CONTROLS

OVERVIEW

The Controls concentration deals with modeling and manipulating the world. Specific applications include autonomous robots like autopiloted cars and aircraft, power systems like the electric grid, assistive devices like active prosthetics and exoskeletons, and biological systems like chemical reactors and brain-machine interfaces.

AREAS OF IMPACT

- Air & Space
- Computing, Data, and Digital Technologies
- Health and Medicine
- Robotics and Manufacturing

WHAT RESEARCH OPPORTUNITIES ARE AVAILABLE TO UNDERGRADUATES IN THIS CONCENTRATION?

At UW ECE, there are opportunities in robotics, human/machine and human/computer interaction, systems and synthetic biology, data science and machine learning (foundations and algorithms).

To get involved, look at websites, videos and papers by researchers in the area and reach out to faculty and students who work on projects you find interesting.



STUDENTS MIGHT BE INTERESTED IN THIS CONCENTRATION IF THEY ENJOY:

The intersection and interaction between math and computing—creating mathematical models of the world using differential equations, linear algebra, algorithms from optimization and machine learning, and then using those models to design control mechanisms.

WHAT CLASSES OUTSIDE OF ECE WILL HELP STUDENTS LEARN RELATED AND USEFUL SKILLS?

- AMATH courses on Dynamical Systems, Optimization, and Numerical Analysis
- CSE / STAT courses on Statistics, Machine Learning, Artificial Intelligence, and Algorithms

WHAT KIND OF INTERNSHIPS DO STUDENTS PURSUE?

- Automobile, aeronautic and astronautic industries (i.e. car, plane, and rocket manufacturers)
- Robotics and assistive devices (i.e. delivery drones, telepresence robots)
- Data science and predictive analytics (i.e. software companies that analyze big data)

WHAT KIND OF PROJECTS DO STUDENTS COMPLETE IN THEIR CAPSTONE?

- Automobile, aeronautic and astronautic projects
- Robotics and assistive devices
- Data science and predictive analytics



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DO STUDENTS NEED A GRADUATE DEGREE SPECIALIZING IN THIS AREA TO BE MARKETABLE IN INDUSTRY?

No. Although a graduate degree is always an option, students can easily get a good job with only a bachelor's degree.

WHAT KINDS OF JOBS DO STUDENTS GET AFTER GRADUATING?

- Control System Engineer (Blue Origin, Boeing, SpaceX, chemical processing industry)
- Robotics Engineer (Amazon, Boston Dynamics, Intuitive Surgical, iRobot, Kuka, ABB, automotive industry))
- Data Science / Machine Learning / Artificial Intelligence Software Engineer (Amazon, Facebook, Google, Microsoft)





QUESTIONS? Contact us at: undergrad@ece.uw.edu or attend a prospective drop in session: *bit.ly/eceadvising*