Training Future Faculty in Library, AI, and Data Driven Education and Research (LADDER)

The University of Texas at Austin is requesting $635,513 in IMLS funds and contributing $463,238 in Cost Share for a Laura Bush 21st Century Librarian Program Grant. This project will run from August 1, 2022 to July 31, 2025.

Project Team: PI: Soo Young Rieh, Ph.D., Professor and Associate Dean for Education in School of Information; Co-PI: Ken Fleischmann, Ph.D., Professor in School of Information; David Lankes, Ph.D., Virginia and Charles Bowden Professor of Librarianship in School of Information. Partnering Libraries: Austin Public Library, University of Texas at Austin Libraries, and Navarro Early College High School Library.

Project Justification: Libraries need to drive the future of artificial intelligence (AI) and data science research and practice. AI and data science have broad societal implications, ranging from algorithms used to review job applications to those used for sentencing recommendations. Unfortunately, these algorithms are also subject to bias, such as the gender bias found in Amazon's discarded job application review system and the racism found by ProPublica in the COMPAS system that is used by judges to inform prison sentence determinations. Given that libraries are the best environment for the general public to engage with new information technologies, with trained information professionals present to guide their use of these technologies, it is critical to ensure that future librarians receive the best education possible, which requires LIS faculty with AI and data science domain expertise and experience in the library context. We aim to educate future LIS faculty who can teach future librarians about how to best develop, apply, and use AI in libraries in ways that are equitable, ethical, and effective. We also aim to educate next generation LIS scholars who are familiar with the implications of data science in libraries and thus supports The Laura Bush 21st Century Librarian Program Goal 1, Champion Lifelong Learning, and Objective 1.2, Support the training and professional development of the museum and library workforce. By preparing future LIS faculty, IMLS's investment will pay dividends for decades to come.

Our proposed project aligns with the objective of IMLS projects such as LEADS-4-NDP – LIS Education and Data Science for the National Digital Platform (RE-70-17-0094-17) and LEADING – LIS Education and Data Science-Integrated Network Group (RE-246450-OLS-20). These important programs provide valuable learning opportunities for LIS doctoral students in data science. Our proposed project takes an alternative approach by instead selecting students who already have domain expertise in AI and data science and embedding them in the library context. Thus, our project provides a new pathway for training the next generation of LIS faculty.

In the proposed project, we will train three cohorts of future library faculty who will have expertise in the application of AI and data science to libraries. This project will increase the capacity of library science programs to educate the librarians of tomorrow by preparing cohorts of outstanding future faculty who understand both cutting-edge technology and the unique service environment of libraries. These cohorts will teach and conduct research in the library environment, ensuring librarians help to drive the conversation and debates that shape AI and data science. LIS scholars should have applied education experiences in which they will be trained across three areas of expertise: research, education, and practice. Importantly, they will engage in authentic research problems grounded in real library contexts and work collaboratively with librarians.

Project Work Plan: Any attempt to positively influence the future of formal LIS education must build a strong bridge between academia and practice. To prepare library faculty advocates, the cohorts will work on real projects in real library environments, including academic, school, and public libraries – demonstrating the power of the clinical teaching environment. Participating libraries will serve as living learning labs in which librarians and cohort members build AI-based tools and develop innovations. Libraries provide users with access to the technology used to interact with AI-based services and skilled professionals who can help them to navigate challenges such as privacy. Students will have already received training in research methods and theories during their first year of doctoral study, which will prepare them to conduct successful research projects in real library settings through their IMLS-funded Library Rotations. Following the IMLS-funded Library Rotations, students will then apply what they learn through these research and education rotations by serving first as teaching assistants and then as instructors of record. The combination of library-relevant research and education will equip them to be future LIS faculty who can drive the future of AI and data science.

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(1) Select three doctoral students per year over three years (N=9 in total). We will actively recruit and select students from underrepresented backgrounds. Our target students will be students who already have undergraduate and/or masters training in AI and/or data science, and who are interested in doing human-centered research and teaching in an applied context. Libraries are the ideal context for these students to make a direct impact through their research and teaching, ensuring that their ideas can reach the general public. Students will also be able to join Good Systems, a UT Grand Challenge, a campus-wide research initiative coordinating research and educational efforts in ethical AI, which involves the iSchool and UT Libraries.

(2) Provide triangulated education experience for doctoral students via collaborative mentoring. The doctoral committee will be formed for each student from the beginning of their doctoral program. We will give each committee member a more specific mentoring role, including a research mentor, a professional mentor, and an education mentor. Students will also receive training in research methods before starting the rotations.

(3) Adapt Library Rotations to provide research opportunities in three different library contexts. Adapting clinical rotations in medical schools, we will develop a library rotation model for students in the program, normally in their second year of doctoral study. Students will have opportunities to engage in authentic research projects, rotating across three types of library contexts: academic library, school library, and public library. From each of the three research projects, students are expected to co-write papers with Co-PIs, peers, and librarian mentors, and publish their work in scholarly and professional journals/conferences.
- Fall semester: Fellows will conduct a research project in University of Texas Libraries while collaborating with the three Co-PIs and an academic librarian.
- Spring semester: Fellows will conduct a research project in Navarro Early College High School Library while collaborating with the three Co-PIs and a school librarian.
- Summer semester: Fellows conduct a research project in Austin Public Library while collaborating with the three Co-PIs and a public librarian.

(4) Teaching Experience. Following the Library Rotations, students will be appointed as a TA for classes such as Community Engagement and Service, Introduction to Information Resources and Services, Managing Information Organizations, and Ethics of AI. After serving as a TA, students will be hired as Assistant Instructor in the UT-Austin iSchool. These students will have opportunities to teach undergraduate classes in the Concentrations in Cultural Heritage Informatics and Social Justice Informatics.

(5) Connecting the Cohort to the LIS Academy. Fellows will present at professional conferences and connect with LIS and iSchool scholars. Mentors and PIs will use their professional networks to not only ensure successful completion of their doctoral studies, but also to set them up as prime candidates for faculty positions in schools and colleges offering ALA-accredited LIS programs, given their convergent expertise in AI/data science and librarianship. We will also mentor students on how to be successful on the job market.

Diversity Plan: In recruiting doctoral students for this program, we will work to broaden participation by ensuring that students bring diverse ethnic, geographic, cultural, and socioeconomic perspectives into this program, reflecting the wide range of audiences served by public, school, and academic libraries. Specifically, we will make efforts to recruit students from underrepresented groups, including in terms of race/ethnicity, gender identity, sexual orientation, ability, veteran status, and other intersectional aspects of lived experience. We will work with partners at nearby minority-serving institutions to recruit qualified students into the program. All participating libraries serve diverse populations (e.g., 87.9% of Navarro HS's students identify as Hispanic).

Project Results: AI and data sciences are having an increased impact on communities nationwide. Librarians' proficiency with these skills and concepts is crucial to help drive that conversation in ways that will benefit society. This program will improve librarian readiness by training the trainers, and thus ensure impact with the IMLS funding that lasts for decades. The Library Rotation model developed in this program will be scalable and transferable to LIS doctoral programs nationwide, providing a new model for LIS doctoral education.

Estimated Budget: $635,513, including: $123,015 student tuition; $270,000 stipends; $29,700 benefits; $9,000 student conference travel; $13,500 librarian mentor compensation; $115,079 PI salaries and fringe benefits. IDC rate is 58.5%. Cost share $463,238 covers Teaching Assistant wages and fringe benefits for students.