College of Engineering and Science
Smart and Autonomous Vehicle Graduate Certificate

Program Summary
The Graduate Certificate in Smart and Autonomous Vehicles (SAV) provides students and practicing engineers the technical skills and systems knowledge needed to be effective contributors to the development of self-driving vehicles and Advanced Driver-Assistance Systems (ADAS). The certificate exposes students to the broad component areas of motion capability, sensing and perception (with a focus on computer vision), mapping and localization, and algorithms for control and cognition.

The courses composing the SAV Certificate have been developed by Detroit Mercy faculty over several years and have emerged out of their research and our award-winning vehicle development program. Detroit Mercy student teams have regularly participated, and occasionally won, the Intelligent Ground Vehicle Competition. SAV courses deploy the most current technologies, strategies, methods, and tools emerging from universities, corporations, and national laboratories.

Admission Requirements
Requires an undergraduate degree in engineering or science, or five years of relevant professional experience (in addition to permission of the program director). SAV Certificate can be pursued as a stand-alone certificate, or its course scan be applied to the pursuit of one of four master's degree programs within Detroit Mercy's College of Engineering and Science. Also, SAV Certificate can be completed in one calendar year. Apply Online

Certificate Requirements
The program consists of three core courses, plus two electives, and includes a significant amount of applied, project-based work to accompany the theory taught in the classroom. The certificate program can normally be completed in one calendar year.

Core Courses (Must take all three, 9 credits total)
- ELEE 5200: Autonomous Mobility Robotics 3 cr. hrs.
- ELEE 5700: Controls II 3 cr. hrs.
- ELEE 5920: Image Processing and Computer Vision 3 cr. hrs.

Elective Courses (Choice of two, 6-8 credits)
- ELEE 5000: Hardware Software Integration 3 cr. hrs.
- ELEE 5400: Computational Intelligence 3 cr. hrs.
- ELEE 5620: Random Variables and Random Processes 3 cr. hrs.
- ELEE 5685/5695: Wireless Sensor Networks and Lab 4 cr. hrs.
- ELEE 5770/5790: Embedded Systems and Lab 4 cr. hrs.

Other courses by permission of the Graduate Programs Director

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