

Graduate Programs in

# Artificial Intelligence, Computer Vision, and Control

ARMOUR COLLEGE OF ENGINEERING AT ILLINOIS TECH

## Department of Electrical and Computer Engineering

(<https://engineering.iit.edu/ece/about>) offers the *Master of Engineering in Artificial Intelligence for Computer Vision and Control*. The program curriculum is taught by the world renowned and distinguished faculty members in the ECE Department. Artificial intelligence has become a valuable and important catalyst for other technologies such as the Internet of Things and cyber physical systems. Students will gain maximum exposure toward the very fast-evolving AI technologies, machine learning, and methods while particularly targeting electrical and computer engineering topics such as computer vision, medical image diagnosis, power system distribution, robotics, and automation.

Illinois Tech's Master of Engineering in Artificial Intelligence for Computer Vision and Control will prepare students to overcome challenges in the field of core AI framework; signal and image processing and computer vision; control systems, embedded systems, integrated circuits; and VLSI including neuromorphic computing, network, communication and information systems, power systems, and robotics.

Our Chicago location provides students access to a range of opportunities to conduct research and explore professional and cultural pursuits.

## Degrees Offered

*Master of Engineering in Artificial Intelligence for Computer Vision and Control (M.A.S.)*

## Research Focus and Strengths

The ECE Department has two research centers and 13 research laboratories. These research laboratories support work in Internet of Things, cyber-physical systems, embedded computing, cyber security, cloud computing, data mining, automation and robotics, machine vision and image processing, artificial intelligence and deep learning, computer-aided design, VLSI (very large-scale integration), SoC (system-on-chip) design, communications, computer networking, wireless networks, network security, medical imaging, signal processing, ultrasonic imaging and communications, microwave electronics, power systems, smart micro grids, power electronics, and electrification.

The Galvin Center for Electricity Innovation boasts Illinois Tech's microgrid technology, cyber-secured power distribution system, and sustainable energy. The Medical Imaging Research Center designs and builds devices, software tools, and algorithms for medical imaging application.

## Degree Program Curricula

The Master of Engineering in Artificial Intelligence for Computer Vision, and Control requires a minimum of 30 credit hours. This degree requires a minimum of 10 courses:

- Five core courses.
- Elective courses may be selected with advisor approval.
- No thesis required.

## Core Courses

- ECE 437 Digital Signal Processing I or ECE 569 DSP II
- ECE 481 Image Processing or ECE 565 Computer Vision and Image Processing
- ECE 438 Control Systems or ECE 533 Robust Control
- ECE 563 Computational Intelligence in Engineering or ECE 566 Statistical Pattern Recognition
- ECE 441 Microcomputers and Embedded Computing Systems or ECE 442 Internet of Things and Cyber Physical Systems
- CS 480 AI Planning and Control or CS 584 Machine Learning

## Elective Courses

- **Signal and Image Processing Courses (select minimum 1 course):** ECE 437, ECE 481, ECE 508, ECE 511, ECE 535, ECE 563, ECE 565, ECE 566, ECE 567, ECE 569.
- **Computer Engineering Courses (select minimum 1 course):** ECE 441, ECE 442, ECE 449, ECE 517, ECE 518, ECE 520, ECE 528, ECE 545, ECE 585, ECE 587, ECE 597, CS 480, CS 584.
- **Power and Control Engineering Courses (select minimum 1 course):** ECE 411, ECE 438, ECE 505, ECE 512, ECE 533, ECE 537, ECE 549, ECE 550, ECE 551, ECE 552, ECE 555, ECE 557, ECE 558, ECE 560, ECE 563, ECE 564, ECE 579, ECE 580, ECE 581, ECE 582.

For additional information contact Ms. Joannette Catino: [catino@iit.edu](mailto:catino@iit.edu)

## Admission Requirements

Admission to the graduate program normally requires a Bachelor of Science degree in electrical, or computer engineering from an institution accredited by the Accreditation Board of Engineering and Technology (ABET). Students with a Bachelor of Science degree in engineering or science may apply for this program. Deficiency courses will be required for students who have not taken prerequisite or equivalent courses of the following: ECE 242 (Digital Computers and Computing), ECE 308 (Signal and Systems), and MATH 374 (Probability and Statistics). A student may demonstrate proficiency by successfully completing the courses or by demonstrating satisfactory performance in one or more special examination administered by the department.

- Cumulative undergraduate GPA 3.0/4.0.
- International students may require GRE and TOEFL. Please see the following link for more information: <https://admissions.iit.edu/graduate/apply/gre-requirements>

## Contact

If you have questions regarding admission to Illinois Tech, contact Graduate Admissions at [grad\\_admission@iit.edu](mailto:grad_admission@iit.edu). Learn more about application fee waivers, and how to schedule a campus tour and meet with faculty, at <https://admissions.iit.edu/graduate/visit>

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