JAMES R. SHADDIX

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Education:

Colorado State University
B.S. in Computer Science (*August 2014 — May 2019*)
B.S. in Applied Physics (*August 2014 — May 2019*)
GPA: Total: 3.0 Last Two Semesters: 3.5

Course Education:

- Computer Science**:** Machine Learning, Artificial Intelligence, Parallel Programming, Databases.
- Physics: Quantum Mechanics, Electromagnetics, Mechanics, Thermodynamics, Modern Physics.
- Math: Vector Calculus, Linear Algebra, Ordinary and Partially Differential Equations.

Employment:

- **Physics Research Assistant (Data Analyst)—**(June 2018 – Present)
  Colorado State University Dept. Physics
  - *MATLAB*: Developed a GUI that allows for users to interactively use signal processing techniques for finding, fitting, and tracking peak fits on experimental data.
  - *Python*: Developed a web dashboard application that allows for users to interactively view 3D data from a neutron scattering experiment.
- **Software Engineer—**(May 2016 – August 2016)
  Colorado State University Energy Institute
  - *C#*: Created a visual model of the electric load of a village in Africa using a circuit controlled from a Raspberry Pi. I collaborated with Electrical Engineers to write code for operating circuits using the I^2C data communication protocol.

Projects:

- *Python*: Developed a web dashboard application using the Dash framework that uses the method of relaxation for approximating solutions to Laplace's partially differential equation.
- *Python:* Developed the Random Forest algorithm for performing classification experiments. I used a Jupyter Notebook that gives a detailed explanation on the many variations of this algorithm.
- *C++:* Developed a Decision Tree algorithm using parallel programming techniques with OpenMP that could successfully classify mushrooms based on their degree of toxicity.
- *C++:* Wrote a time dilation algorithm that identified movement patterns at varying speeds in 3D space using input from a Microsoft Kinect.
- *Java:* I Worked as part of a team using GIT for version control and the Scrum framework to program a chat application with a GUI. The application allows for users to create groups, block users, and pass messages.

Skills:

- Adept Languages: Python, C++, MATLAB, BASH command line, LaTeX.
- Familiar Languages: C, C#, Java, SQL, HTML/CSS, GIT command line tools.
- Adept Python Libraries: NumPy, Pandas, Matplotlib, Dash, Plotly, Click, Unittest.
- Operating Systems: Mac OSX, Windows 10, various Linux Distros.
- Software: Jupyter Lab, Microsoft Office, VirtualBox, PyCharm, VSCode, Vim, Tmux.

Activities:

- **Presented** to a community of graduate physics students on how to use Python for data analysis.
- **President** of the Society of Physics Students Club – (August 2017 – August 2018)
  - Helped develop organizational skills as I learned to streamline communication for event planning.