



## **SW Compiler Verification Intern**

NVIDIA's invention of the GPU 1999 sparked the growth of the PC gaming market, redefined modern computer graphics, and revolutionized parallel computing. More recently, GPU deep learning ignited modern AI — the next era of computing — with the GPU acting as the brain of computers, robots, and self-driving cars that can perceive and understand the world. Today, we are increasingly known as “the AI computing company”.

We are looking for a SW Compiler Verification Intern to join our team.

### **What you'll be doing:**

- Innovation: Demonstrate a keen interest in emerging tech trends, particularly in AI and ML, and a desire to apply these technologies in innovative projects.
- Compiler Test Development: Develop and review test plans, implement test cases, automate tests, integrate tests into NVIDIA test management frameworks, port 3<sup>rd</sup> party testing, and author test reports. May include integrating already existing tests into the compiler test automation.
- Process Improvement: Utilize current iterative planning and test development processes. As part of team, identify potential or observed weaknesses in current process, offer ideas for actions that can improve quality, and participate in quality initiatives.
- Test Automation: Automate compiler testing using NVIDIA test frameworks and by programming. Includes test execution, test reporting, and results analysis and automation of build and test environments. Work with software compiler developers and assist in providing automated solutions for unit testing.
- Test Operations: Utilize test suites to find, report and track compiler performance changes. Work with development team to drive regressions to resolution. Generate statistics based on performance data, identify and investigate outliers and monitor performance trends. Maintain historical data and baselines for comparison.
- Analysis: Analyze performance degradation or functional defect of compilers, identify regression root cause, suggest corrective action, and perform reviews to continuously improve testing.

### **What we need to see:**

- Bachelor's or master's degree in computer science or computer engineering
- Understanding of Software Development Life Cycle (SDLC), High-Performance Computing (HPC), and Software Testing Methodologies.
- Have foundational knowledge of artificial intelligence and machine learning concepts, with a passion for exploring their applications in various domains.
- Ability to work with various teams to generate a solution for performance regression and be productive under tight schedules and have strong analytical skills with attention to detail.
- Be able to apply existing skills to new situations. Break large problems into smaller problems and further triage difficult performance regressions.



- You have experience writing test plans, test development, test automation, test execution and reporting in a production environment.
- Programming Languages: Have experience programming and/or testing in C++/CUDA as well as scripting languages (Python, Perl, Shell)
- Excellent communications skills, self-motivated and well organized.

**Ways to stand out from the crowd:**

- Hands-on experience through personal projects or contributions to open-source AI/ML initiatives, showcasing your practical skills and creativity.
- Previous compiler development and/or compiler verification/test or performance analysis experience.
- Experience with NVIDIA CUDA Toolkit, especially solving issues and debugging in Linux environment.
- Experience with Docker containers, Kubernetes, or similar systems.
- Experience with revision control software and management tools, such as Git, Perforce, JIRA, Confluence and Make