

Yuning JIANG

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ABOUT ME

Experienced Computer Scientist | Senior Researcher | Lecturer.

Currently, I serve as a Research Fellow at the National University of Singapore. My career spans over nine years, dedicated to interdisciplinary research in computer science and information systems, specializing in cybersecurity and data driven applications. In addition to my research skills, I possess extensive experience in project management in computer science disciplines in international environments.

EDUCATION

SEP.2022	PhD in Informatics, University of Skövde, Sweden
AUG.2017	Thesis Topic : <i>Cyber Vulnerability Analysis for Critical Infrastructures</i> . (Supervisors : Prof. Yacine Atif, Assoc. Prof. Jianguo Ding, Prof. Manfred A. Jeusfeld, Assoc. Prof. Birgitta Lindström and PhD Christoffer Brax)
JAN.2016	MSc in Electronic Engineering with Business Management, King's College London, United Kingdom
SEPT.2014	Thesis Topic : <i>Case Study of Internet Access in Developing Countries</i> . (Supervisor : Prof. Aghvami Hamid)
JUN.2014	BSc (Eng) in Electronics and Information, Beihang University, China
SEPT.2010	- Thesis Topic : <i>Optimal Energy Management Strategy of Fuel Cell Hybrid Power Systems</i> . (Supervisors : Prof. Toufik Azib, Prof. Yongjun Xie) - Exchange to Ecole Supérieure Des Techniques Aéronautiques Et De Construction Automobile, France from Jan 2014 to June 2014.

EXPERIENCE

Present	Research Fellow , NATIONAL UNIVERSITY OF SINGAPORE, SINGAPORE
OCT.2023	<ul style="list-style-type: none">➤ Led a team to architecture a hybrid vulnerability database pipeline integrating rule-based and LLM-supported NER/RE, improving vulnerability retrieval precision and coverage.➤ Developed a multi-layer risk scoring system with dependence-aware vulnerability patch prioritization and virtual patching. (demo available)➤ Guided a threat hunting project, enhancing attack detection accuracy by using MITRE ATT&CK mappings and graph-based models.➤ Pioneered a game-theoretical framework to integrate CTI with LLM pipeline and RAG, optimizing patch strategies and predicting attacker behaviors.➤ Collaborated with NCS Pte Ltd for funding applications.
OCT.2023	Research Fellow , NANYANG TECHNOLOGICAL UNIVERSITY, SINGAPORE
OCT.2022	Led development of a Knowledge Graph-based tool for WeBank, achieving 85% NER accuracy and optimizing software testing workflows. Managed full project lifecycle (coding, testing and implementation).
OCT.2023	Visiting Research Fellow , CHINA-SINGAPORE INTERNATIONAL JOINT RESEARCH INSTITUTE (CSIJRI), CHINA
MAR.2023	Orchestrated collaborative research activities to bridge the collaborations between research team in NTU and software development team in CSIJRI.
SEP.2022	Doctoral Thesis , UNIVERSITY OF SKÖVDE, SWEDEN
AUG.2017	Designed and developed models to support system-wide dependence analysis and cybersecurity assessment. (Python, MongoDB, Redis, Keras, Tensorflow, NumPy, sci-kit-learn, Pandas, Gensim, SecuriCAD) <ul style="list-style-type: none">➤ Organized cybersecurity workshops for power-grid stakeholders.➤ Co-founded a startup, Norgald, and secured collaboration with Chalmers Venture➤ Secured 113,000 SEK in research validation funding, affirming project viability and impact.➤ Conducted case studies with industry partners, identifying critical vulnerabilities.➤ Constructed an Ensemble machine learning pipeline to enhance vulnerability detection accuracy.
Sep.2015	Research Projects , KING'S COLLEGE LONDON, UNITED KINGDOM
Jan.2015	<ul style="list-style-type: none">➤ Smart City Multi-Mode Transportation Project (Research Project in one Master course) : Predicted which transportation people prefer to choose in varying traffic scenarios.➤ Case Study of Internet Access in Developing Countries (Master Thesis Project) : Proposed a cost-effective and secure Internet communication infrastructure in emerging economic areas.

