Jacob Manning

Computer engineering student focused on artificial intelligence

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EDUCATION

University of Pittsburgh, Pittsburgh, PA — *BSE, Computer Engineering*

EXPECTED GRADUATION: MAY 2019

GPA: 3.79/4.00

Relevant coursework: Algorithms, Data Structures, Systems Software, Computer Organization and Assembly Language, Analysis of Electronic Circuits, Digital Laboratory

EXPERIENCE

NASA Goddard Space Flight Center, Greenbelt, MD — *Artificial Intelligence and Machine Learning Intern*

JUNE 2017 - AUGUST 2017

Trained a deep neural network using industry-standard tools such as TensorFlow, Keras, and SciPy for detecting wildfires onboard a satellite

Created custom neural network framework in C to efficiently perform inference for feedforward neural networks on embedded platforms

Benchmarked inference performance of feedforward neural networks on the Xilinx Zynq-7000 and the Raspberry Pi 3 Model B

NSF Center for High Performance Reconfigurable Computing, Pittsburgh, PA — *Undergraduate Researcher*

JANUARY 2017 - PRESENT

Study machine learning with focus on neural networks for spacecraft

Perform analysis of Convolutional Neural Networks for the Xilinx Zynq Ultrascale+ MPSoC

Improved performance of embedded image processing library functions using OpenMP parallelization in C

University of Pittsburgh Office of Residence Life, Pittsburgh, PA — *Resident Assistant*

AUGUST 2016 - PRESENT

Plan, organize, and execute initiatives in residence hall for a floor of 56 first-year engineering students

PROJECTS

Goddard Embedded Neural Network Library — *C*

Lightweight, flexible framework for performing inference on feedforward neural networks orders of magnitude faster than TensorFlow or NumPy
*Closed-source, owned by NASA GSFC

PROGRAMMING SKILLS

Languages: C, C++, Python, Java, Bash/UNIX, MATLAB, HTML/CSS, JavaScript

Tools: Git, OpenMP, MPI, GNU Make, TensorFlow, Keras, SciPy, NumPy, Pandas, Vim, Buildroot

INDEPENDENT STUDY

Andrew Ng's "Introduction to Machine Learning"

Michael Nielsen's "Neural Networks and Deep Learning" online textbook

Google's "Deep Learning" udacity course

Andrew Ng's deeplearning.ai specialization classes (in progress)

Stanford University CS231n "Convolutional Neural Networks for Visual Recognition" (in progress)

RECOGNITION + LEADERSHIP

Eagle Scout Boy Scouts of America, 2012

National Semifinalist, SIAM Moody's Mega Math Challenge Applied mathematics competition, 2015

Swanson School of Engineering Honor Student awarded every undergraduate semester, 2015 - present

University of Pittsburgh Emerging Leaders Program ten week program to develop leadership acumen, 2015

Resident Assistant of the Month excellent performance in September, 2016

Projects available online at **jacobmanning.github.io** or **github.com/jacobmanning**