Dr. MUOI TRAN

Vietnamese: Tran Duc Muoi

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Education

08/2016 - 03/2022	Ph.D. in computer science, **National University of Singapore** (Singapore)
	Advised by Prof. Zhenkai Liang and Prof. Min Suk Kang
	Ph.D. thesis: *Handling network attacks exploiting routing information asymmetries*
09/2011 - 07/2015	B.S. in computer science, **Vietnam National University** (Vietnam)
	Advised by Prof. Hoang Truong
	Thesis: *Some improvements for regular expression solving in Z3-Regex*

Work experience

09/2022 -	Postdoctoral researcher, **ETH Zurich** (Switzerland)
04/2022 - 08/2022	Research fellow, **National University of Singapore** (Singapore)
08/2020 - 03/2022	Research assistant, **National University of Singapore** (Singapore)
05/2018 - 08/2018	Intern researcher, **IBM Research** (Singapore)
01/2016 - 07/2016	Research assistant, **National University of Singapore** (Singapore)
07/2015 - 12/2015	Intern researcher, **National University of Singapore** (Singapore)

Pedagogical training

2024	*Teaching in the English-speaking classroom*, **ETH Zurich** (Switzerland)
	Teaching Portfolio and Teaching Statement, **ETH Zurich** (Switzerland)

Teaching experience

2023   Advanced Topics in Communication Networks
ETH Zurich (Switzerland)
Teaching assistant

2020   Network Security
National University of Singapore (Singapore)
Teaching assistant

2018   Network Security
National University of Singapore (Singapore)
Teaching assistant

2017   System Security
Introduction to Operating Systems
National University of Singapore (Singapore)
Teaching assistant

2016   Programming language concepts
National University of Singapore (Singapore)
Teaching assistant

Guest lectures

2023   *Network security*
in Advanced Topics in Communication Networks
ETH Zurich (Switzerland)

2020 - 2022   *Blockchain network security*
in Network Security
National University of Singapore (Singapore)

2020   *Blockchain network security*
in Network Security
Korea Advanced Institute of Science & Technology (Korea)

Supervision

2024

Cheng-kang Chen
National University of Taiwan (Taiwan)
Master's thesis: *Finding storage and function collisions in proxy smart contracts*

Alessandro Giaconia
ETH Zurich (Switzerland)
Semester project: *Manipulating BGP monitors*

Nikodem Kernbach
ETH Zurich (Switzerland)
Master's thesis: *Exploring Morphing DDoS Attacks*

Dominique Portenier
ETH Zurich (Switzerland)
Semester project: *Stealthier BGP Hijacking Attacks*

2023

Kai De Windt
ETH Zurich (Switzerland)
Bachelor's thesis: *Network-level Attacks Against Ethereum PoS*

Kilian Dasen
ETH Zurich (Switzerland)
Semester project: *The Ramifications of Physical Failures on the Logical Internet*

Nguyet-Anh Duong
Vietnam National University (Vietnam)
Bachelor's thesis: *Securing Cross-chain Bridges with Network-based Obfuscation*

2022

Theo von Arx
ETH Zurich (Switzerland)
Master's thesis: *Generalizing Passive Routing Attacks Against Overlay Networks* ✪

Jonas Konrath
ETH Zurich (Switzerland)
Bachelor's project: *Detection of Large-scale Synchronized BGP Hijacking Attacks*

Publications

2024   **Muoi Tran**, Theo von Arx, Laurent Vanbever

Routing Attacks on Cryptocurrency Mining Pools

45th IEEE Symposium on Security and Privacy (S&P '24)

2023   Theo von Arx, **Muoi Tran**, Laurent Vanbever

Revelio: A Network-Level Privacy Attack in the Lightning Network

8th IEEE European Symposium on Security and Privacy (EuroS&P '23)

Jaehyun Ha, Seungjin Baek, **Muoi Tran**, Min Suk Kang

On the Sustainability of Bitcoin Partitioning Attacks

27th Conference on Financial Cryptography and Data Security (FC '23)

2022   Seungjin Baek, Hocheol Nam, Yongwoo Oh, **Muoi Tran**, Min Suk Kang

Short paper: On the Claims of Weak Block Synchronization in Bitcoin

26th Conference on Financial Cryptography and Data Security (FC '22)

2021   **Muoi Tran**, Akshaye Shenoi, Min Suk Kang

On the Routing-Aware Peering against Network-Eclipse Attacks in Bitcoin

30th USENIX Security Symposium (USENIX Security '21)

2020   **Muoi Tran**, Inho Choi, Gi Jun Moon, Anh V. Vu, Min Suk Kang

A Stealthier Partitioning Attack against Bitcoin Peer-to-Peer Network

41st IEEE Symposium on Security and Privacy (S&P '20)