JUN.2017	Data Product Manager , BEIJING CHANGJIU LOGISTICS CO., LTD., CHINA
AUG.2016	<p>Led a team of 10 in developing data-driven products to predict car dealership loan risks with 85% accuracy. (Python, Gradient Boosting Decision Tree, Data Visualization, MySQL, PostgreSQL)</p> <ul style="list-style-type: none"> ➤ Orchestrated data management and analytics for 6600+ car dealers across 100+ brands, establishing a comprehensive database for risk analysis and decision-making. ➤ Provided strategic consultancy to partner financial institutions on real-time risk evaluation. ➤ Facilitated cross-functional collaboration with operations and marketing teams.
Jun.2014	Research Project , ECOLE SUPÉRIEURE DES TECHNIQUES AÉRONAUTIQUES ET DE CONSTRUCTION AUTOMOBILE, FRANCE
Jan.2014	Optimal Energy Management Strategy of Fuel Cell Hybrid Power Systems : Designed a system based on fuzzy logic control and stimulated using Matlab.
JAN.2014	Analyst Intern , ERICSSON COMMUNICATION, CHINA
NOV.2013	<p>Utilized Tableau and MySQL for data analytics and visualization tasks.</p> <ul style="list-style-type: none"> ➤ Implemented data mining techniques using MySQL to extract operational data from large datasets. ➤ Collaborated with operational teams to tailor visualizations to their specific needs.



TEACHING AND MENTORING

OCT.2023	Teaching Assistant , NANYANG TECHNOLOGICAL UNIVERSITY, SINGAPORE
OCT.2022	<p>- Supervised undergraduate thesis projects :</p> <ul style="list-style-type: none"> ➤ Thesis title : "Leveraging Knowledge Graphs for Microfinance Analysis". ➤ Thesis title : "Advancing Logical Analysis in Large Language Models". <p>- Supervised lab intern on project title : "Large Language Model Application in Microfinance".</p>
SEP.2022	Lecturer , UNIVERSITY OF SKÖVDE, SWEDEN
AUG.2017	<p>- Master Course Module <i>Cybersecurity for IoT and Critical Infrastructures</i> (Module Co-Leader) :</p> <ul style="list-style-type: none"> ➤ Developed a new course on IoT cybersecurity based on research outcome from <i>ELVIRA</i> project. ➤ Prepared teaching materials and delivered lectures both online and on-site. ➤ Organized and led hands-on lab seminars. <p>- Master Course Module <i>Information and Cyber Security : Principles and Practices</i> (Module Leader) :</p> <ul style="list-style-type: none"> ➤ Developed the module teaching materials and delivered the teaching contents. ➤ Curated cybersecurity training tailored for industrial professionals. ➤ Developed and organized industrial workshops for Master students. ➤ Managed the course team (e.g., student attendance, course survey, student engagement activities). <p>- Undergraduate Course Module <i>Object-Oriented Programming (OOP)</i> (Module Co-Leader) :</p> <ul style="list-style-type: none"> ➤ Prepared and delivered teaching materials. ➤ Organized and led lab activities on OOP using JAVA. <p>- Undergraduate Course Module <i>Algorithm and Data Structure</i> :</p> <ul style="list-style-type: none"> ➤ Prepared and delivered the module. ➤ Organized and led lab seminars using C++ for game development. ➤ Ensured understanding of course content through practical exercises and assessments. <p>- Other activities :</p> <ul style="list-style-type: none"> ➤ School Teaching Panel member. ➤ School open-day demonstrator. ➤ Bridged mentors and doctoral students through the PhD board.
SEP.2022	Teaching Training and Certificate , UNIVERSITY OF SKÖVDE, SWEDEN
AUG.2017	<p>- Training for Higher Education Teaching :</p> <ul style="list-style-type: none"> ➤ Teaching and Learning in Higher Education I. ➤ Teaching and Learning in Higher Education II.

