

CS281 Advanced Machine Learning

Guest Lecture on November 20th

Title: Deep Networks for Pixel Level Inference with Applications to Medical Imaging

Abstract: A variety of applications in computer vision involve predictions at pixel level. A non-exhaustive list include, scene parsing, semantic segmentation, depth map prediction, surface normal estimation, and colorization. A number of recently proposed deep learning models have shown outstanding performance on these tasks. In this talk, I will give an overview of such models; their motivation, the underlying principles behind the architectures and their uses. I will start by discussing the Fully Convolutional Network (FCN) model and a few of its extensions which have achieved state-of-the-art performance on the above tasks. I will follow it up by shedding light on the application of such models in the domain of healthcare. More specifically, I will talk in detail about how at Imagen we are extending these models to solve various problems related to medical imaging.

Bio: Sumit is the head of Machine Intelligence at Imagen Technologies, leading a team of AI research scientists and engineers working towards transforming healthcare. Prior to Imagen he was a research scientist at Facebook AI Research (FAIR). He graduated with a Ph.D., in computer science from New York University under the supervision of Prof. Yann LeCun. After his Ph.D., he was research scientist at AT&T Labs - Research in the machine learning department. Throughout his career, he's made significant contributions in deep learning in the domains of computer vision (via DrLIM, siamese networks, sparse feature learning), and natural language processing (via memory networks, embedding models, and recurrent networks), among others.