2019   D. Gong, **Muoi Tran**, Shweta Shinde, H. Jin, Vyas Sekar, Prateek Saxena, Min Suk Kang

Practical Verifiable In-network Filtering for DDoS defense

39th IEEE International Conference on Distributed Computing Systems (ICDCS '19)

Muoi Tran, Min Suk Kang, Hsu-Chun Hsiao, W.H. Chiang, S.P. Tung, Y.S. Wang

On the Feasibility of Rerouting-based DDoS Defenses

40th IEEE Symposium on Security and Privacy (S&P '19)

2018   **Muoi Tran**, Loi Luu, Min Suk Kang, Iddo Bentov, Prateek Saxena

Obscuro: A Bitcoin Mixer using Trusted Execution Environments

34th Annual Computer Security Applications Conference (ACSAC '18)

Preprints

Wen-yi Chu, Cheng-Kang Chen, **Muoi Tran**, Hsun Lee, Laurent Vanbever, Hsu-Chun Hsiao
Uncovering All Proxy Smart Contracts in Ethereum

Georgia Fragkouli, Pavlos Nikolopoulos, **Muoi Tran**, Laurent Vanbever, Katerina Argyraki
Detecting Network Service-Level Agreement Violations with Aether

Wonhoi Kim, Hochoel Nam, **Muoi Tran**, Amin Jalilov, Zhenkai Liang, Sang Kil Cha, Min Suk Kang
Fork State-Aware Differential Fuzzing for Blockchain Consensus Implementations

Honors

2022	Dean's Research Excellence Award **National University of Singapore** (Singapore)
2021	Distinguished Shadow Program Committee Reviewer **41st IEEE Symposium on Security and Privacy** (United States)
2019 - 2020	President's Graduate Fellowship **National University of Singapore** (Singapore)
2019	Microsoft Research Asia Fellowship **Microsoft** (China)
	Dean's Research Achievement Award **National University of Singapore** (Singapore)
2017	I&E Practicum@SoC, 10K SGD **National University of Singapore** (Singapore)
2016 - 2019	Research Scholarship **National University of Singapore** (Singapore)
2015	Young Engineer and Scientist's (Y-E-S) Award **Honda Foundation** (Vietnam)

Services

2024	**45th IEEE Symposium on Security and Privacy (S&P)** *Poster PC member* **31th ACM Conference on Computer and Communications Security (CCS)** *Technical PC member* **9th IEEE European Symposium on Security and Privacy (EuroS&P)** *Technical PC member*
2023	**44th IEEE Symposium on Security and Privacy (S&P)** *Poster PC member*
2022	**43rd IEEE Symposium on Security and Privacy (S&P)** *Poster PC member*
2021	**9th International Workshop on Security in Blockchain and Cloud Computing (SBC)** *Technical PC member* **The Network and Distributed System Security Symposium (NDSS) 2021** *External reviewer*
2020	**42nd IEEE Symposium on Security and Privacy (S&P)** *Poster and Shadow PC member* **27th ACM Conference on Computer and Communications Security (CCS)** *External reviewer* **15th ACM Asia Conference on Computer and Communications Security (AsiaCCS)** *External reviewer* **24th International Conference on Financial Cryptography and Data Security (FC)** *External reviewer*
2017	**18th World Conference on Information Security Applications (WISA)** *External reviewer* **Int. Conf. on Verification, Model Checking, and Abstract Interpretation (VMCAI)** *External reviewer*
2016	**ACM Object-Oriented Programming, Systems, Languages & Applications (OOPSLA)** *External reviewer*

Invited talks

2024   When Cryptocurrency Meets Network Security: the layers, attacks, and defenses
EPFL (Switzerland)
Vietnam National University (Vietnam)

2022   Attacking and Fixing the Bitcoin Network
Syracuse University (United States)
Vietnam National University (Vietnam)
University of Cambridge (United Kingdom)

2021   Handling Network Attacks Exploiting Routing Information Asymmetries
ETH Zurich (Switzerland)
CISPA Helmholtz Center for Information Security (Germany)

On the Routing-Aware Peering against Network-Eclipse Attacks in Bitcoin
Theory and Practice of Blockchains (Online)

2019   Recent Bitcoin Partitioning Attacks
Microsoft Research Asia (China)

References

Postdoctoral advisor   Associate professor, Dr. Laurent Vanbever
ETH Zurich (Switzerland)
lvanbever@ethz.ch

Main Ph.D. advisor   Associate professor, Dr. Min Suk Kang
Korea Advanced Institute of Science and Technology (Korea)
minsukk@kaist.ac.kr

Caretaker Ph.D. advisor   Associate professor, Dr. Zhenkai Liang
National University of Singapore (Singapore)
liangzk@comp.nus.edu.sg