Supervisor	Start Date	End Date	Student	Main Goal	Why I Chose This Project
Mohammed Amin Adoul	2025-09-15	2025-12-12	Studenka Lundahl	Learn EEG signal processing, extract features, apply ML/DL classifiers (logistic regression, Random Forest, CNN/LSTM), and evaluate performance in predicting 'Hit' vs 'Miss' outcomes.	I am taking several courses this autumn and also preparing for knee surgery. I chose EEG because it is well structured with clear milestones, focused on ML/DL methods, and manageable alongside my other commitments.

Project title: Signal processing and machine learning for EEG data classification

Task Name	Status	Duration [days]	Start Date	End Date	Tools Planned
PHASE 1: FOUNDATION & GRADE 3					
1.1 Project Decision & Project plan creation	100%	9	2025-09-03	**2025-09-12**	MS Excel
1.2 Recovery & theory study (surgery week)	100%	4	2025-09-13	2025-09-16	Reading materials, MNEdocs
1.3 Install libraries & environment setup	100%	2	2025-09-17	2025-09-18	Python, MNE, pandas, matplotlib
1.4 Data exploration & understanding	100%	3	2025-09-19	2025-09-21	MNE, pandas, matplotlib
1.5 Basic data preprocessing (filtering, artifacts)	100%	4	2025-09-22	2025-09-25	MNE, NumPy, SciPy
1.6 Event alignment (Hit/Miss mapping)	100%	2	2025-09-26	2025-09-27	MNE, pandas
1.7 Basic feature extraction	100%	2	2025-09-28	2025-09-29	MNE, NumPy
1.8 Logistic regression implementation	100%	2	2025-09-30	2025-10-01	scikit-learn
Milestone 1 - Report & Demo (Grade 3)	100%	1	**2025-10-01**	**2025-10-01**	–
PHASE 2: ADVANCED & GRADE4					
2.1 Advanced feature extraction (PSD)	100%	4	2025-10-02	2025-10-05	MNE, SciPy
2.2 Spectral entropy & wavelet features	0%	4	2025-10-06	2025-10-09	SciPy, PyWavelets
2.3 Connectivity features between channels	0%	3	2025-10-10	2025-10-12	MNE, NumPy
2.4 Random Forest implementation	100%	2	2025-10-13	2025-10-14	scikit-learn
2.5 Feature importance analysis	100%	2	2025-10-15	2025-10-16	scikit-learn, matplotlib
2.6 Model comparison (LR vs RF)	100%	1	2025-10-17	2025-10-17	scikit-learn
Milestone 2 - Report & Demo (Grade 4)	100%	1	**2025-10-17**	**2025-10-17**	–
PHASE 3: DEEP LEARNING PREP					
3.1 Data preparation for deeplearning	100%	3	2025-10-18	2025-10-20	TensorFlow/Keras, NumPy
3.2 CNN model development	100%	4	2025-10-21	2025-10-24	TensorFlow/Keras
3.3 CNN training & validation	100%	3	2025-10-25	2025-10-27	TensorFlow/Keras
3.4 LSTM model development	0%	3	2025-10-28	2025-10-30	TensorFlow/Keras
Milestone 3 - Report & Demo (Basic DL)	0%	1	**2025-10-30**	**2025-10-30**	–
PHASE 4: ADVANCED DEEP LEARNING					
4.1 LSTM optimization & validation	0%	5	2025-10-31	2025-11-04	TensorFlow/Keras

Task	Status		Days	Start	End	Tools
4.2 Transformer model (optional)		0%	7	2025-11-05	2025-11-11	TensorFlow/Keras
4.3 Hyperparameter optimization		0%	5	2025-11-12	2025-11-16	TensorFlow/Keras, Optuna
4.4 Final model comparison & analysis		100%	3	2025-11-17	2025-11-19	All tools
4.5 Performance optimization		0%	2	2025-11-20	2025-11-21	All tools
Milestone 4 - Report & Demo (Grade 5)		0%	1	**2025-11-21**	**2025-11-21**	–
FINAL PHASE						
5.1 Final report writing (IMRAD format)		100%	15	2025-11-22	2025-12-06	MS Word, matplotlib
5.2 Code documentation & cleanup		100%	3	2025-12-07	2025-12-09	Jupyter, GitHub
5.3 Final presentation preparation		100%	2	2025-12-10	2025-12-11	PowerPoint, matplotlib
Final - Report & Demo		100%	1	**2025-12-12**	**2025-12-12**	–

Status
0% = Not started
25% = Started
50% = In progress
75% = Nearly complete
100% = Complete

Risk	Mitigation Strategy
Knee surgery recovery (Sept 11-22)	Plan light workload with reading/theory only. No hands-on coding during recovery week.
Time overlap with other courses	EEG chosen for clear milestones and manageable workload. Focus on Grade 3 first as minimum viable outcome.
Deep learning models too complex/time-consuming	If time runs out, focus on ML methods (logistic regression, Random Forest) for Grade 4. DL is bonus for Grade 5.
EEG data preprocessing challenges	Start simple, use MNE tutorials extensively, allocate extra debugging time in early phases.
Computational requirements for deep learning	Use Google Colab for GPU access, start with smaller data subsets, have simpler models as backup.
Multiple course deadlines conflicting	Prioritize Grade 3 completion by end October, treat Grade 4-5 as stretch goals if time permits.
Technical difficulties with MNE library	Join MNE community forums, use extensive documentation, plan buffer time for learning curve.
Poor model performance on Hit/Miss classification	Try different preprocessing approaches, feature engineering, and ensure proper cross-validation setup.