NIKOLAY IVANOV, PH.D., CCT

Tenure-Track Assistant Professor of Computer Science
Rowan University, 328J Robinson Hall, 201 Mullica Hill Road, Glasboro, NJ 08028
ivanov@rowan.edu ⋄ Phone: 856-256-4500 ext. 53548 ⋄ https://nick-ivanov.com/

EDUCATION

Michigan State University *2019 - May 2023*
PhD in Computer Science *Advisor:* Dr. Qiben Yan GPA: 4.00/4.00
Research areas: network security, distributed systems, applied cryptography, smart contract security
Outstanding Graduate Student Award
Phi Kappa Phi (eligibility: top 10% of graduate students)
MSU Certificate in College Teaching (CCT)

University of Nebraska—Lincoln *2018 - 2019*
Graduate student, Computer Engineering GPA: 4.00/4.00
Othmer Fellowship (exceptional scholar)
Transferred to Michigan State University with my advisor

Southwest Minnesota State University *2014 - 2018*
BSc in Computer Science *Summa Cum Laude*

PROFESSIONAL EXPERIENCE

RESEARCH UNIVERSITY FACULTY:

Tenure-track Assistant Professor of Computer Science
Research Laboratory for Advanced Cyber Systems and Usable Security (ACSUS Lab) — founder, director
Rowan University Incoming in September 2023

ACADEMIC RESEARCHER:

Research Assistant at Secure and Intelligent Things Lab (SEIT Lab) 2019—2023
Michigan State University
· Conducted research in the fields of blockchain security, smart contracts, and applied cryptography.

Research Assistant at Cyber Security and Threat Intelligence Lab 2018—2019
University of Nebraska — Lincoln
· Conducted research in the fields of IoT security, blockchain, smart contract security.

UNIVERSITY INSTRUCTOR OF RECORD:

CS 06205-2: "Computer Organization"
Rowan University Fall 2023

CS 06205-3: "Computer Organization"
Rowan University Fall 2023

CSE 450-001: "Translation of Programming Languages"
Michigan State University Spring 2023

CSE 450-001: "Translation of Programming Languages"
Michigan State University Fall 2022

INTERNSHIPS:

Thomson Reuters, Eagan, MN   June 2016—December 2016
Software Engineer, Co-op Intern through Maverick Software Consulting

· Implemented several endpoints for the DataRoom REST API serving $\approx$ 3 million end customers.
· Implemented a Pub/Sub logging framework using Apache Kafka.
· Served as project lead at Thomson Reuters Innovation Week (automated workplace setup software).

Anoka Technical College, Anoka, MN   June 2017—August 2017
Android and iOS App Developer
· Created native Android and iOS college apps.

Marshall Frame Shop, Marshall, MN   May 2017—June 2017
PHP/MySQL Web Developer
· Created web interface for MySQL database.

UNIVERSITY TUTOR:

Mathematics Tutor, Marshall, MN
Math Learning Center, Southwest Minnesota State University   2017—2018

Computer Science Tutor, Marshall, MN
Schwan's Computer Science Lab, Southwest Minnesota State University   2015—2018

Technical and Creative Writing Tutor, Marshall, MN
Writing Center, Southwest Minnesota State University   2015—2018

PUBLICATIONS

JOURNAL PAPERS:

1. **N. Ivanov**, Q. Yan. *AutoThing: A Secure Transaction Framework for Self-Service Things.* IEEE Transactions on Services Computing (**IEEE TSC**) DOI: 10.1109/TSC.2022.3185114
   (impact factor: 11.019)   2022

2. **N. Ivanov**, A. Kompalli, Q. Yan. *TxT: Real-time Transaction Encapsulation for Ethereum Smart Contracts.* IEEE Transactions on Information Forensics and Security (**IEEE TIFS**)
   DOI: 10.1109/TIFS.2023.3234895
   (impact factor: 7.231).   2023

3. **N. Ivanov**, C. Li, Q. Yan, Z. Sun, Z. Cao, X. Luo. *Security Threat Mitigation For Smart Contracts: A Survey.* To appear at ACM Computing Surveys (**ACM CSUR**) DOI: 10.1145/3593293
   (impact factor: 14.324)   2022

CONFERENCE PAPERS:

4. H. Guo, Y. Wang, **N. Ivanov**, L. Xiao, Q. Yan. *SpecPatch: Human-In-The-Loop Adversarial Audio Spectrogram Patch Attack on Speech Recognition.* The ACM Conference on Computer and Communications Security (**ACM CCS 2022**) DOI: 10.1145/3548606.3560660
   (Best Paper Honorable Mention)   2022

5. **N. Ivanov**, Q. Yan, Q. Wang. *Blockumulus: A Scalable Framework for Smart Contracts on the Cloud.* The 41st IEEE International Conference on Distributed Computing Systems (**IEEE ICDCS 2021**)

DOI: 10.1109/ICDCS51616.2021.00064
(acceptance rate: 19.8%). 2021

6. **N. Ivanov**, J. Lou, T. Chen, J. Li, Q. Yan. *Targeting the Weakest Link: Social Engineering Attacks in Ethereum Smart Contracts.* The 15th ACM Asia Conference on Computer and Communications Security (**ACM ASIACCS 2021**) DOI: 10.1145/3433210.3453085
(acceptance rate: 18.9%). 2021

7. G. Wang, **N. Ivanov**, Q. Wang, T. Nguyen, Q. Yan. *Graph Learning for Interaction Analysis in Smart Home Rule Data.* ACM Special Interest Group on Management of Data (**ACM SIGMOD 2023**) DOI: 10.1145/3588956
(average acceptance rate: 17.4%) 2023

8. H. Guo, Q. Yan, **N. Ivanov**, Y. Zhu, L. Xiao, E. Hunter. *SUPERVOICE: Text-Independent Speaker Verification Using Ultrasound Energy in Human Speech.* The 16th ACM Asia Conference on Computer and Communications Security (**ACM ASIACCS 2021**) DOI: 10.1145/3488932.3517420
(acceptance rate: 18.4%). 2022

9. **N. Ivanov**, Q. Yan. *EthClipper: A Clipboard Meddling Attack on Hardware Wallets with Address Verification Evasion.* IEEE Conference on Communications and Network Security (**IEEE CNS 2021**) DOI: 10.1109/CNS53000.2021.9705033
(acceptance rate: 28.3%) 2021

10. **N. Ivanov**, H. Guo, Q. Yan. *Rectifying Administrated ERC20 Tokens.* 23rd International Conference on Information and Communications Security (**ICICS 2021**) DOI: 10.1007/978-3-030-86890-1_2
(acceptance rate: 24.3%) 2021

11. **N. Ivanov**, Q. Yan. *System-Wide Security for Offline Payment Terminals.* EAI International Conference on Security and Privacy in Communication Networks (**EAI SecureComm 2021**)
DOI: 10.1007/978-3-030-90022-9_6 2021

12. **N. Ivanov**, J. Lou, Q. Yan. *SmartWiFi: Universal and Secure Smart Contract-Enabled WiFi Hotspot.* EAI International Conference on Security and Privacy in Communication Networks
(**EAI SecureComm 2020**) DOI: 10.1007/978-3-030-63086-7_23 2020

JUST ACCEPTED PAPERS:

13. B. Chen, **N. Ivanov**, G. Wang and Q. Yan. *DynamicFL: Balancing Communication Dynamics and Client Manipulation for Federated Learning.* 20th Annual IEEE International Conference on Sensing, Communication, and Networking
(**IEEE SECON 2023**) 2023

14. J. Watkins, **N. Ivanov**, K. Hinko and K. Mohan. *Investigating Perceptions of Relevance Towards Computation in an Introductory Physics for Life Science Course.* Physics Education Research Conference 2023 (**PERC 2023**) — Result of SUTL Fellowship 2023

POSTERS AND PREPRINTS:

15. **N. Ivanov**, Q. Yan. *Et tu, Blockchain? Outsmarting Smart Contracts via Social Engineering.* 14th annual Graduate Academic Conference (GAC) (poster) 2022

16. **N. Ivanov**, Q. Yan. *Decentralization Paradox: A Study of Hegemonic and Risky ERC-20 Tokens.* 2022 Engineering Graduate Research Symposium (EGRS) (poster) 2022

17. **N. Ivanov**. *Is Rust C++-fast? Benchmarking System Languages on Everyday Routines* (arXiv, preprint) 2020

18. **N. Ivanov**, Q. Yan. *Constraint-Based Inference of Heuristics for Foreign Exchange Trade Model Optimization* (arXiv, preprint) 2019

BOOKS:

