

Nr.crt.	Titlu lucrare	Scurta descriere	Cerinte	Nivel (licenta/master)
1	Multi-Input-Multi-Output control of general anesthesia	<ul style="list-style-type: none"> - Simulation based on an anesthesia benchmark system built in Simulink - 6 inputs and 6 outputs - Integer order MIMO control <p>Difficulty: medium+</p>	<ul style="list-style-type: none"> - System identification - Control engineering - Good knowledge of Matlab/Simulink 	Licenta
2	Multi-Input-Multi-Output fractional order control of general anesthesia	<ul style="list-style-type: none"> - Simulation based on an anesthesia benchmark system built in Simulink - 6 inputs and 6 outputs - Fractional order MIMO control <p>Difficulty: hard</p>	<ul style="list-style-type: none"> - System identification - Control engineering - Good knowledge of Matlab/Simulink 	Licenta
3	Event-based Multi-Input-Multi-Output fractional order control of general anesthesia	<ul style="list-style-type: none"> - Simulation based on an anesthesia benchmark system built in Simulink - 6 inputs and 6 outputs - Control strategies should have a variable sampling time (triggered by events) <p>Difficulty: medium+</p>	<ul style="list-style-type: none"> - System identification - Control engineering - Good knowledge of Matlab/Simulink - Discrete-time systems 	Licenta
4	Fractional order system identification and control of a Vertical Take Off and Landing Platform	<ul style="list-style-type: none"> - Experimental thesis - Identification based on real-life VTOL data - Controllers should be validated on the experimental platform 	<ul style="list-style-type: none"> - System identification - Control engineering - Good knowledge of Matlab and LabVIEW 	Licenta

		<ul style="list-style-type: none"> - Robust analysis required <p>Difficulty: medium+</p>		
5	Development and comparison of integer and fractional order models for pain assessment	<ul style="list-style-type: none"> - Simulation - Development of a general model for the feeling of pain - Models are developed based on real-life data acquired from Intensive Care Unit patients <p>Difficulty: expert</p>	<ul style="list-style-type: none"> - System identification - Process modeling - Optimization techniques - Data filtering - Good knowledge of Matlab 	Licenta
6	System identification and advanced process control of a liquid steel manufacturing plant	<ul style="list-style-type: none"> - <i>Simulation</i> - based on experimental data acquired from a continuous stirrer - the liquid steel is driven through the caster using a variable magnetic field - the developed model should connect the applied current to the EMA device and the speed of the steel particles <p>Difficulty: hard</p>	<ul style="list-style-type: none"> - System identification - Control engineering - Good knowledge of Matlab/Simulink 	Licenta
7	Fractional order controller tuning using Machine Learning	<ul style="list-style-type: none"> - theoretical thesis - in depth state of the art analysis - testing and validating existing methodologies on various processes (first order, second order and time delay systems) 	<ul style="list-style-type: none"> - Control engineering - Good knowledge of Matlab - Desire to learn AI 	Licenta

		Difficulty: medium+		
8	Fractional order controller tuning using Deep Learning	<ul style="list-style-type: none"> - theoretical thesis - in depth state of the art analysis - testing and validation of existing methodologies on various processes (first order, second order and time delay systems) 	<ul style="list-style-type: none"> - Control engineering - Good knowledge of Matlab - Desire to learn AI 	Licenta
		Difficulty: medium+		
9	Fractional order system identification using Machine Learning	<ul style="list-style-type: none"> - theoretical thesis - in depth state of the art analysis - testing and validation of existing methodologies on various processes - comparison with classical identification techniques 	<ul style="list-style-type: none"> - System Identification - Good knowledge of Matlab - Desire to learn AI 	Licenta
		Difficulty: hard		