Jian Xiang

Curriculum Vitae
July 2025

Assistant Professor
Software and Information System
College of Computing and Informatics
University of North Carolina at Charlotte

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RESEARCH INTERESTS

The primary goal of my research is to advance the state of art of formal methods for modeling and verifying the correctness and security of computer systems, especially cyber-physical systems, and to develop tools and techniques to help construct systems that are correct and secure. My broad research interests include security, formal verification, cyber-physical system, and programming language.

EDUCATION

- **Ph.D., Computer Science**
  University of Virginia, Charlottesville, VA
  Dissertation: *Interpreted Formalism: Towards System Assurance and the Real-World Semantics of Software*
  Advisor: John Knight
- **M.E., Software Engineering**
  Tsinghua University, Beijing, China
  Thesis title: *SREM: A Service Requirements Elicitation Mechanism based on Ontology*
  Advisor: Lin Liu
- **B.S., Electronic Science and Technology**
  Huazhong University of Science and Technology, Wuhan, China

PROFESSIONAL EXPRIENCE

- **Assistant Professor**
  UNC Charlotte, Charlotte, NC   Aug.2023 – Present
- **Research Associate**
  Harvard University, Cambridge/Allston, MA   Sep.2020 – Aug.2023
- **Postdoctoral Researcher**
  Harvard University, Cambridge, MA   Sep.2017 – Aug.2020
- **Postdoctoral Researcher**
  University of Virginia, Charlottesville, VA   Aug.2016 – May.2017

Publications

Journal Paper

- *Measuring Robustness in Cyber-Physical Systems under Sensor Attacks*.
  Nonlinear Analysis: Hybrid Systems, 2025
  J. Xiang, R. Lanotte, S. Tini, and M. Merro

Conference Paper

- *Formal Robustness for Cyber-Physical Systems under Timed Attacks*.
  IEEE Computer Security Foundations Symposium (CSF), June 2025
  J. Xiang, S. Tini, R. Lanotte, and M. Merro

- *Extending Dynamic Logics with First-Class Relational Reasoning*.
  NASA Formal Methods Symposium (NFM), June 2025
  J. Xiang and S. Chong.

- *Quantitative Robustness Analysis of Sensor Attacks on Cyber-Physical Systems*.
  ACM International Conference on Hybrid Systems: Computation and Control (HSCC), May 2023
  S. Chong, R. Lanotte, M. Merro, S. Tini, and **J. Xiang** (all authors contributed equally)

- *Relational Analysis of Sensor Attacks on Cyber-Physical Systems*.
  IEEE Computer Security Foundations Symposium (CSF), June 2021.
  J. Xiang, N. Fulton, and S. Chong.

- *Co-Inflow: Coarse-grained Information Flow Control for Java-like Languages*.
  IEEE Symposium on Security and Privacy (S&P), May 2021.
  J. Xiang and S. Chong.

- *Is My Software Consistent with the Real World?*.
  International Symposium on High Assurance Systems Engineering (HASE), Jan. 2017.
  J. Xiang, J. Knight, and K. Sullivan.

- *Synthesis of Logic Interpretation*.
  International Symposium on High Assurance Systems Engineering (HASE), Jan. 2016.
  J. Xiang, J. Knight, and K. Sullivan.

- *Real-World Types and Their Application*.
  International Conference on Computer Safety, Reliability and Security (SAFECOMP), Sep. 2015.
  J. Xiang, J. Knight, and K. Sullivan.

- *SREM: A Service Requirements Elicitation Mechanism based on Ontology*.
  IEEE International Computer Software and Applications Conference (COMPSAC). Jul. 2007
  J. Xiang, L. Liu, W. Qiao.

Book Chapter

- *A Rigorous Definition of Cyber-Physical Systems*.
  Trustworthy Cyber-Physical Systems. CRC Press, 2016.
  J. Knight, **J. Xiang**, and K. Sullivan.

Workshop Paper

- *A Safety Condition Monitoring System.*
  International Workshop on Assurance Cases for Software-intensive Systems, Sep. 2015.
  J. Knight, J. Rowanhill and **J. Xiang**.

PhD Thesis

- *Interpreted Formalism: Towards System Assurance and the Real-World Semantics of Software*

Teaching Experience

Instructor

- *ITIS 6200/8200 Principles of Information Security & Privacy*   Spring 2025, Fall 2024, Spring 2024, Fall 2023

Professional Activity

Program Committee

- *ACM Conference on Architectural Support for Programming Languages and Operating Systems* (ASPLOS) 2025
- *Workshop on Programming Languages and Analysis for Security* (PLAS), 2021

Journal Reviewer

- *Science of Computer Programming* (Elsevier SCP), 2025
- *Transactions on Programming Languages and Systems* (ACM TOPLAS), 2022

Poster and Tool Committee

- *IEEE Secure Development Conference* (SecDev), 2019

Invited Talk

- *Co-Inflow: Coarse-grained Information Flow Control for Java-like Languages*
  Amazon AWS Privacy Engineering Seminar
- *Co-Inflow: Coarse-grained Information Flow Control for Java-like Languages*
  NIO.io Security Seminar

Funding

Internal grants

- Modeling and Verification of Correctness and Security for Autonomous Machines. UNC Charlotte. Faculty Research Grants. 2024–2025. $8000.