19. **N. Ivanov**. *Book: Programming in Linux: Self-instruction Guide. 2nd Edition.* ISBN: 978-5-9775-0744-8, *BHV-Peterburg* [in Russian] 2012

20. **N. Ivanov**. *Book: Programming in Linux: Self-instruction Guide. 1st Edition.* ISBN: 978-5-9775-0071-5, *BHV-Peterburg* [in Russian] 2007

PATENTS

Scalable Frameworks for Deployment of Decentralized Transactions
Inventor. *Application # US 63/219273*, filed July 7, 2021

MEDIA COVERAGE OF RESEARCH

Mini-documentary: M. David. *Combining the best of blockchain and cloud computing*
Institute for Cyber Enabled Research. February 2022.
https://www.youtube.com/watch?v=K6kiNm9N9I8

News Article: *Ph.D. student Nick Ivanov creates Blockumulus*
Engineering News (Michigan State University). February 2022.
https://www.egr.msu.edu/news/2022/02/21/phd-student-nick-ivanov-creates-blockumulus

News Article: *Combining the best of blockchain and cloud computing*
MSU Today. February 2022.
https://msutoday.msu.edu/news/2022/combining-best-blockchain-cloud-computing

Radio Interview: C. Boodoo and D. Puentes. *The Sci-Files: Nick Ivanov — Fixing the Internet Inequality with Blockchain*
WDBM Impact 88.9FM. July 2021.
https://open.spotify.com/episode/3xVuOJN2hRBCD8lkF3RgIU?si=moqbLRHPStSbCuEBYe2sWQ

Radio Interview: C. Boodoo and D. Puentes. *The Sci-Files: Nick Ivanov — Blockchain Beyond Cryptocurrencies*
WDBM Impact 88.9FM. May 2020.
https://impact89fm.org/101165/podcasts/
the-sci-files-07-25-2021-nick-ivanov-fixing-the-internet-inequality-with-blockchain/

AWARDS, FELLOWSHIPS, AND FUNDING

Cloud Computing Fellowship
Institute for Cyber-Enabled Research 2020–2021

Scholarship of Undergraduate Teaching and Learning (SUTL) Fellowship
The Graduate School of MSU 2022-2023

Leadership Development Fellowship
The Graduate School of MSU   2021–2022

Othmer Exceptional Scholar Fellowship
University of Nebraska–Lincoln   2018, 2019

Carl V. Page Memorial Graduate Fellowship
Michigan State University   2022-2023

Mildred B. Erickson Fellowship
Michigan State University   2022-2023

William E. and Phoebe B. Clark Scholarship
Michigan State University   2022-2023

Science Mathematics and Computer Science Scholarship
SMSU Foundation   2015, 2016, 2017

International Student Success Scholarship
Sara and Bryan Fier   2017

Outstanding Graduate Student Award
Computer Science and Engineering, Michigan State University   2022

ΦΚΦ Membership (eligibility: top 10% of the university's graduate students)
Michigan State University Chapter   2022–Present

Abacus Award
SMSU Foundation   2015, 2016, 2017

Walter Mann Writing Center Award
Walter L. Mann Estate   2018

Mark Edelmann Leadership Award
Mark W. Edelmann   2017

Alec Bond Memorial Award (essay contest winner)
Friends Colleagues, and family of Alec Bond   2015

CERTIFICATIONS AND PROFESSIONAL TRAINING

MSU Certification in College Teaching (CCT)   2022-2023
Micghigan State University Graduate School — portfolio submitted for final evaluation
Certificate: *to appear at the MSU official academic transcript after final evaluation (cir. Sep 2023)*

An Introduction to Evidence-Based Undergraduate STEM Teaching   2022
Center for the Integration of Research, Teaching and Learning (CIRTL Network)
Certificate: https://nick-ivanov.com/certificates/cirtl-stem.pdf

Inclusive Teaching: Supporting All Students in the College Classroom 2021–2022
Columbia University
Certificate: https://nick-ivanov.com/certificates/columbia-inclteach.pdf

Teaching and Learning in the Diverse Classroom   2022
Cornell University
Certificate: https://nick-ivanov.com/certificates/cornell-tldc.pdf

Leading for Equity, Diversity and Inclusion in Higher Education 2022
University of Michigan
Certificate: https://nick-ivanov.com/certificates/umich-edi.pdf

Regional I-Corps Course. Project: Decentralized Network Sharing Platform
NSF I-Corps Hub Great Lakes Region, hosted by University of Michigan 2022
Certificate: https://nick-ivanov.com/certificates/icorps.pdf