OTHER ACTIVITIES

Present Mar.2024	GUEST EDITOR FOR : <ul style="list-style-type: none">> Journal of <i>Intelligent Communication</i>
Present AUG.2020	REVIEWER FOR THE FOLLOWING : <ul style="list-style-type: none">> <i>Business & Information Systems Engineering</i> (2023)> <i>IEEE Transactions on Intelligent Vehicles</i> (2023)> <i>Swedish Production Symposium</i> (2022)> <i>Computers & Security</i> (2021)
Oct.2022 Oct.2022	Co-ORGANIZER FOR : <ul style="list-style-type: none">> <i>Special Session of "Digital Games as Socio/Technical Systems" in IEEE International Conference on e-Business Engineering (ICEBE)</i>
Present OCT.2017	PRESENTATIONS IN CONFERENCES : <ul style="list-style-type: none">> <i>ER 2023 Journal First Session in The 42nd International Conference on Conceptual Modeling</i>, (2023)> <i>The 16th International Conference on Availability, Reliability and Security (ARES)</i> (2021)> <i>The 13th International Conference on Security of Information and Networks</i> (2020)> <i>The 14th International Conference on Risks and Security of Internet and Systems</i> (2019)> <i>International Conference on Critical Information Infrastructures Security</i> (2019)> <i>The 22nd International Enterprise Distributed Object Computing Conference (EDOC)</i> (2018)> <i>International Conference on Critical Information Infrastructures Security</i> (2017)
OCT.2022 OCT.2017	YEARLY PRESENTATIONS : <ul style="list-style-type: none">> <i>SWITS (Swedish IT Security Network) seminar</i>
SEP.2022 AUG.2017	PhD Board Member , UNIVERSITY OF SKÖVDE, SWEDEN Organized panel talks, participated in interviews with senior researchers, and attended monthly meetings to discuss matters relevant to doctoral researchers.
JAN.2016 APR.2014	Mandarin Teaching Assistant , LONDON CHINESE SCHOOL, UNITED KINGDOM Assisted mandarin lectures (25-30 individuals).
JAN.2016 NOV.2014	Visiting Lecture in GCSE courses , TEAM UP HUB, UNITED KINGDOM Gave lecture and mentoring sessions in GCSE topics (2-3 individuals).

HONORS AND AWARDS

2022	Länsförsäkringar Skaraborg Prize, issued by Skaraborgs Academy on Outstanding PhD Thesis
2021	Prize for AI, Art and Society in "SAAI Factory - Hackathon on Art and AI", issued by Super Artistic AI FACTORY
2021	Anthony Parker Memorial Prize, issued by R. U. Hacking? (Reading University Hacking)
2019	Young CRITIS Award, issued by the 14th International Conference on Critical Information Infrastructure Security

FUNDING AND SCHOLARSHIP

2022	Vinnova funding on applied research validation
2019	IPSI (Industrial PhD School in Informatics) Scholarship
2017	European Union - Internal Security Fund
2014	BeiHang University YuanHang Global Study Scholarship

SKILLS

Programming	Python, Objective-C, Java, JavaScript
Database	MongoDB, MySQL, Neo4j, Apache Spark
ML/NLP	TensorFlow, PyTorch, Hugging Face Transformers, LangChain, spaCy
Methodologies	Game Theory, Knowledge Graphs, RAG, Hybrid Rule-Based/LLM Systems
Tools	Fortinet SIEM/SOAR, Rapid7 InsightVM, Tenable
Interpersonal Skills	Leadership, Technical Mentoring, Public Speaking, Cross-Functional Collaboration
Languages	Mandarin, English

