



# Deep Learning Based PA Design

September 27<sup>th</sup>, 11AM, Magenta Seminar Room (D Floor)

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**Abstract:** Deep learning and artificial intelligence, in general, is advancing scientific discovery and technological inventions through its ability to extract inherently hidden features and map it to output in a highly complex multi-dimensional space. Synthesis of electromagnetic (EM) structures with nearly arbitrary with desired functional properties is such an example of a high dimensional optimization space. In this presentation, we employ deep convolutional neural network (CNN) to allow robust and rapid prediction of scattering properties of nearly arbitrary planar electromagnetic structures on chip. Utilizing this, the work reports an mm-wave PA in 90-nm SiGe with a novel deep learning-enabled inverse design of low-loss, broadband output matching network.

**Speakers: Emir Karahan (Princeton University)**