

Montana University System
REQUEST TO PLAN FORM – ACADEMIC, ADMINISTRATIVE OR RESEARCH UNIT

ITEM 221-2012-R-1125**Meeting Date: November 2025****Item Name: Proposal to establish the Montana State University Institute on Artificial Intelligence (AI)**

Center/Institute/Unit Title: **Montana State University Institute on Artificial Intelligence (AI)**

Campus: **Montana State University (MSU)**

Expected Final Submission Date: **Jan. 2026**

Contact Name/Info: **Robert Mokwa, Provost and Vice President for Academic Affairs**

This form is meant to increase communication, collaboration, and problem-solving opportunities throughout the MUS in the center/institute development process. The completed form should exceed 2-3 pages. For more information regarding the center/institute approval process, please visit <http://mus.edu/cbe/arsa/academicproposals.asp>.

1) Provide a brief description of the new center/institute (unit)

The **Montana State University Institute on Artificial Intelligence (AI)** will be a comprehensive research, teaching, and workforce development effort to enhance discovery in research, equip and empower students to understand AI, and enable greater access and dissemination of knowledge for Montana related to AI. Central to this Institute is MSU's commitment to ethical, transparent, and responsible uses of AI that align with Montana values of honesty, stewardship, and community trust. MSU and the MUS have deep expertise in AI in our core disciplines but lack an institute to integrate and amplify this work.

The Montana State University Institute on Artificial Intelligence will build upon MSU's existing cross-disciplinary collaborations to give researchers, educators, and decision-makers the access and support needed to apply machine learning and AI methods, to conduct real-time research with the assistance of machine learning and AI technologies, to undertake long-term research on the social, cultural, and scientific implications of AI, and to share techniques for AI research across fields and disciplines.

This institute will also provide avenues for student research and workforce training, providing access to and support for state-of-the-art AI education and technology across disciplines. The Institute will collaborate with and extend the work of other centers and initiatives at MSU, such as QCORE (for quantum computing and infrastructure); Montana Agricultural Research Centers; the Center for American Indian and Rural Health Equity; the Center for Research on Rural Education; and the Center for Science, Technology, Ethics and Society.

The Montana State University Institute on Artificial Intelligence seeks to catalyze synergies in university technology transfer, business investment, innovation, MSU Extension and talent recruitment for the State of Montana. Unlike urban-based AI institutes, MSU's will be distinguished by its land-grant mission, rural engagement, and integration of Indigenous knowledge systems into AI research and ethics.

Research & Research Infrastructure: The Montana State University Institute on Artificial Intelligence will expand MSU's research capacity across scientific, humanistic, agricultural, business, and professional fields. AI does more than increase efficiency; it enables entirely new modes of discovery and knowledge creation that were previously out of reach. AI and machine learning technologies enable research that was once impossible, from analyzing historical archives at scale to modeling complex biological and environmental systems. Core technologies such as

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large language models, neural networks, and machine learning are becoming essential tools across every discipline.

To support this transformation, the Institute will:

- **Recruit faculty** in strategic areas where MSU can be a research leader serving the state of Montana and where AI aligns with Montana’s needs: mathematics; quantum computing; photonics; optics; chemistry; psychology; human-computer interaction; human-AI systems; library and information science; precision agriculture; construction and manufacturing engineering; ethics and trust; history of science; the arts; workforce trades; medicine and nursing; and creative writing. These hires will also align with Montana’s fastest growing economic sectors, including agriculture, advanced manufacturing, energy, healthcare, and precision trades—ensuring that AI research supports direct workforce and economic development in the state.
- **Invest in shared infrastructure** that enables researchers to adopt AI methods for scientific modeling, historical and linguistic analysis, data optimization, and creative work.
- **Build on existing strengths**, including the MSU Library’s AI Lab and AI Ambassadors program, which support faculty and students in applying AI tools, improving data literacy, and sharing best practices across disciplines.
- **Facilitate collaboration** so that discoveries in one field (e.g., quantum computing or materials engineering) can inform work in others (e.g., agriculture, manufacturing and construction, ecology, or digital humanities).
- **Support infrastructure** for the university in identifying and considering appropriate use of AI in internal business operations, recruiting, admissions, HR, employee services, Extension, research, teaching, communications, etc. The institute will facilitate conversations and training on how MSU can ethically and productively use AI to streamline workflows and in so doing address the challenges we are facing with hiring and retaining staff.

