

# Matthew Schiavi

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Software Engineer with a passion for working on complex problems. I enjoy working on challenging problems that allow me to explore multiple fields to find a solution.

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## Skills

**Languages** (descending familiarity): Python, Javascript, Mathematica, C++, Fortran, Java, Typescript

**Libraries:** Lodash, SQLAlchemy, Flask, OpenMP, MPI, Konva, NPM

**Frameworks:** AngularJS, Angular, React

**Database:** PostgreSQL

**Tools:** AWS (Amplify, Elastic Beanstalk, RDS, CodeCommit, Cloud9), git, Visual Studio Code, Postman

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## Employment History

### Full Stack Engineer - GritSeed (Full Stack Engineer)

01/2020 - Present

#### GritSeed Application

- Developed custom document user interface that allows dynamic field inputs to pdf files.
- Twilio, WeChat, and Facebook integration for our Job-Req and Journeys product
- Implementation of caching static files which required refactoring of the codebase
- Implementation of in-house Analytic API's
- Helped implement custom fields (unstructured data) throughout the application

### Graduate Research Assistant - University at Buffalo

06/2017 - 08/2019

#### Higgs Boson Decay to two Bottom quarks at N3LO - <https://arxiv.org/abs/1904.08960>

- Wrote a Fortran routine to numerically integrate probability functions using the VEGAS algorithm. This program closely resembled MCFM (<https://mcfm.fnal.gov/>)
- Ran jobs for Antenna method on University at Buffalo's computer cluster
- Helped make comparison plots for N3LO predictions
- Modified phase space generation of particle decay for the Antenna Subtraction method.
- Calculated analytic subtraction of singularities using Mathematica
- Calculated analytic and integrated forms of Antennae at NLO
- Corrected the Leading Order probability function for Higgs decay to four bottom quarks at LO
- Corrected the legacy Jet Finding Algorithm being used.

### Teaching Assistant - University at Buffalo

07/2017 - 06/2019

#### Physics Recitation (Course Secretary) :

- Instructed two classes of 30 students weekly
- Organized Homework, Exams, Grades, and Weekly Quizzes for around 1000 students
- Involved in discussions for the reorganization of the entire course.

#### Physics Lab:

- Demonstrated and Supervised labs for freshman and sophomore level students
  - Graded weekly Lab reports and monthly Exams
  - Scheduled and held office hours weekly to assist students with homework and course material
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## Education

Master of Science in Physics | (08/2017 - 09/2019) | GPA: 3.92 | University at Buffalo

Bachelor of Science in Physics with a minor in Mathematics | (09/2012 - 05/2017) | University at Buffalo