

Dear Georgia Tech Research Institute Hiring Manager,

My name is Max Grinchenko, and I am applying for the entry level Computer Science position 951. I have a math and physics background from the University of Richmond and Columbia University. During my time at the two universities, I spent three separate summers actively participating in research. The result of these fellowships were two publications and several pieces of experimental software written for Latha Venkataraman Single Atom Conduction research group. Each summer allowed me to work in a highly collaborative team environment focused on getting results while maintaining strong group dynamics.

The software I designed and amended for the Single Atom Conduction research group covered each phase of experimentation—from data acquisition to storage to analysis and plotting. I programmed a more efficient method for storing large amounts of experimental data. Essentially, instead of storing one experimental run per file, I bundled experimental files into blocks of 100 runs each. By doing so, I greatly decreased the time it took to load the files into our data analysis software. In the data analysis software, I created a new GUI interface, which allowed other group members to easily access the experimental data and create histograms from the results. The histograms could be synthesized from any number of experimental runs, and then presented as a single histogram or collection of histograms displayed on the same graph in varying colors. This latter view allowed group members to trace the progression of experimental data from a series of runs in a convenient fashion all from the same GUI interface—without needing to reload the data. In a similar vein, I created a tool for converting linear and log bin histograms, allowing for an efficient method of quickly analyzing certain peaks in either mode. I believe this experience prepares me for the type of work I would be doing at the Georgia Tech Research Institute; supporting a team of scientists and introducing my own innovations to the fold.

I have a bevy of ‘traditional’ computer science experience. I have a deep understanding of memory management and pointers from several projects I have completed in the C programming language; including building a linked list class, creating a method for querying a simple database file, and writing a complete working HTTP 1.0 server. The server listened for requests on a port passed in from the command line and served a basic HTML webpage with both a text and a jpeg file to any number of

browsers. I am comfortable using Python for scientific and data applications, such as analyzing systems for stability requirements by creating large matrices and computing their eigenvalues. I also have experience working on big data problems in both R and Python Pandas. My latest project for the Marta Army as part of Code For Atlanta involves creating heat maps of bus travel times overlaid on a map of Atlanta.

From my current internship at LAMP camp, I have a solid understanding of using the full lamp stack and the apache server to query databases in conjunction with the PHP language. I have also become comfortable designing web applications which split logic in to a classical MVC style framework. I believe my skill set is uniquely suited for the Georgia Tech Research Institute because I have a rich background in Mathematics and Physics along side my programming ability. Furthermore, my ability to grasp new information and techniques quickly allows me to be flexible in how I approach the solution to the problem. If you give me a new task, I will not rest till it is completed, and I will learn any of the necessary software or concepts along the way. Most importantly, I love solving problems for the sake of solving of problems, and that will not change if I work for the Georgia Tech Research Institute.

Sincerely,

Max Grinchenko