Curricular Innovation: The Montana State Institute on Artificial Intelligence will serve as a hub for new courses, programs, and teaching initiatives that prepare students for an economy and society transformed by AI. Our approach emphasizes not just technical fluency, but also creativity, ethical reasoning, and critical analysis.

Key initiatives include:

- **New interdisciplinary courses.** Develop and offer large-lecture introductory courses like *“Artificial Intelligence for Everyone”* (Gianforte School of Computing) and *“Being Human in the Age of AI”* (College of Letters and Science), incorporated into the Core curriculum.
- **Faculty fellowships for course development.** Enable instructors across disciplines—including library and information science—to design new courses, certificates, and graduate programs.
- **Faculty fellowships for curriculum enhancements.** Support faculty development of AI literacy learning outcomes for existing academic programs including meaningful assessment mechanisms that are discipline specific and aligned with industry needs.
- **AI literacy and ethics integration.** Expand and enhance the MSU Library’s expertise in information science and data ethics, ensuring students learn to evaluate, apply, and adapt AI responsibly.

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- **Cross-disciplinary collaboration.** Purposefully leverage MSU’s strengths in computer science, mathematics, engineering, business, education, philosophy, history, literature, linguistics, ecology, biology, chemistry, art, and applied professional workforce programs.
- **Research seed funding.** Support the development of competitive research proposals for large multidisciplinary grants from external funding agencies and foundations.
- **Outreach and engagement.** Engage with partners (private and public) to identify workforce needs, help develop curriculum around those needs, and disseminate them, including K-12 resources that are needed, particularly in rural communities.

National Conference in Bozeman, MT: In March 2025 MSU held one of the first major national conferences on “The future of research in the age of AI.” Scholars from across the U.S. showcased their research with and on AI. For example, scholars are currently using AI to make millions of records, even handwritten index cards, machine readable in a matter of minutes. AI will change, and is changing, the way researchers work, make discoveries, and achieve breakthroughs. AI is also altering the way knowledge is disseminated and consumed. We plan to host a second conference on “The future of research in the age of AI” in March 2026 and annually thereafter. Through this proposed Institute, MSU will convene the nation’s leading computer scientists, artists, humanists, and information scientists to grapple with the latest instances of AI and the implications of AI for U.S. society, politics, culture, and science.

MSU AI Fellows Program: The Montana State Institute on Artificial Intelligence will inaugurate and host a national fellows program designed to bring leading AI researchers to Montana, engage with MSU students, collaborate with MSU and MUS faculty, Montana businesses, communities, and centers.

2) Describe the need for the center/institute. Specifically, how the center/institute meets current student, state, and industry research or community engagement needs. (Please cite sources in an addendum to this document).

The Institute aims to catalyze research on being human in the age of Artificial Intelligence (AI), explore the implications of AI for the United States, and, crucially, empower communities and individuals to engage with AI technologies. This sort of empowerment is vital, particularly in rural areas of the U.S. that have historically experienced a stubborn and pervasive “digital divide”. MSU’s institutional mission for public access and engagement extends to 12 federally recognized tribal nations across 8 tribal territories in Montana. Further, MSU has one of the largest numbers of Native students of R1 universities in the U.S. and an internationally recognized program in Native American Studies. The long-term vision of the center is to provide critical research on human and AI interaction that is deeply attentive to the significant and persistent digital discontinuities in American society, economy, and politics. Montana is not only one of the least densely populated states in the U.S. but also one of the fast-growing technology hubs in the U.S. As a result, Montana and MSU are uniquely positioned to foster research on and with AI and engage in meaningful, long-term studies with rural, agricultural, mining, and Native communities among others to guide and explore the impact of AI across the full breadth of life and culture in the U.S.

