

# James Gerity

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## Education

### 2020 (expected) **PhD, Physics**

Texas A&M University (College Station, TX)

*Research interests:* transport of intense charged particle beams through magnetic lattices, particle-in-cell simulation, magnetic and mechanical design of cost-effective superconducting dipole and quadrupole magnets for scientific, industrial, and medical applications.

2011

### **B.Sc. Physics**

### **B.Sc. Mathematics**

University of Maryland, Baltimore County (Baltimore, MD)

## Work Experience

### **Nov 2019-Present Software Engineer, Neurala, Inc.**

Python-centric member of the Applications Engineering team. Responsibilities include the development of Flask servers to provide customers with REST APIs for interacting with in-house inference engines, maintenance of Python language bindings to a large C++ codebase generated with SWIG, and refactoring machine learning research prototypes (e.g. TensorFlow) to create reliable products.

### **2011-Nov 2019 Research Assistant, Texas A&M University (College Station, TX)**

Conducted research on improvements to particle accelerators with the Accelerator Research Laboratory. Responsibilities included designing and running simulations (COMSOL multiphysics, finite elements, particle-in-cell), analyzing results and producing summary plots and technical reports, as well as mentoring new graduate and undergraduate students.

### **2008-2011 IT Administrator, Leonard Paper Company (Baltimore, MD)**

Served as head of IT, responsible for ~100 desktop workstations, ~40 laptops, Oracle and MySQL databases, and AIX, Windows, and Linux servers. Interacted with users to resolve computer problems, automated administrative processes and reporting, and advised company management on long-term IT decisions (e.g. software upgrades, telephony, hardware purchasing). Created custom version of the terminal emulation software PuTTY to interface with proprietary inventory system, replacing equivalent software for a savings of \$400/seat and allowing the entire salesforce to use the system concurrently.

## Programming Languages and Skills

**Python:** proficient with the SciPy stack, standard libraries, pytest. Experience developing and deploying Flask servers on a uWSGI+Nginx stack in both standalone and containerized Docker contexts. Some experience with SWIG.

**Shell/awk scripting, GNU utilities:** Experience with Linux/Unix environments, creation of scripts for process automation and data wrangling, system configuration and other administrative tasks.

**Javascript:** Familiarity with jQuery, d3.js, three.js in the browser. Some experience using Node.js for server-side applications using e.g. Socket.io.

**Other proficiencies:** COMSOL Multiphysics, C++, R, MATLAB, Mathematica, Excel (including VBA), HTML/CSS, image editing.

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## Other

### GitStub

Chrome browser extension that provides repository recommendations for GitHub users. Created over 36 hours in October 2016 for HackRice, where it won 2nd place and several sponsored prizes.

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