Wk			Title	A	B	Quiz	Hand in deliverable	Géron (Ed2)	Bradski
1.1/A	35	29/8/2022	Basic principles & set-up	Introduction Organization Why machine learning? Machine learning approaches Learning pipeline	Recap of workshop organization Assignment introduction ML portfolio template How to start? Conditioned acquisition Set-up Raspberry Pi with OpenCV and sci-kit learn			1-22	769-779
1.2/B	36	5/9/2022	Preparing the data	Thinking about data Splitting your data Feature engineering Exploring your data Data preparation	Python primer Numpy OpenCV tutorial Data collection example script			23-34 35-83	493-498 511-512 526-545 770-771
1.3/C	37	12/9/2022	Supervised Machine Learning	Classification k-nearest neighbors Support vector machines Decision trees Random forests Bagging and boosting	Basic segmentation and feature extraction Splitting your data Exploratory data analysis Feature engineering Data preparation	1 ML principles		85-109 153-162 175-178 189-208	799-848 859-864 875-906
1.4/D	38	20/9/2022	Regression	Linear regression Logistic Regression Lasso Regression Classification and regression	Supervised ML Classification and regression Linear vs nonlinear Optimization		Preliminary ML report, Ch. 1-3	111-152 162-165 183-184	864
1.5/E	39	26/9/2022	ML performance	Training a classifier Thinking about performance Hyperparameter tuning Visualizing a Decision Tree	Confusion matrix Evaluating classifiers Log loss Learning curves	2 Data		79-81 88-100 102-105 130-140	779-785
1.6/F	40	3/10/2022	Unsupervised Machine Learning	Clustering K-means Expectation maximization Dimensionality reduction Principal component analysis	Model deployment and evaluation			235-267 213-233	786-792
1.7/G	41	11/10/2022	Wrap-up	On-demand	On-demand	3 ML performance			
1.8/H	42	17/10/2022		No class					
	43	24/10/2022							
1.9/I	44	31/10/2022		No class		resit 1,2,3	Full ML report		

2.1/A	45	7/11/2022	Artifical Neural Network (ANN)	Machine learning vs deep learning Biological neuron Perceptron Multi-layer perceptron (MLP) Backpropagation Regression and classification MLP	Workshop organization Deep learning Frameworks Installing TensorFlow 2 Image classification exercise			279-307	849-858
2.2/B	46	14/11/2022	Deep Neural Networks	Vanishing and exploding gradients Transfer learning training optimization Learning rate scheduling Regularization	Data augmentation Walk-through MNIST fashion exercise Tensorboard, visualizing the training process Storing and loading models Fine-tuning neural network hyperparameters		Resit Full ML report	308-373	
2.3/C	47	21/11/2022	Convolutional Neural Network	Visual cortex CNN vs MLP Recap convolution Convolutional layer Pooling layer CNN architecture	Avoiding exploding/vanishing gradients Avoiding overfitting Using the Keras tuner Transfer Learning and Tensorflow hub	4 ANN		445-483	
2.4/D	48	28/11/2022	Advanced CNN	Object detection Object tracking Semantic segmentation Variational autoencoder Edge computing	Implementing a CNN Transfer learning			465, 483-496, 567-591, 586-591	
2.5/E	49	5/12/2022	Guest Speaker	tbd			Preliminary DL report, Ch. 1-3		
2.6/F	50	12/12/2022	Mind and machine Cognitive Science introduction	Mental representations Visual perception Cognitive approach Mind as a web AI	Work on portfolio	5 CNN			
2.7/G	51	19/12/2022	Wrap-up	Work on portfolio	Work on portfolio	resit 4,5			
	52	26/12/2022							
	1	2/1/2023							
2.8/H	2	9/1/2023		No class					
2.9/I	3	16/1/2023		No class			Full report		
2.10/J	4	23/1/2023		No class					
	5	30/1/2023							