

# James R. Shaddix

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GitHub: [github.com/Jim-Shaddix.com](https://github.com/Jim-Shaddix.com)  
Portfolio: [jshaddix.com](http://jshaddix.com)

## Education:

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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**

## Skills:

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- **Adept Languages:** Python, SQL, C++, MATLAB, BASH/GIT command line, LaTeX.
- **Familiar Languages:** C, C#, Java, HTML/CSS,
- **Adept Python Libraries:** NumPy, Pandas, Matplotlib, Dash, Plotly, Click, Unittest.

## Employment:

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- **Physics Research Assistant**—(June 2018 – Present)  
Colorado State University Dept. Physics
  - *MATLAB*: Developed a GUI that allows for users to interactively apply signal processing techniques for finding, fitting, visualizing and tracking peak fits on experimental data.
  - *Python*: Developed a web dashboard application using the Dash framework 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 town using a circuit controlled from a Raspberry Pi.
  - Collaborated with electrical engineers to write code for operating circuits using the  $I^2C$  data communication protocol.

## Projects:

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- *Java*: Developed a GUI application for handling book check out/in requests for multiple libraries that was backed by a MySQL database.
- *Java*: I worked as part of a team using GIT for version control and the Scrum framework to develop a chat application with a GUI. The application allows for users to create groups, block users, and pass messages.
- *Python*: I created a fully responsive personal website ([jshaddix.com](http://jshaddix.com)) using Python's Flask framework with Jinja2 templating and Bootstrap styling. I launched the application by configuring a nginx webserver with a gunicorn application server on an Amazon Lightsail instance.
- *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 from scratch for performing classification experiments. The algorithm can diagnose breast cancer with 78% accuracy based on phenotypical characteristics.
- *C++*: Developed the Decision Tree algorithm using parallel programming techniques with OpenMP that could successfully classify mushrooms based on their degree of toxicity with 87% accuracy.

## Course Education:

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- **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.

## Activities:

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- **Taught** a group of graduate physics students on the nuances associated with using Python for data analysis.
- **President** of the Society of Physics Students Club – (August 2017 – August 2018)
  - Lead a team of physics / engineering students in the development of a Spark Chamber.