

# Skanda Koppula

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## ETH Zürich, Fulbright Research Fellowship

*Researcher at the Systems Group, Department of Computer Science.*

*Sept. 2018 - August 2019*

## Massachusetts Institute of Technology

*Masters of Eng. and BSc, Computer Science, MEng GPA: 5.0/5.0*

*Sept. 2013 - June 2018*

*Relevant courses:* Hardware Architectures for Deep Learning, Applied Cryptography, Compilers, Machine Learning, Operating Systems, Computer Architecture, Computer Security, Bayesian Inference

## Work Experience

### NVIDIA Autonomous Driving R&D, Intern

*May 2018 - September 2018*

- Added support for multi-camera vehicle feeds on NVIDIA's training and simulation pipelines.
- Decreased training time by 16% using custom data format to reduce disk reads and CRC overhead.

### Google Acoustic Modeling Research Team, Intern

*June 2017 - September 2017*

- Tested kernel factorization to improve cross-domain accuracy of neural language models.
- Developed approach to characterize memory and visualize hidden state of recurrent networks.

### Yahoo, Software Engineering Intern

*June 2016 - Aug. 2016*

- Improved malicious login attempt event detection by 7% with a pruned neural network.
- Implemented online updating of the login classifier using data from a multi-company threat feed.

### Square Security, Software Engineering Intern

*June 2015 - Aug. 2015*

- Built an in-production service to collect memory dumps from Square card readers
- Simplified firmware bug-fixing by parsing dumps into a human-readable source error trace.

## Projects

### MIT Driverless (Formula Student Racecar Team), Perception Lead

*August 2016 - Present*

- Demonstrated a 85% mAP/0.8 IoU YOLOv3-based network for racetrack landmark localization.
- Trained and tested an supervised driving network for a Formula Student Electric racecar.
- Ongoing work is using A3C, on the Carla world simulator, to learn transferable driving policies.
- Developed PCBs and firmware for the first open-source automotive battery management system
- Won 2nd place at the 2017 U.S. Formula Student Electric competition (among 53 teams).

## Research

### MIT Energy Efficient Systems Lab, Master's Thesis

*Sept. 2016 - June 2018*

- Achieved a > 2x speed-up and > 500x decrease in estimated energy consumption for real-time speaker identification by demonstrating an FPGA design capable of neural network inferencing and mel-frequency coefficient extraction.

### ETH Zürich Systems Lab, Swiss Government Excellence Scholar

*Sept. 2018 - June 2019*

- Ongoing work to demonstrate faster CNN inference using aggressive DRAM timing parameters and CNNs retrained for bit-error resilience.

### Biomedical Cybernetics Lab, Student Researcher

*May 2013*

- Applied Bayesian modeling to develop a genomic-environmental prognostic models to identify patients at-risk or pre-disposed to alcoholism, schizophrenia, and lung cancer.

## Skills

Embedded Systems: C/C++, x86 Assembly.

Hardware and Digital Design: Altium PCB Designer, Vivado HLS, and Bluespec Verilog.

Miscellaneous: Python (TensorFlow, PyTorch, numpy), Java, Scala, bash.

Research publication list and references are available upon request!