

June 8, 2024

Hiring Manager
Software Engineering Institute
4500 Fifth Avenue
Pittsburgh, PA 15213

Dear Hiring Manager,

My name is Ben Brown, and I am a recently graduated student from the department of Electric and Microelectronic engineering at Rochester Institute of Technology. I'm seeking employment as an Assistant Data Scientist at the Software Engineering Institute. I believe that I have several specific attributes that would result in particularly synergistic employment in this position, and I would like to outline them below, in order of listing on the job description:

Minimum Qualifications:

- **Experience with statistical modeling and data analytics:** In addition to my degree as an electrical engineer, I had the opportunity to take additional elective course work in applied statistics. This introduced me to fundamentals of experimental design, statistical quality control, and various statistical models and tests (ANOVA, regression, etc.).
- **Statistical programming proficiency:** Through my education surrounding deep learning and related computational techniques, I have gathered 4+ years of experience in Python (including numpy, pandas, scikit-learn, etc). Learning to code efficiently, legibly, and consistently has been critical in my overall success in both research and production. In addition, I have exposure to several other languages through classes or related co-op work, specifically C/C++ in both high-level and embedded environments.
- **Innovative and Inquisitive:** Despite my degree in electrical engineering, I've taken the initiative to seek out coursework, research opportunities, and project teams that would support my interest in AI, ML, and data science. Doing so has given me a multifaceted background that allows me to approach problems with a unique perspective.
- **Expertise in machine learning:** My second year is when I was introduced to Dr. Jamison Heard while looking for robotics research in the department. This was the beginning of a long standing professional relationship that allowed me to learn and practice all the essential software used for AI/ML, including TensorFlow, PyTorch, scikit-learn, and the many supporting utilities required for them.
- **Thrives in multidisciplinary environment:** RIT prides itself on multidisciplinary involvement, and the capstone project for all engineering majors is a two-semester multidisciplinary design project where engineers from all majors are split into teams and are given a project. I had the privilege of being the team lead of our project, and I collaborated with physicists, computer engineers, and electrical engineers to design a consumer-accessible short-wave infrared sensor.
- **Strong communication skills:** RIT engineering focuses heavily on laboratory work, which means that students are required to write reports summarizing labs in nearly every class. Doing this has given me years of practice in communicating ideas from semiconductor processes to analog circuit design in a manner that is concise and accessible. This directly transfers to research and white-paper reports that I have worked on in industry.

Desired Qualifications:

- **Experience with software development techniques:** During my cooperative education experiences, I sought out opportunities to work on software and data-driven projects. This has allowed me ample opportunity to work within large and small teams while designing code for both production and internal use that is efficient, modular, and well- documented.
- **Cybersecurity experience:** One of my most enriching experiences at RIT is my work with the DeFake project- a cybersecurity research team dedicated to deepfakes and their detection. My work involved researching various deepfake detection architectures and analyzing their resistance to adversarial attacks. Post- graduation, I am continuing my work with a conference targeted in November.
- **Demonstrated ability to learn:** One look at my work experience will show that I have been forced to quickly learn on several occasions. Being a mostly self-taught programmer while taking electrical engineering coursework, I have had to pick up soft-

ware engineering best practices, as well as information about each of the unique industries that I've worked in so that I could succeed in the role.

- **Experience with Generative AI and LLMs:** During my research at the DeFake project, I also participated in reading groups weekly, where we discussed developments in language model technology as well as foundational papers in the field. My research focus has taken my attention elsewhere, but my track record proves my adaptability should I need to refocus to generative models.

In short, being on the cutting edge of research and development is and always will be a primary motivation for my work. That is why I want to work at the Software Engineering Institute, so I can push the boundaries of human knowledge in an environment of people that want the same. I enjoy facing problems that have never been solved before, and I learn voraciously in order to overcome obstacles that face me.

I'm excited to hear more about this Data Science position. I believe that the Institute possesses everything that I need in order to grow into a successful researcher focused on the greater good. Please refer to my resume for further details about my skills and experience, and feel free to reach out to me with any other questions.

Thank you for your consideration,

Ben Brown