New Funding Program to Expand UW Research on Artificial Intelligence

LARAMIE, WY – January 28, 2025 – Twelve University of Wyoming projects have been selected for seed funding for the application of artificial intelligence (AI) technologies to various areas of investigation. Support for these projects is geared to help UW achieve and sustain a high level of competitiveness for both private and public funding of faculty-led research in the burgeoning field of AI and its applications.

"The use of AI has clearly skyrocketed in just the past couple of years," said UW President Ed Seidel. "UW is now well-positioned to accelerate research to support the practical applications of AI. This program will help our faculty generate and execute competitive proposals for projects that will ultimately unlock benefits of AI for Wyoming and beyond."

The UW Board of Trustees created the Research Excellence Reserve Account in 2022 for the purpose of expanding the research enterprise through seed grants, specifically those that support areas of strategic importance to UW. The fund is designed to provide current UW faculty with financial support to conduct research and scholarly activities. Those activities are determined by multiple factors, including input by UW faculty, the Board, and emerging opportunities for external funding. In FY2024, the focus was on the application of AI in research. These current seed grants are expected to lead to competitive proposals to federal funding agencies and private sources. About \$337,000 was made available for seed grants of up to \$30,000 each. Faculty from three colleges and two schools at UW are involved in these interdisciplinary projects.

The seed-funded AI research projects and the UW faculty involved with them are:

- *"Enhancing Rural Resilience through Adaptive Learning Systems Powered by Neuro-Symbolic AI Models," Dr. Diksha Shukla* (College of Engineering and Physical Sciences)
- "A Digital Alternative to Archive Repatriation: Using AI to Make Caribbean Missionary Records Publicly Accessible" – Dr. Peter William Walker (College of Arts and Sciences); Dr. Melissa Morris (College of Arts and Sciences)
- *"HIEH: Historical Insights Engine for Humanities" Dr. Shivanand Venkanna Sheshappanavar* (College of Engineering and Physical Sciences); *Dr. Isadora Anderson Helfgott* (UW Vice Provost)
- "Migration Connectivity Analysis and Design with Topology and AI" Dr. Dane Taylor (School of Computing); Dr. Guram Mikaberidze, (School of Computing); Dr. Jerod Merkle (College of Agriculture, Life Sciences and Natural Resources); Dr. Drew Bennet (Haub School of Environment and Natural Resources)
- *"Tracking Facial Movements Using AI for Rural Telehealth Speech Therapy" Dr. Zoe Kriegel* (College of Health Sciences); *Dr. Diksha Shukla* (College of Engineering and Physical Sciences)
- "AI-Driven Decision Support for Optimizing Greenhouse Microclimates to Maximize Productivity and Sustainability" – Dr. Yaqoob Majeed (College of Engineering and Physical Sciences); Dr. Liping Wang (College of Engineering and Physical Sciences)
- "Preserving Urban Narratives: AI-Driven Visualizations of Israeli and Palestinian Street Art and Cultural Memory" – Dr. Brandon S. Gellis (College of Arts and Sciences); Dr. Lars Kotthoff (College of Engineering and Physical Sciences)
- "Accelerating Composites 3D Printing Process Modeling via Convolutional Neural Networks: toward a Digital Twin for Real-Time Printing Process Monitoring and Optimization" – Dr. Xiang Zhang; (College of Engineering and Physical Sciences); Dr. Chao Jiang (College of Engineering and Physical Sciences)

- "Assessing the potential for controlled environment agriculture to support grid balancing and reduce food costs in renewable energy futures" – Dr. Jason Kelly Hawes (School of Computing); Dr. Liping Wang (College of Engineering and Physical Sciences)
- *"Statewide AI-Driven Pronghorn Monitoring" Dr. Benjamin Bryan Koger* (School of Computing/College of Agriculture, Life Sciences and Natural Resources)
- *"Targeted Protein Design for Efficient Rare-Earth Extraction and Separation Using an Integrated AI, Computational and Experimental Framework" Dr. Utkarsh Kapoor* (College of Engineering and Physical Sciences); Dr. Karen Wawrousek (College of Engineering and Physical Sciences)
- *"Enhancing the Electronic Properties of Newly-Developed Graphitic Covalent Organic Frameworks Through Rare Earths Doping" Dr. Laura Rita de Sousa Oliveira* (College of Engineering and Physical Sciences); *Dr. John Hoberg* (College of Engineering and Physical Sciences).

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