3) Describe how the center/institute fits with the institutional mission, strategic plan, and the existing MUS and institutional portfolios (refer to the most recent institutional Academic Priorities and Planning Statement).

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MSU's central mission is as a land-grant university focused on advancing scientific, humanistic, agricultural, business and professional knowledge for the benefit of communities and people in the State of Montana. Additionally, MSU Extension serves every Montana county and reservation, while serving as a vital catalyst for bridging the AI divide in rural Montana.

Leading MSU researchers have conducted creative exploration and experimentation on AI for more than three years in fulfillment of the Choosing Promise strategic plan Goal 2.1 "Enhancing the significance and impact of the scholarship" and Goal 2.2 "Expand interdisciplinary scholarship." To this end MSU has secured more than \$20 million in research funding on AI from external grants, including six major grants from the National Science Foundation. Current funding for AI includes research underway at MSU in Mathematical Sciences, Earth Sciences, Political Science, Materials Engineering, Computer Science, and through SMART FIRES (Sensors, Machine-Learning, and Artificial Intelligence in Real-time Fire Science), an NSF-funded statewide collaboration based at MSU.

Because AI is generating new knowledge across nearly every field and because AI is simultaneously intervening in the dissemination and distribution of knowledge and scientific discovery, MSU Library has provided strategic leadership for the development of AI tools, analysis, and literacy and recently opened an AI Lab with AI Ambassadors to support teaching and research. MSU's Center for Science, Technology, Ethics & Society is pioneering research on trust and the ethics of AI. Scholars at MSU in Education are engaging community partners, such as the MAPS Media Institute's Fort Belknap Program and tribal colleges to identify needs with respect to AI and digital data sovereignty and co-produce resources.

The Montana State Institute on Artificial Intelligence will coordinate MSU's prodigious research, teaching, and service initiatives on AI and align research on AI with MUS priorities, the current MSU Strategic Plan, and MSU's Institutional Academic Priorities and Planning Statement: 2025-26.

4) Describe any opportunities for collaboration you have identified or initiated either within the institution or between MUS institutions (i.e. articulation, course-sharing, research collaboration). Include potential contacts and their institutional affiliation.

The Institute builds on significant collaborations within MSU, with MUS institutions, and with other partners in the State of Montana and beyond. The potential partners at MSU have identified core areas of research and curricular collaboration. These include Human-AI interaction, ethics and philosophy of technology, digital humanities, cybersecurity, machine learning, research analytics, bridging the rural digital divide, and AI pedagogy. The MSU partners have started to collaborate on the development of two large lecture introductory courses: "*Artificial Intelligence for Everyone*" (led by Gianforte School of Computing) and "*Being Human in the Age of AI*" (led by the College of Letters and Science). Additionally, MSU Library is the lead in participating in an Ithaka S+R cohort in 2025-2026 that, with 58 other cohorts across North America, is working to identify how libraries and other university units can weave AI literacy into their existing operations, leveraging programs or initiatives that center on information, digital, or meta-literacy.

The core MSU partners and faculty include:

- **College of Engineering and Gianforte School of Computing:** Laura Stanley (HCI), Faraz Dadgostari (Human-AI systems), Neda Nazemi (deep neural networks), John Sheppard (AI and machine learning), Mike Wojnowicz

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(probabilistic machine learning), Brad Whitaker (ECE, machine learning, precision ag, audio signal processing, etc.), Stephanie Wettstein (AI needs/usage, workforce development) and Jennifer Brown (AI needs/usage, workforce development).

