

Nume cadru didactic:

Nr.crt.	Titlu lucrare	Scurta descriere	Cerinte	Nivel (licenta/master)
1	Two-Wheel Balancing Robot	Literature review of suitable solution, development and implementation of an two-wheel robot using myRio Embedded Device on the principle of the inverted pendulum	Labview, C/C++, FPGA, CAD	Licenta/master
2	Development of an image processing algorithm using simulated images of the traffic infrastructure for ADAS and Autonomous Driving	<i>Thesis subject in collaboration with Porsche Engineering.</i> Literature review of suitable solution, development and train an algorithm(s) with simulated data, algorithm(s) test and validation in simulation environment, algorithm(s) test with real camera data, documentation.	Machine learning knowledge, Matlab, Python, TensorFlow, OpenCV or similar	Licenta/master
3	Development of an object tracking algorithm able to process LiDAR measurements and extract useful information for ADAS and Autonomous Driving	<i>Thesis subject in collaboration with Porsche Engineering.</i> Literature review of suitable solution, development and train an algorithm(s) with simulated data, algorithm(s) test and validation in simulation environment, algorithm(s) test with real LiDAR data, documentation.	Machine learning knowledge, Matlab, Python, TensorFlow, ROS or similar	Licenta/master
4	Develop an object tracking algorithm able to process	<i>Thesis subject in collaboration with Porsche Engineering.</i>	Machine learning knowledge, Matlab, Python, TensorFlow, ROS or similar	Licenta/master

	RADAR measurements and extract useful information for ADAS and Autonomous Driving	Literature review of suitable solution, development and train an algorithm(s) with simulated data, algorithm(s) test and validation in simulation environment, algorithm(s) test with real RADAR data, documentation.		
5	Development of signal processing and object recognition algorithm able to process ultrasonic sensor measurements and extract useful information for ADAS and Autonomous Driving	<i>Thesis subject in collaboration with Porsche Engineering.</i> Literature review of suitable solution, development and train an algorithm(s) with simulated data, algorithm(s) test and validation in simulation environment, algorithm(s) test with real ultrasonic data, documentation	Machine learning knowledge, Matlab, Python, TensorFlow, ROS or similar	Licenta/master
6	Cloud-edge architecture for robots	Literature review of suitable solution, development and implement a cloud-edge architecture using microservices and big data processing platform	Cloud computing, OOP, Kubernetes, Cassandra, Hadoop, Spark	Licenta/master
7	Securing Cloud applications	The thesis aims at developing an innovative Windows wrapper for a Filesystem in Userspace (FUSE) with an HDD firewall resorting to the hardware built-in capabilities, and the software libraries, of the SEcube™. The system developed will then be combined with a file-sharing	C/C++, middleware and SDKs for microcontrollers, knowledge about cybersecurity primitives and methods and network-based communication, Cloud computing	Licenta/master

		system (e.g., Dropbox) to deliver a powerful secure and reliable cloud system.		
8	Secure environment in order to enable a real-time message system	Develop a key and configuration manager for user profiles for the security gateway and proxy application. The system can then be combined with instant messaging (IM) and groupchat server (e.g., Openfire) to develop a secure real-time messaging system.	C/C++, middleware and SDKs for microcontrollers, real-time messaging and XMPP-based servers, knowledge about cybersecurity primitives and methods and network-based communication	Licenta/master
9	Remotely Operated Car with Live Camera Feed	Literature review, Create and develop an Android operated robot	C/C++, Matlab, NodeJs, RaspberryPi	Licenta/master
10	IoT in E-Health	Develop an instrument in order to monitor the vital signs of a patient	electronics, embedded programming skills	Licenta/master
11	Secure enviromnet for data in rest and data in motion in an healthcare system	Literature review, create and implement a secure environment based on SECube, security process for data in rest and data in motion	C/C++, middleware and SDKs for microcontrollers, knowledge about cybersecurity primitives and methods and network-based communication, Cloud computing	Licenta/master