Jian Xiang

Curriculum Vitae
Sep.2023

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

jian.xiang@charlotte.edu
[Personal Webpage]

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

Manuscripts Under Review/In Preparation

- *Formal Reasoning of Security for Industrial Robotic Manipulators*. (in preparation)
  J. Xiang, R. Ghosal, S. Ahmed, M. Juliato, V. Lesi, V. J. Reddi and M. R. Sastry.
- *Extending Dynamic Logics with First-Class Relational Reasoning*. (in preparation)
  J. Xiang, N. Fulton, and S. Chong.

Refereed Conference Paper

- *Quantitative Robustness Analysis of Sensor Attacks on Cyber-Physical Systems*. PDF
  ACM International Conference on Hybrid Systems: Computation and Control (HSCC), May 2023
  S. Chong*, R. Lanotte*, Massimo Merro*, S. Tini*, and **J. Xiang*** (all authors contributed equally)
- *Relational Analysis of Sensor Attacks on Cyber-Physical Systems*. PDF
  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*. PDF
  IEEE Symposium on Security and Privacy (S&P), May 2021.
  J. Xiang and S. Chong.
- *Is My Software Consistent with the Real World?*. PDF
  International Symposium on High Assurance Systems Engineering (HASE), Jan. 2017.
  J. Xiang, J. Knight, and K. Sullivan.
- *Synthesis of Logic Interpretation*. PDF
  International Symposium on High Assurance Systems Engineering (HASE), Jan. 2016.
  J. Xiang, J. Knight, and K. Sullivan.
- *Real-World Types and Their Application*. PDF
  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*. PDF
  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**
  - *Principles of Information Security & Privacy* — Fall 2023
- **Teaching Assistant**
  - *Advanced Software Development* — Fall 2014, Spring 2014
  - *Discrete Mathematics* — Fall 2013

Professional Activity

- *Program Committee*: Workshop on Programming Languages and Analysis for Security (PLAS 2021)
- *Journal Reviewer*: ACM Transactions on Programming Languages and Systems (TOPLAS 2022)

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