Applied Artificial Intelligence (AAI)

Courses

AAI 2299 Experimental Course: 1-6 semester hours.
The content of this course is not described in the catalog. Title and number of credits are announced in the Class Schedule. Experimental courses may be offered no more than three times with the same title and content. May be repeated. D

AAI 4410 Fundamentals of Applied AI Systems: 3 semester hours.
This course introduces students to practical applications of Artificial Intelligence (AI) in domain-specific workflows. Students will learn to use AI platforms, pre-built models, and APIs for tasks such as prediction, classification, and pattern recognition. Topics include the AI project lifecycle?problem formulation, data preparation in Python, model selection, validation, and interpretation. The course also covers neural networks, deep learning concepts, and MLOps principles for deploying and maintaining AI systems. Emphasis is placed on responsible AI use, including bias, reliability, and security considerations. Hands-on labs and projects provide applied experience in leveraging AI to support analysis and decision-making. D

AAI 4420 Secure and Trustworthy AI Systems: 3 semester hours.
This course focuses on the principles and practices for building reliable, secure, and ethical AI systems. Students will delve into the vulnerabilities of AI models, including adversarial attacks, data poisoning, and model inversion. The curriculum covers techniques for enhancing model robustness, fairness, and transparency. Key topics include privacy-preserving machine learning, differential privacy, and federated learning. Students will also explore the landscape of AI governance, including US federal, state, and international regulatory compliance and the implementation of responsible AI frameworks to ensure accountability and mitigate societal risks. Through practical exercises, participants will learn to conduct security assessments and implement defensive measures for AI systems. PREREQ: AAI 4410 D

AAI 4450 Capstone in Applied AI Systems: 3 semester hours.
This capstone course provides students with the opportunity to synthesize and apply knowledge gained from the Applied AI Systems program in a real-world, industry-partnered project. Students work in teams to design, implement, and evaluate AI-driven solutions to practical engineering challenges, moving through all phases of the project lifecycle: ideation, requirements definition, prototyping, development, deployment, and assessment. Emphasis is placed on collaboration with an external industry partner, professional communication, ethical and societal considerations of AI, and demonstrating technical competence in applied AI methods. PREREQ: AAI 4410 D

AAI 4498 Special Topics in Applied AI: 1-8 semester hours.
This course covers special topics in Applied Artificial Intelligence. D

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