

Descriptions of the Ph.D. Research Assistant Position

The Emerging Software Technologies (EST, <https://est.umbc.edu>) Lab at The University of Maryland, Baltimore County is seeking **three** highly self-motivated Ph.D. students who are skilled in **software development, machine learning, and cybersecurity**. The Ph.D. students will join the EST lab to develop machine learning and transformers models to analyze defects and vulnerabilities in software codebases. The successful candidates will receive full-time research assistant positions within the EST lab.

We encourage everyone who is interested in quantum computing, machine learning, and cybersecurity to apply, especially candidates from historically underrepresented groups in STEM, e.g., Women, Blacks or African Americans, Hispanics or Latinos, and American Indians or Alaska Natives. Note that previous experience in quantum computing is preferred but not required.

Responsibilities

- Conduct research on novel methods and tools to detect software defects and vulnerabilities.
- Develop machine learning (e.g., random forest and neural networks) and transformers (e.g., GPT-4 and Hugging Face) applications for natural and programming language processing.
- Implement and deploy post-quantum cryptography algorithms in existing software systems.
- Work independently on research projects and collaborate with other researchers and students.
- Publish research findings in top-tier journals and international conferences.
- Lead research projects and mentor master's students.

Qualifications

- Master's degree in Computer Science or a related field; Applicants holding Bachelor's degrees in those disciplines with strong research publication records may be considered.
- Strong software development skills, including **programming skills** (e.g., Python, C, and Go) and project management skills.
- Solid knowledge of software engineering, machine learning, cybersecurity, and natural language processing; **experience in quantum computing and cybersecurity is a plus but not necessary**.
- Previous research experiences with publication records in well-known journals and international conferences.
- Smooth scientific writing and communication ability.
- Ability to work independently and as part of a team.

Please contact me directly by email: leizhang@umbc.edu with your cover letter, CV, and post-secondary transcripts.

You can also apply directly at UMBC Graduate School online application system:

<https://informationsystems.umbc.edu/home/graduate-programs/doctor-of-philosophy-programs/doctor-of-philosophy-in-information-systems/>. Please feel free to mention your interest in the EST lab in your personal statements. **The deadline for the Spring semester of 2025 is September 1, 2024.**