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To whom it may concern at the Pacific Northwest National Laboratory,

I am writing to express my interest in the position of the NSIP Undergraduate Technical Intern Summer 2024 - AI & Data Analytics.

As a Computer Science major at Georgia Tech concentrating in Artificial Intelligence and Theoretical Computer Science, I am eager to apply my technical skills to cutting-edge research at Pacific Northwest National Laboratory. My passion lies in solving complex problems in AI, Data Science, and Computer Science to advance scientific and technological frontiers.

I have maintained a 4.0 GPA, earning Faculty Honors each semester, while completing rigorous coursework in algorithms, machine learning, robotics, and mathematics. My technical expertise spans Python, Java, C++, React, Flask, SQL, and various AI/ML frameworks, equipping me with the tools to contribute meaningfully to AI and Data Analytics initiatives.

Beyond academics, I have engaged in machine learning research and applications. I developed an 85%-accurate ML model for Parkinson's diagnosis, contributed to genetic programming for stock market analysis, and currently research inverse reinforcement learning at the BRAINML computational neuroscience lab. These experiences have strengthened my ability to design innovative AI-driven solutions, which I hope to leverage in addressing critical national challenges at PNNL.

In the industry, I have previously worked as a Software Engineer Intern at both Amazon Web Services (AWS) and Wabtec Corporation, gaining experience in developing scalable, high-performance systems. At AWS, I worked on the Cryptography Key Management Services team, where I developed and deployed automated security workflows to enhance cloud security infrastructure. I designed and implemented control plane APIs, streamlining encryption processes to improve efficiency and security at scale. Additionally, I optimized internal tools to improve system reliability and reduce operational overhead, reinforcing my ability to build secure and resilient software solutions.

At Wabtec Corporation, a global leader in rail and locomotive technology, I further developed my software engineering and applied machine learning skills by improving critical functional systems. I increased the efficiency of the company's automatic locomotive equipment inspection system by over 200% by designing a new train tag data decoding system and building a Python

API to process 60k+ train car datasets in a Postgres database. To improve accuracy, I implemented a multinomial machine learning tag interference filtering mechanism, reducing false tag reads by over 40%. These experiences in developing scalable, efficient, and secure systems have strengthened my software engineering abilities, and I am eager to apply these skills to help advance science, technology, and national security.

I believe that my background and abilities can enable me to be effective as an AI and Data Analytics intern at the Pacific Northwest National Laboratory. I hope that by leveraging my knowledge and abilities, I can contribute to the advancement of science and technology for national security. I look forward to discussing this opportunity with you further.

Sincerely,

Erik Li