Certified CyberAmbassador
NSF Award #1730137, hosted by Michigan State University 2020
Certificate: https://nick-ivanov.com/certificates/cyber-ambassador.pdf

Programming Mobile Applications for Android Handheld Systems
University of Maryland, College Park 2017
Certificate (Part 1): https://nick-ivanov.com/certificates/umd-android-part1.pdf
Certificate (Part 2): https://nick-ivanov.com/certificates/umd-android-part2.pdf

SELECTED CONFERENCE AND JOURNAL ENGAGEMENT

IEEE Transactions on Information Forensics and Security (TIFS)
Reviewer 2023

The Seventeenth International Conference on Emerging Security Information, Systems and Technologies (SECUREWARE 2023)
TPC member 2023

IEEE International Conference on Computer Communications (INFOCOM)
Poster TPC member 2022

ACM Transactions on Sensor Networks (TOSN)
Reviewer 2021, 2023

EAI International Conference Heterogeneous Networking for Quality, Reliability, Security and Robustness (QSHINE)
Reviewer 2021

IEEE Conference on Communications and Network Security (CNS)
Presenter 2021

41st IEEE International Conference on Distributed Computing Systems (ICDCS)
Presenter 2021

16th ACM ASIA Conference on Computer and Communications Security (AsiaCCS)
Presenter 2021

17th EAI International Conference on Security and Privacy in Communication Networks (SecureComm)
Presenter 2021

16th EAI International Conference on Security and Privacy in Communication Networks (SecureComm)
Presenter 2020

LECTURES, INVITED TALKS, AND INTERVIEWS

"Relevance of Computation in an Intro Physics Course"
Presenter, *MSU Teaching Cohort Fellows and Fellowship Leaders Showcase* 2023

"The Three Problems of the Modern NFT Ecosystem"
Invited speaker, *MSU Student Life & Engagement* 2022

"Blockchain beyond Hype: Scalability, Legalization, Fees, and Money Laundering."
Expert panel member, *MSU Cryptocurrency Initiative* 2022

"Outsmarting Smart Contracts via Social Engineering"
Speaker, *The 14th Annual Graduate Academic Conference (GAC)* 2022

"Combining the Best of Blockchain and Cloud Computing"
Video Interview, *Institute for Cyber-Enabled Research (ICER).* 2022

"Global Wi-Fi network for bridging the digital divide."
Radio Interview, *The SciFiles, Impact 89FM.* 2021

"Deploying Smart Contracts on the Cloud."
Cloud Symposium Speaker, *Institute for Cyber-Enabled Research (ICER)* 2021

"Blockchain & Smart Contracts: Adoption, Challenges, and Research."
Guest Speaker, *Michigan State University* 2021

"Blockchain Beyond Cryptocurrencies."
Radio Interview, *The SciFiles, Impact 89FM.* 2020

"A Brief Introduction to Blockchain."
Lecture, *Department of Computer Science and Engineering, Michigan State University* 2020

ACADEMIC SERVICE AND COMMITTEE MEMBERSHIP

Fitch H. Beach Award Adjudicator
College of Engineering, Michigan State University 2023

Reps for EDU Ambassador
Replit Reps for EDU: https://reps-for-edu.replit-community.repl.co/ 2022-2023

Engineering Graduate Studies Committee (elected)
College of Engineering, Michigan State University 2022-2023

Mid-Michigan Symposium for Undergraduate Research (MIDSURE) Evaluator
College of Engineering, Michigan State University 2022

Strategic Planning Committee for 2022–2027 period
College of Engineering, Michigan State University 2022

SSS Team ("white hat" hacking team). Founder & President
Michigan State University 2021-2022

Department Advisory Committee. Graduate Representative (elected)
Computer Science and Engineering, Michigan State University 2020-2021 and 2022-2023

Computing Environment Committee (appointed by department)
Computer Science and Engineering, Michigan State University 2020-2022

Graduate Representative for Computer Engineering (elected)
Computer Science and Engineering, University of Nebraska–Lincoln 2018–2019

SELECTED PROFESSIONAL SOCIETIES MEMBERSHIPS

ACM, Professional Member 2022–Present

ACM, Student Member 2015–2022

IEEE, Full Member 2023–Present

IEEE, Graduate Student Member 2018–2023

REFERENCES

References will be provided upon request.