SCHOOL OF
INFORMATICS, COMPUTING, AND ENGINEERING

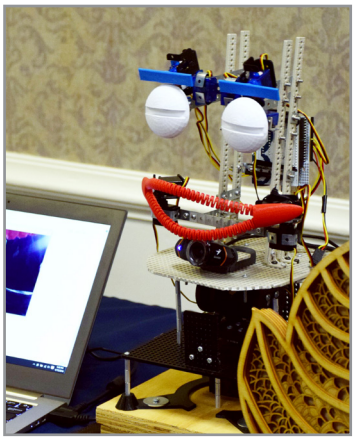
Artificial Intelligence

Computers can now defeat the best humans in complicated games like Chess, Go, and even Jeopardy. But despite some 70 years of active research, computers still lack the general intelligence and capabilities of even a small child. Artificial Intelligence research at Indiana University includes diverse faculty and students investigating a wide variety of areas, problems, and approaches about artificial systems that perceive, understand, learn from, react to, and interact with the world around them.

https://sice.indiana.edu/research/research-areas/artificial-intelligence.html

Audio and Language

Recognize speech and music in noisy environments, and on low-power devices. Understand spoken and written human natural language.

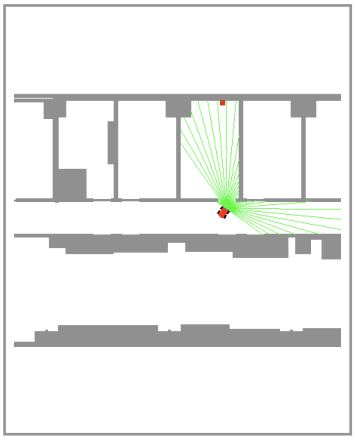


Robotics

Design and develop robotic systems that naturally learn from and interact with humans and the environment. Study the social and ethical implications of robots in the home and workplace.

Cognitive Science

Develop and analyze computational and mathematical models of living systems.

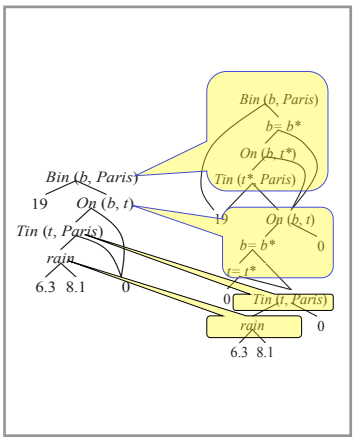


Planning

Develop algorithms and systems that act in their environment to optimize long term reward.

Computer Vision

Create techniques to recognize objects, scenes, and activities in images and videos.



Knowledge Representation and Inference

Develop general methods that can represent both logical and probabilistic information about a problem and use this information effectively to infer other properties of the same problem.

Faculty

Yong Yeol Ahn Ph.D. Physics
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Research areas: clustering, neuro-linguistic programming, neural network and cognitive science, machine learning applications

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Research areas: artificial life, evolutionary robotics, embodied cognition, and computational neuroscience.

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Research areas: philosophy of AI, political economy of computing, human-computer interaction.

Douglas Hofstadter, Ph.D. Physics
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Research areas: computational models of human thought, creativity in art and music, and philosophy of mind and consciousness.

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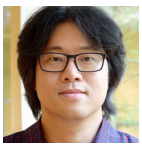

Minje Kim, Ph.D. Computer Science
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Research areas: human-robot interaction, computing culture and society, human centered computing, cognitive science, interactive and intelligent systems, proactive health informatics, and human computer interaction.

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Research areas: programming languages, probabilistic programming, artificial intelligence, semantics, and cognitive science.

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Research areas: bioinformatics, cheminformatics, datamining, and data science.

Donald Williamson, Ph.D. Computer Science and Engineering
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Research areas: speech processing, machine learning, artificial intelligence, and music informatics.

Justin Wood, Ph.D. Psychology
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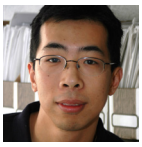
Research areas: biologically-inspired artificial intelligence, computer vision, interactive and intelligent systems, computational neuroscience, developmental psychology.



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Research areas: interactive intelligent systems, cognitive science, and developmental psychology.

Centers, groups, and labs associated with Artificial Intelligence:

- Center for Algorithms and Machine Learning — caml.indiana.edu
- Computational Cognition and Learning Laboratory — indiana.edu/~dll
- Computer Vision Lab — vision.soic.indiana.edu
- R-house Living Laboratory for Research in Human-Robot Systems — https://r-house.sice.indiana.edu/
- Signals & Artificial Intelligence Group in Engineering — saige.sice.indiana.edu
- Vehicle Autonomy and Intelligence Lab — vail.sice.indiana.edu

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