EXAM TOPICS

Basics: Supervised learning, methodology, model selection, over-/underfitting, hardware lottery, GPU basics

Neural architectures: linear and non-linear components, convolutions, computational rules, complexity rules, resource-efficient neural architectures

Backpropagation: chain rule, differentiation, update rule, multi-layer, multi-variate

Optimization: variants of gradient descent, optimizers

Regularization: expectation, bias and variance, data augmentation, Ln-norms, dropout

Unsafe optimizations: quantization, pruning, NAS, mapping to HW

Safe optimizations: roofline model, array-based processors, FPGA architectures, x-stationary variants, example processor architectures

Advanced neural architectures: SqueezeNet, MobileNet, SENet, RNNs vs. Attention