190.015 AML Projects Work Plan

Topic	Research Questions & Expected Results	Single Person	Team of Two	Team of Three	Team of Four
	Expected Workload 6*25=150h, where 1st week was 30h	120	180	240	300
Steel Production Data	Project Description, Motivation & Related Work	20			
	Access and prepare the data for ML applications	16			
	Create Histogramms	8	16		
	Analyze the correlations (e.g, scatter plots)			24	
	Preprocess the data (clearning)	16			
	Create augmented datasets (e.g., through adding noise)				24
	Prepare Figures & Tables (raw data, erros, statistics) to Validate the	20			20
	Model I & hyperparameter tuning & Evaluation & Comparison	40			
	Model II & hyperparameter tuning & Evaluation & Comparison		44		
	Model III & hyperparameter tuning & Evaluation & Comparison			20	
	Evaluate the influence of the training data size			16	16
	Total Workload	**120**	**180**	**240**	**300**
Mechanical Engineerin Data	Project Description, Motivation & Related Work	20			
	Access and prepare the data for ML applications	16			
	Spearate into training and test sets	8			
	Analyze the correlations (e.g, scatter plots, statistics)		16	24	
	Preprocess the data (clearning)	16			
	Create augmented datasets (e.g., through adding noise)				24
	Prepare Figures & Tables (raw data, erros, statistics) to Validate the	20			20
	Model I & hyperparameter tuning & Evaluation & Comparison	40			
	Model II & hyperparameter tuning & Evaluation & Comparison		44		
	Model III & hyperparameter tuning & Evaluation & Comparison			20	
	Evaluate the influence of the training data size			16	16
	Total Workload	**120**	**180**	**240**	**300**
Robotics 1 LLMs &	Project Description, Motivation & Related Work	30			
	Setup a development framework with ROS	20			
	Analyze and understand the existing code	10			
	Integrate a person/obj detection model		24		
	Implement Facial Recognition			32	
	Develop a Feedback Engine to interact with people around				40
	Prepare Figures, Tables & Videos to Validate the models	20			20
	Evaluate the existing path planning model	40			
	Path planning model II & hyperparameter tuning & Evaluation & Comparison		36		
	Path planning model III & hyperparameter tuning & Evaluation & Comparison			28	
	Total Workload	**120**	**180**	**240**	**300**
Robotics 2 Mapping	Project Description, Motivation & Related Work	20			
	Access and prepare the data for DL applications	16			
	Spearate into training and test sets	8			
	Preprocess the data (clearning)	8			
	Create visualization tools to visualize the image data	8	16	20	20
	Prepare Figures & Tables (raw data, erros, statistics) to Validate the	8			
	Model I & hyperparameter tuning & Evaluation & Comparison	52			
	Model II & hyperparameter tuning & Evaluation & Comparison		44	40	
	Integrate a person/obj detection & tracking model				40
	Total Workload	**120**	**180**	**240**	**300**
Sign Language	Project Description, Motivation & Related Work	20			
	Access and prepare the data for DL applications	16			
	Spearate into training and test sets	8			
	Preprocess the data (clearning)	8			
	Create visualization tools to visualize the image data	8	16		
	Prepare Figures & Tables (raw data, erros, statistics) to Validate the	8			
	Model I - CNN & hyperparameter tuning & Evaluation	52			
	Model II - Self Supervised Learning Method & Evaluation		44		
	Model II - Real-world application using a web cam & Vidoes			60	
	Model III - Sign Language Competition & Evaluation				60
	Total Workload	**120**	**180**	**240**	**300**