- 2025 **Jiang, Y.**, Oo, N., Sikdar, B., & Lim, H. (2025). *CyGATE : Game-Theoretic Cyber Attack-Defense Engine for Patch Strategy Optimization* (Paper Under Review)
- 2025 **Jiang, Y.**, Oo, N., Meng, Q., Sikdar, B., & Lim, H. (2025). *VulRG : Multi-Level Explainable Vulnerability Patch Ranking for Complex Systems Using Graphs* (Paper Under Review)
- 2025 **Jiang, Y.**, Oo, N., Meng, Q., Sikdar, B., & Lim, H. (2025). *MITRE ATT&CK Application in Threat Intelligence and The Way Forward* (Paper Under Review)
- 2024 **Jiang, Y.**, Oo, N., Meng, Q., Sikdar, B., & Lim, H. (2024). *SoK : Vulnerability Prioritization in Complex Systems* (Paper Under Review)
- 2024 Meng, Q., **Jiang, Y.**, Oo, N., Sikdar, B., & Lim, H. (2024). *M²ASK : A Correlation-Based Multi-Step Attack Scenario Detection Framework Using MITRE ATT&CK Mapping* (Poster Accepted in ACM CCS 2024)
- 2024 **Jiang, Y.**, Jeusfeld, M., Mosaad, M., & Oo, N. (2024). *Enterprise architecture modeling for cybersecurity analysis in critical infrastructures-A systematic literature review*. In : International Journal of Critical Infrastructure Protection, 100700. [🔗 \(Paper Link\)](#)
- 2024 **Jiang, Y.**, Wang, W., Ding, J., Lu, X., & Jing, Y. (2024). *Leveraging Digital Twin Technology for Enhanced Cybersecurity in Cyber-Physical Production Systems*. In : Future Internet 2024, 16, 134. [🔗 \(Paper Link\)](#)
- 2023 **Jiang, Y.**, Li, R., Xing, Z., & Zhao, X. (2023). *A Method for Software Test Case Recommendation based on Knowledge Graph* [🔗 \(Patent Link\)](#)
- 2023 **Jiang, Y.**, Jeusfeld, M., Ding, J., & Sandahl, E. (2023). *Model-Based Cybersecurity Analysis : Extending Enterprise Modeling to Critical Infrastructure Cybersecurity* In : Business & Information Systems Engineering, 1-34. [🔗 \(Paper Link\)](#)
- 2022 **Jiang, Y.** (2022). *Vulnerability Analysis for Critical Infrastructures*. [🔗 \(Thesis Link\)](#)
- 2022 **Jiang, Y.**, & Atif, Y. (2022). *Towards automatic discovery and assessment of vulnerability severity in cyber-physical systems..* Array, p.100209. [🔗 \(Paper Link\)](#)
- 2021 **Jiang, Y.**, & Atif, Y. (2021). *A Selective Ensemble Model for Cognitive Cybersecurity Analysis*. Journal of Network and Computer Applications, 193, 103210. [🔗 \(Paper Link\)](#)
- 2021 **Jiang, Y.**, Jeusfeld, M., & Ding, J. (2021, August). *Evaluating the Data Inconsistency of Open-Source Vulnerability Repositories*. In 4th International Workshop on Cyber Threat Intelligence Management (CyberTIM 2021) of 16th International Conference on Availability, Reliability and Security (ARES 2021). [🔗 \(Paper Link\)](#)
- 2020 **Jiang, Y.**, & Atif, Y. (2020, November). *An Approach to Discover and Assess Vulnerability Severity Automatically in Cyber-Physical Systems*. In 13th International Conference on Security of Information and Networks. (pp. 1-8). [🔗 \(Paper Link\)](#)
- 2019 **Jiang, Y.**, Atif, Y., Ding, J., & Wang, W. (2019, October). *A Semantic Framework with Humans in the Loop for Vulnerability-Assessment in Cyber-Physical Production Systems*. In International Conference on Risks and Security of Internet and Systems. (pp. 128-143). Springer, Cham. [🔗 \(Paper Link\)](#)
- 2019 **Jiang, Y.**, Atif, Y., Ding, J. (2019, September). *Cyber-Physical Systems Security Based on a Cross-Linked and Correlated Vulnerability Database*. In International Conference on Critical Information Infrastructures Security. (pp. 71-82). Springer, Cham. [🔗 \(Paper Link\)](#)
- 2018 **Jiang, Y.**, Jeusfeld, M., Atif, Y., Ding, J., Brax, C., Nero, E. (2018, October). *A Language and Repository for Cyber Security of Smart Grids*. In 2018 IEEE 22nd International Enterprise Distributed Object Computing Conference (EDOC). (pp. 164-170). IEEE. [🔗 \(Paper Link\)](#)