MIKE NEUDER

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PERSONAL STATEMENT

A computer science and math undergraduate studying at University of Colorado at Boulder. I am fascinated by the use of machine learning, mathematical models, and computational science to predict and analyze the behavior of complex systems. I have a solid mathematical and computational background, as well as passion for learning and discovery that allows me to adapt quickly to a variety of research areas.

EDUCATION

University of Colorado, Boulder *Aug 2015-Present*
B.A. in Computer Science
B.A. in Mathematics
Minor in Statistics
Expected Graduation : May 2019
Deans List
Sewell Esteemed Scholars Award
Overall GPA: 3.8 - Computer Science GPA: 4.0

EXPERIENCE

Laboratory for Atmospheric and Space Physics / Lockheed Martin Feb 2017 - Aug 2017
Software Engineering Intern *Boulder, CO*

- Joint CU Boulder and Lockheed program in which CU students are trained at LASP to work at Lockheed when they receive security clearances.
- Developed graphical applications using Python and C++ Qt Libraries.
- Wrote interactive terminal applications using Perl and the Curses Module.
- Developed graphical application testing suites using Eggplant Functional and SenseTalk.
- Solved large scale problems using multi-threading and multi-processing techniques.

Lab of Dr. Michael Mozer March 2017 - Present
Research Assistant *Boulder, CO*

- Developed neural networks using word processing and language analysis to predict reading behavior.
- Synthesized data to train complex networks on a range of tasks.
- Built classifiers and clustering analysis tools using to train models on unlabeled data.
- Created several convolutional neural networks to replicate the Structural Similarity (SSIM) score of sets of images in order to embody a more accurate image quality evaluation metric.

Lab of Dr. Elizabeth Bradley March 2017 - Present
Research Assistant *Boulder, CO*

- Used information theoretic measures of weighted and non-weighted permutation entropy to analyze the information produced by the climate system through water isotopic data collected in ice cores.
- Compared accumulation and weighted permutation entropy to evaluate the relationship between the two values.

- Wrote code in Python to create plots and time series graphs, as well as organize the data and run entropy calculations.
- Analyzed how adjusting parameters in the permutation entropy calculation impacted the correlation coefficient between permutation entropy and accumulation.

Spire Manufacturing Solutions May 2014 - Aug 2014
Manufacturing Intern *Colorado Springs, CO*

- Operated CNC lathes and mills to manufacture metal components.
- Inspected parts to verify measurements matched specifications prior to shipping the parts.
- Repaired electric discharge machine and programmed machine to cut a custom part.

OTHER PROJECTS

Numerical Experiments	A series of numerical analysis experiments written in python.
Rubik's Cube Solver	Wrote a program in C++ that solves a cube from any scrambled position.
Python vs C++	Created benchmark runtimes of programs in both languages.
she	Wrote a web application with Ruby on Rails to simulate a virtual girlfriend.
Connect Four	Created a graphical implementation of the game in PyQt.
Hack CU 2017	Took part in hackathon and modeled the spread of infectious disease.

TECHNICAL STRENGTHS

Programming Languages (Experienced)	Python, C++, Perl
Programming Languages (Proficient)	Ruby, R, Javascript, Matlab, bash
Libraries	numpy, scipy, matplotlib, tensorflow, scikit-learn, Qt
Tools	git VCS, LaTeX, Linux, Jupyter Notebooks