- **College of Letters and Science:** Breschine Cummins (Mathematical Sciences, machine learning), Will Fassbender (English, writing and AI), Marianne Cowherd (Earth Sciences, machine learning and AI), Bonnie Sheehey (Philosophy of technology), Michelle Miley (English, rhetoric and AI), Kristen Intemann (Philosophy, trust, ethics of AI), William Thomas (History, digital humanities and AI – Dean, CLS).
- **College of Agriculture:** Paul Nugent (Autonomy in Agriculture & machine learning in research & programming with AI), Anish Sapkota (machine learning for crop/soil management & C sequestration, and Sensing in Ag), Ricardo Pinto (AI for ag automation and crop management), Dr. Michael Walach (Remote & Autonomous Aircraft Systems and Computer Aided and Industrial Machining and Manufacturing), Jennifer Lachowicz (Machine learning in plant phenotyping).
- **MSU Library:** Jason Clark (research analytics and machine learning), Scott Young (user interface), Sara Mannheimer (data and ethics), Taylor Moorman (AI and learning), Nathan Lee (research optimization and programming), Doralyn Rossmann (metadata and optimization – Dean, MSU Library).
- **Department of Education:** Nick Lux (technology and AI pedagogy), Jason Cummins (Apsáalooke, leadership and AI education).
- **Mark and Robyn Jones College of Nursing:** Elizabeth Johnson (big data, AI utilization, workforce development).
- **MSU Center for Science, Technology, Ethics & Society:** A center focused on integrating ethical and social issues into research grants.
- **School of Architecture:** James Park
- **School of Art:** William Culpepper (healthcare design), Minjee Jeon (also interactive design scholarship) Jeffrey Conger
- **MSU Extension:** Extension offices and agents serve every reservation and county in Montana helping to address the digital/technology divide in rural MT while uplifting local and indigenous knowledge.
- **Gallatin College:** Industry engagement and K12 connections, including dual enrollment and career pathways.

Other partners include:

- **MAPS Media Institute:** A statewide nonprofit for media arts education for youth across Montana.
- **The American Computer and Robotics Museum:** A Bozeman-based cultural resource.
- **American Historical Association (AHA):** This partnership with one of the largest scholarly associations (10,500 members) provides a discipline-wide opportunity to engage with the implications of AI in humanities research, scholarship, teaching, and professional training.

5) Describe any significant new financial resources (staff and/or facilities) needed to launch and sustain the center/institute. How do you anticipate supporting this new center/institute/unit

The Montana State Institute on Artificial Intelligence will attract external grants for research. Financial resources to support the Institute will be derived from a variety of sources including external research (NSF AI Institutes, USDA for precision ag, DoD/DOE) foundation grants, major tech foundations, IDC investments and institutional strategic investments and donor support. We anticipate funding the institute using a phased approach. When the Institute is fully developed, we anticipate funding will be acquired to provide support for the following major areas of emphasis:

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- **Leadership and staff:** \$250,000 total including 175,000 in salary and benefits for director or co-directors; \$75,000 in business operations staff and other staff support.
- **Operations:** \$50,000 in office support, rent (if needed), furniture, and supplies.
- **Facilities:** The Montana Institute for Artificial Intelligence will be housed in a location that allows for an interdisciplinary nature and shared sense of ownership. The soon to be completed Gianforte Hall building may provide initial space for the Institute at minimal additional cost.
- **Faculty Hiring:** Investing in an interdisciplinary cluster hire across programs, approximately 10 positions.
- **Research and Research Infrastructure:** Investing up to \$1,000,000 in the first three years for research grants for faculty fellows and graduate research assistants across MSU.
- **Curricular Innovation:** \$50,000 for faculty fellowship teaching program to create new courses, certificate programs, and interdisciplinary graduate programs.
- **National AI Conference:** \$25,000 for visiting speakers, accommodation and travel, events and facilities for 100-150 participants.
- **MSU AI Visiting Fellows Program:** \$150,000 for 2 or more MSU AI Visiting Fellows a year to support salary stipend, travel, research, and short-term residency at MSU for leading scholars from across the US working on AI to engage with MSU graduate and undergraduate students, faculty, and professional staff.

Signature/Date

Chief Academic Officer:

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Chief Research Officer:

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Chief Executive Officer:

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Flagship Provost*:

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Flagship President*:

*Not applicable to the Community Colleges.