signature research areas are precision health, energy systems, intersections of gender, and situated knowledges: Indigenous peoples and place.) Notably, AI4Society was officially launched in 2020 just as the University of Alberta began its unprecedented restructuring initiative under the banner "The U of A for Tomorrow." AI4Society affirms the possibility for LIS academics

to strategically engage their collaborations, academic programs, partnerships, and projects in the global transdisciplinary AI endeavour with the aim of enhancing ethical education perspectives that are always necessary to holding the higher education matrix, a matrix that reflects back to information ethics concerns, accountable to the public good.

As the AI4Society website affirms, "Over the past 30 years, the University of Alberta has consistently been ranked as one of the top three institutions worldwide for AI research and is a lead player in Canada's national AI strategy. Building on this recognition, AI4Society's goal is to stimulate interdisciplinary research and teaching in this field by supporting initiatives on Campus. We also provide continuing institutional leadership by coordinating and designing innovative training programs and representing the institution in new initiatives with public, private, and international partners" (AI4Society, 2020, para. 1–3). Within this initiative, two of the 136 researchers drawn from 14 faculties and 46 departments are from the small nine-faculty-member School of Library and Information Studies and are positioned to reinforce pre-existing shared interests with the Faculties of Education, Arts, and Computer Science, among others. These interests include amplifying AI-related research, building learning capacity for AI and machine learning, motivating engagement with the community at large, working in teams to address "grand challenge" problems (e.g., under-interrogated learning analytics), teaching and learning initiatives aimed at developing new curricular or programs in the area, collaborative activities between units within the university and beyond, and, of course, taking on projects such as, for example, this article for the *JELIS* audience.

Conclusion

In this article, we have given an overview of some of the discourses that are developing on the integration of AI into the higher education setting, with focus on LIS and librarianship. Because of the essential position of librarianship in the information economy, how librarianship approaches the major technological changes affecting higher education today will help shape the trajectory of AI in learning and teaching. The professional ethics of librarianship, grounded in concepts of social responsibility, privacy, and equity, are revealed to stand strongly in opposition to uncritical learning analytics and serve as a reminder for the social values of librarians. This is not to negate ethical AI projects in service of the public good. However, as we have demonstrated, many scholars raise doubts about the effectiveness of professional ethics in challenging the broader neoliberal forces that perpetuate social inequality. The unquestioned celebration of ethics across AI industries requires careful examination, as the phenomenon of ethics washing is rising. What librarians must remember is that an ethics grounded in an analysis of social inequality must be formed beyond professional codes and in the social spaces they occupy, within and beyond the library setting. In many instances, LIS scholars are optimally positioned to leverage their knowledge, expertise, and networks to foster and contribute to major education priorities around AI for higher education. The combination of information ethics, information science, and educational technologies built into LIS programs—and now with the fluid impact of COVID-19 on higher education—is all the more reason to identify and explore AI, ethics, and educational perspectives in LIS for the

benefit of all, with the aim to realize a closing of the gap between rhetoric and reality. It is recommended that LIS programs broadly take a proactive, holistic, and direct interest in artificial intelligence (and machine learning or data science) alongside offerings and contributions in information ethics, while closely examining their own ever-evolving local labour practices, policies, and processes.

Carolin Huang is a graduate of the MLIS program at University of Alberta and has conducted research on critical LIS. Email: carolh11@uci.edu

Toni Samek, *School of Library and Information Studies, University of Alberta*, is professor at the School of Library and Information Studies at the University of Alberta, where she works in intercultural information ethics. She currently serves on the advisory boards of Canada's Centre for Free Expression and of the International Centre for Information Ethics. Email: toni.samek@ualberta.ca

Ali Shiri, *School of Library and Information Studies, University of Alberta*, is professor at the School of Library and Information Studies and Associate Dean of the Faculty of Graduate Studies and Research at the University of Alberta, where he teaches and does research in the areas of digital libraries, data and learning analytics, and knowledge organization. He was principal investigator for Digital Library North and currently leads a cultural heritage preservation and digital storytelling project entitled Inuvialuit Voice. Email: ali.shiri@ualberta.ca

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