Orbach Science Library, University of California, Riverside, Frontiers in Artificial Intelligence for Science, Security and Technology Initiative, RFI, November 2024.

Dr. Raymond Uzwyshyn, Director of Research Services

The University of California, Riverside (UCR) Library, as a distinguished member of the Association of Research Libraries serving an R1 research institution, proposes to establish a transformative FASST AI Implementation Hub that leverages our institution's comprehensive technological infrastructure and demonstrated excellence in advancing computational research support and service capabilities. This initiative systematically accelerates AI-readiness for university research level workforce development. It also enables interdisciplinary AI-enabled research innovation across our diverse academic scientific research community ranging from postdoctoral fellows, and research faculty to undergraduate and graduate research scholars.

Our proposed implementation synthesizes and builds on UCR Orbach Science Library's robust technological foundation. This includes a state-of-the-art Robotics Laboratory, Advanced Fabrication Makerspace, 3D Printer infrastructures, High-Performance Computing STARLAB, GIS facility, VR/XR expertise and established state-connected Research Data Management infrastructure (California Digital Library). These assets, combined with our expertise in information science and research support services position the library well to build a best in class next-generation AI Learning Commons—a FASST centered facility strategically centered within the Orbach Science Library. This will serve as a cornerstone for advancing UCR and DOE's Frontiers in AI for Science, Security and Technology (FASST) initiative.

The Commons will systematically address FASST's workforce development imperatives through a multi-tiered approach: implementing advanced training protocols for graduate researchers and postdoctoral scholars, while concurrently enabling established research faculty with comprehensive support for integrating cutting-edge AI methodologies. Our focus will encompass new AI possibilities including: AI autonomous agent architectures and emergent multimodal AI research infrastructures, seamlessly aligned with disciplinary research workflows and research lifecycle management systems.

Our implementation strategy will center on the formation of specialized teams, combining our research data scientists and AI implementation specialists with science centered domain experts. This collaborative framework will elevate and deepen our research faculty's capabilities and establish a replicable model for AI-enhanced research to drive breakthrough discoveries and innovation. A digital certificate and AI badging curriculum will also enable researchers encompassing advanced AI architectures, ethical frameworks, and discipline-specific applications, to ensure our research community gains, learns and maintains excellence for their research and preeminence through AI enablement across core scientific disciplines from Chemistry, Physics, Biology, Engineering to Medicine.

Building upon the Science Library's established partnerships with core science departments and specialized research centers, we will implement a comprehensive AI consultation service to provide expert guidance on AI model architecture selection, data preparation protocols, multimodal AI integration, autonomous agent deployment, and responsible AI governance frameworks. This initiative directly advances FASST's mission of attracting, building and retaining premier scientific talent, while positioning UCR Library as a pioneering cross-disciplinary 21st Century AI Digital Literacy center that catalyzes AI possibility for pragmatic, leading-edge world-class results.