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Nr. crt.	Titlu lucrare	Scurtă descriere	Cerințe	Nivel (licență/ master)
1, 2	Mapping radio bandwidths with a drone	In this project, we aim to design and study a trajectory control strategy for mobile robots that must map an unknown surface of interest, here a radio map. At each point along the trajectory, the robots make an observation. The robots must choose control actions in such a way that the observations maximize the amount of information collected. Algorithmic developments will be followed by real-time applications using Parrot Mambo drones.	Math and programming in Matlab/Simulink.	Licență sau Master
3	Simulator development for litter mapping	Simulator of a litter map sensed by a mobile robot using a 3D sensor.	Programming (Python).	Licență
4, 5	Litter mapping from sonar and camera images	Various topics including point cloud registration, 2D to 3D registration, litter detection, etc.	Math, algorithmics, and programming (Python)	Licență sau Master
6, 7	Simulated drone racing contest	We are looking for students to enter a drone racing contest that will be held next summer. Control development and/or image processing must be developed. Real-time application is an option.	Algorithmics and programming in Matlab/Simulink	Master sau Licență
8	Optimistic planning for hybrid optimal control	Test in simulated problems a new algorithm for hybrid optimal control (continuous and discrete actions) using optimistic planning.	Strong analytical skills, programming in Matlab.	Licență sau Master
9, 10	Assistive autonomous UAVs	Various topics for UAVs that assist elderly or disabled persons, including simulated "herding".	Math, algorithmics, and programming.	Licență sau Master
11, 12	AI planning and learning for nonlinear control applications	In this project the student will work either on fundamental developments in optimistic planning, a model-based predictive control algorithm; on their real-time application to nonlinear control, or a combination of the two.	Math, algorithmics, and programming.	Licență sau Master