

# Tushar Pankaj

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Citizen of United States & Canada

## Education

### University of Minnesota – Twin Cities

BS, Computer Science

Cum. GPA: 3.78/4.00, Major GPA: 3.78/4.00

Minneapolis, MN

Sep 2018–Dec 2019 (expected)

### University of California, Berkeley

Electrical Engineering and Computer Science

Cum. GPA: 3.81/4.00, Major GPA: 3.95/4.00

Berkeley, CA

Aug 2015–Dec 2016

## Work Experience

### Facebook, Inc.

Software Engineer Intern

- Designed, trained, and wrote production code to serve up new machine learning model in News Feed
- Ran online experiments and analyzed the performance of new News Feed model
- Built internal tool to parse and display News Feed ranking configuration file in a human readable and searchable manner
- Added new features to existing internal tool for understanding of online impact

Menlo Park, CA

May 2018–Jul 2018

### Qualcomm CDMA Technologies

Systems Engineer Intern

- Deployed multitude of deep learning algorithms to improve upon traditional camera designs and capabilities
- Worked on image regression using convolutional neural networks
- Helped design multi-resolution approach to improve on luma and chroma noise and color tone for different ISOs
- Migrated team to Amazon AWS deep learning training infrastructure
- Taught lecture on deep learning to 100+ software and systems engineers across the company

San Diego, CA

May 2017–Aug 2017

### Qualcomm Research

Software Engineer Intern

- Designed and implemented high performance logging of 4K video on Qualcomm Snapdragon Flight platform
- Designed and implemented signal processing algorithms for fully automated flight test system
- Wrote device driver for RS-485 protocol to actuate motors on a mobile robot
- Worked on Qualcomm Hexagon DSP bringup on new board for flight control

San Diego, CA

May 2016–Aug 2016

## Research Experience

### Berkeley DeepDrive

Undergraduate Research Assistant

- Researched use of LSTM and other recurrent neural network architectures for autonomous driving
- Adapted SqueezeNet convolutional neural network architecture from image classification to autonomous driving
- Optimized convolutional neural network training codebase to achieve 10x speed-up

Berkeley, CA

Jan 2017–Sep 2017

### Berkeley Wireless Research Center

Undergraduate Research Assistant

- Implemented real-time inference for hyperdimensional computing ML algorithm on embedded ARM device

Berkeley, CA

Aug 2016–Dec 2016

## Patents

- Hwang, Hau, Tushar Pankaj, Vishal Gupta, and Jisoo Lee. 2017 (pending). "Image Signal Processor for Processing Images."

## Publications

- Chowdhuri, Sauhaarda, Tushar Pankaj, and Karl Zipser. "MultiNet: Multi-Modal Multi-Task Learning for Autonomous Driving." In *2019 IEEE Winter Conference on Applications of Computer Vision (WACV)*, pages 1496–1504. IEEE, 2019.

## Coursework

Machine Learning • Data Structures • Operating Systems • Computer Architecture • Embedded Systems (in progress) • Discrete Math & Probability • Circuits & Electronics • Signals & Systems • Electricity & Magnetism • Multivariable Calculus • Vector Calculus • Linear Algebra • Differential Equations

## Technical Skills

**Proficient:** C • Assembly (ARM, AArch64, x86, MIPS) • OCaml • C++ • Java • Python • Git • Mercurial • Linux • Bash • HTML •  $\text{\LaTeX}$

**Skilled:** SQL • PHP • MATLAB

**Familiar:** Scheme • Android • JavaScript • CSS • React • Subversion • MongoDB