COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

PhD & Research Assistant Positions in Cybersecurity and Artificial Intelligence (AI)

Location: VinUniversity, Gia Lâm, Hà Nội, Vietnam
Position Type: Full-time / Part-time
Scholarship (PhD): Full (tuition + stipend)
Salary (RA): Negotiable

Introduction to VinUniversity

VinUniversity is a private, not-for-profit university established by **Vingroup**, the largest private conglomerate in Vietnam. In strategic collaboration with **Cornell University** and the **University of Pennsylvania**, VinUni aspires to become a world-class institution, developing talented and entrepreneurial leaders for the future.

On September 21, 2024, **VinUniversity was officially awarded QS 5-star university status, the youngest and fastest in the world to achieve this distinction**. It earned top marks in nine categories, including Teaching, Academic Development, Employability, Facilities, and Global Engagement. Most recently, on March 27, 2025, **VinUni became the first university in Vietnam to meet 100% of the FIBAA institutional accreditation criteria** within five years of operation. Located in **Vinhomes Ocean Park, Hanoi**, VinUniversity is committed to academic excellence, research innovation, and societal impact.

Project Summary

This project offers a unique opportunity to work at the intersection of **hardware, software, artificial intelligence (AI), and cybersecurity**, applied to the design of **smart urban sensing systems**. The central focus is on the development of **secure and intelligent air quality monitoring networks** for deployment in real-world urban environments, addressing both environmental and digital safety concerns.

As part of this interdisciplinary initiative, PhD candidates and Research Assistants will be actively involved in the **end-to-end development process**—from prototyping sensor devices and embedded systems to designing robust communication protocols and integrating AI-based models for system optimization and anomaly detection. Particular emphasis is placed on exploring **cybersecurity challenges** in distributed sensor networks, such as data integrity, firmware protection, and intrusion detection, all within the constraints of low-power, resource-limited hardware.

Participants will have the opportunity to work closely on **real-world deployments**, engaging in field testing, system evaluation, and iterative design improvements. At the same time, they will contribute to **technical reports and high-quality academic publications**, gaining valuable experience in applied research and scientific communication.

This project is ideal for those interested in **practical innovation**, offering the chance to bridge theory and application in a way that directly impacts **urban sustainability, public health, and secure IoT infrastructure**. Candidates will join a collaborative and forward-thinking team working on cutting-edge problems at the interface of technology and society.

Requirements

PhD track:
- Experience with academic writing or willingness to learn to publish in scholarly venues.
- English proficiency equivalent to **IELTS 6.0 or higher**.
- Preferred: **Previous publications**, particularly in **Q1-ranked journals** or top-tier conferences in AI, cybersecurity, or related domains.
- **Cybersecurity:**
  - Strong motivation to pursue **PhD-level research in Cybersecurity**, especially in IoT, embedded systems, or AI-driven security.
  - Solid foundation in **computer security, cryptography, algorithms**, or related areas.
  - Proficiency in programming (e.g., **Python, C/C++, or system-level scripting**) and familiarity with **security libraries or tools**.
- **AI:**
  - Strong motivation to pursue **PhD-level research in AI**, with applications in cybersecurity and IoT. Solid foundation in machine learning, algorithms, and applied mathematics.
  - Programming experience (e.g., Python, PyTorch, TensorFlow, or equivalent).
  - Familiarity with or strong interest in AI for anomaly detection, optimization, or secure systems.

Research Assistant track:
- Experience with academic writing.
- English proficiency of at least IELTS 5.5 (or equivalent) to effectively read and write academic papers.
- **Cybersecurity:**
  - **Strong motivation** to conduct research in cybersecurity.
  - **Good mathematical skills**, especially in areas related to cryptography, statistics, and algorithms.
  - Programming experience.
- **AI:**
  - Strong motivation to conduct research in **Artificial Intelligence (AI)**, especially in areas related to **cybersecurity, smart sensing, or IoT**.
  - Solid mathematical background, particularly in **machine learning, statistics, and algorithms**.

- Programming experience (e.g., Python, TensorFlow, PyTorch, or similar AI/ML frameworks).
- Familiarity with AI concepts such as **supervised learning, anomaly detection, or optimization**, or a strong interest in learning them.

Key Responsibilities

- Conduct high-impact research at the intersection of **Artificial Intelligence**, **Cybersecurity**, and **IoT**, focusing on the development of secure and intelligent sensor systems for real-world applications.
- Design, implement, and evaluate **machine learning models**, **security protocols**, and **embedded solutions** to support anomaly detection, data protection, and system optimization in resource-constrained environments.
- Participate in the **end-to-end development** of smart sensing platforms, including **hardware prototyping**, **firmware programming**, **data processing**, and **system integration**.
- Analyze real-world data from deployed sensor networks to identify performance issues, detect security threats, and enhance system intelligence.
- Contribute to **academic publications**, technical reports, and research documentation targeting top-tier AI and cybersecurity venues.
- Support or lead **field testing and system deployments**, collecting sensor data, monitoring system behavior, and iterating on hardware/software improvements.
- Collaborate with a **multidisciplinary research team** across AI, cybersecurity, embedded systems, and environmental sensing to solve complex societal challenges.
- Present findings in **internal meetings**, academic seminars, and external conferences to communicate scientific insights and project outcomes.

Benefits (All Tracks)

- Opportunities to **publish research papers** in top-tier venues.
- A strong research environment with collaboration opportunities. Mentorship from internationally connected faculty (Cornell, UPenn, Deakin, UNSW, etc.)
- A stepping stone for applying to **master's and PhD scholarships** for RA positions.
- **Salary is negotiable** based on experience and qualifications.

How to Apply

Please submit your CV, a brief cover letter, and any relevant project or publication samples to cei@vinuni.edu.vn, or PI of the project: nha.ndd@vinuni.edu.vn or long.np2@vinuni.edu.vn

The project also involves collaboration with **distinguished professors at VinUniversity and leading universities in the world.** For more details on the research team and related projects, visit Dr. Nha's Website:

https://ducnha.work