

MUOI TRAN

Postdoctoral researcher, Ph.D. in computer science
Vietnamese: **Tran Duc Muoi**

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EDUCATION

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

EXPERIENCE

- 2022- Postdoctoral researcher, **ETH Zurich**, Switzerland
I collaborated with Prof. Laurent Vanbever on building more secure networked systems.
My projects included:
- Measuring the Internet's resilience against physical failures.
 - Uncovering new DDoS and Internet routing attacks.
 - Securing blockchain protocols against network attacks.
- 2022 Research fellow, **National University of Singapore**, Singapore
I advised graduate students to work on testing blockchain clients via fuzzing.
- 2018 Intern researcher, **IBM Research**, Singapore
I developed a communication prototype for banks using the HyperLedger framework.
- 2016 Research assistant, **National University of Singapore**, Singapore
I tested HIPrec, a verification framework reasoning about recursive integer programs.
- 2015 Intern researcher, **National University of Singapore**, Singapore
I helped to test a few extensions of the Z3 SAT solver.

PUBLICATIONS

- 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 (EuroSP 2023).
- Jaehyun Ha, Seungjin Baek, **Muoi Tran**, Min Suk Kang.
"On the Sustainability of Bitcoin Partitioning Attacks".
27th International Conference on Financial Cryptography and Data Security (FC 2023).

- 2019-2020 President's Graduate Fellowship, **National University of Singapore**, Singapore.
Awarded to Ph.D. students with exceptional promise or accomplishment in research.
- 2019 Microsoft Research Asia Fellowship, **Microsoft**, China.
Given to 12 outstanding PhD candidates from the Asia-Pacific region.
- Dean's Research Achievement Award, **National University of Singapore**, Singapore.
Given to Ph.D. students with outstanding research performance in the past year.
- 2017 I&E Practicum@SoC, **National University of Singapore**, Singapore.
A 10,000 SGD award for students with outstanding innovations.
- 2016-2019 Research Scholarship, **National University of Singapore**, Singapore.
Default Ph.D. scholarship, upgraded into President's Graduate Fellowship.
- 2015 Y-E-S (Young Engineer and Scientist's) Award, **Honda Foundation**, Vietnam.
Awarded to 10 Vietnamese undergraduate students in engineering or science.
- Best undergraduate thesis defense, **Vietnam National University**, Vietnam.
Awarded to undergraduate students with excellent thesis defenses.
- 1st, Student Scientific Research contest, **Vietnam National University**, Vietnam.
Awarded to selected scientific research projects.
- 2012 GE Foundation Scholar-Leaders, **GE Foundation**, Vietnam.
Awarded to 10 first-year students in Vietnam.

INVITED TALKS

- 2022 "Attacking and Fixing the Bitcoin Network"
 - Syracuse University (Online)
 - Vietnam National University, Hanoi, Vietnam
 - University of Cambridge (Online)
- 2021 "Handling Network Attacks Exploiting Routing Information Asymmetries"
 - ETH Zurich (Online)
 - CISPA Helmholtz Center for Information Security (Online)
"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, Beijing, China

PROFESSIONAL SERVICES

- 2024 9th IEEE European Symposium on Security and Privacy
Technical PC member
- 2023 44th IEEE Symposium on Security and Privacy (Poster)
Technical PC member
- 2022 43rd IEEE Symposium on Security and Privacy (Poster)
Technical PC member
- 2021 9th International Workshop on Security in Blockchain and Cloud Computing
Technical PC member
- The Network and Distributed System Security Symposium 2021
External reviewer
- Admissions to the Master's program at NUS
Reviewer
- The Web Conference 2021
External reviewer
- 2020 42nd IEEE Symposium on Security and Privacy (Poster, Shadow)
Technical PC member
- ACM SIGSAC Conference on Computer and Communications Security 2020
External reviewer
- 15th ACM Asia Conference on Computer and Communications Security
External reviewer
- 24th International Conference on Financial Cryptography and Data Security
External reviewer
- 2019 Computer Science Research Week at the National University of Singapore
Organizer
- 2017 18th World Conference on Information Security Applications
External reviewer
- International Conference on Verification, Model Checking, and Abstract Interpretation
External reviewer
- 2016 2016 ACM SIGPLAN International Conference on Object-Oriented Programming,
Systems, Languages, and Applications
External reviewer

TEACHING

Assistant teach	<p>"Advanced Topics in Communication Networks" ETH Zurich, Switzerland (2023)</p> <p>"Network Security" National University of Singapore, Singapore (2017, 2020)</p> <p>"System Security" National University of Singapore, Singapore (2017)</p> <p>"Introduction to Operating Systems" National University of Singapore, Singapore (2017)</p> <p>"Programming language concepts" National University of Singapore, Singapore (2016)</p>
Guest teach	<p>"Network Security"</p> <ul style="list-style-type: none">• ETH Zurich, Switzerland (2023)• National University of Singapore, Singapore (2020, 2021)• Korea Advanced Institute of Science and Technology, Online (2020)

SUPERVISION

2024	<p>Nikodem Kernbach (jointly supervised with Theo von Arx). "Exploring Morphing DDoS Attacks". <i>Master's thesis</i>, ETH Zurich, Switzerland.</p> <p>Dominique Portenier (jointly supervised with Theo von Arx). "Stealthier BGP Hijacking Attacks". <i>Semester project</i>, ETH Zurich, Switzerland.</p>
2023	<p>Kai De Windt (jointly supervised with Lioba Heimbach). "Network-level Attacks Against Ethereum PoS". <i>Semester project</i>, ETH Zurich, Switzerland.</p> <p>Kilian Dasen (jointly supervised with Ege C. Kirci). "The Ramifications of Physical Failures on the Logical Internet". <i>Semester project</i>, ETH Zurich, Switzerland.</p> <p>Nguyet-Anh Duong (jointly supervised with Prof. Hoang Truong). Securing Relayers in Cross-chain Bridges with Network-based Obfuscation. <i>Bachelor's thesis</i>, Vietnam National University, Vietnam.</p>
2022	<p>Theo von Arx (jointly supervised with Prof. Laurent Vanbever). Generalizing Passive Routing Attacks Against Overlay Networks. <i>Master's thesis</i>, ETH Zurich, Switzerland.</p> <p>Jonas Konrath (jointly supervised with Prof. Laurent Vanbever). Detection of Large-scale Synchronized BGP Hijacking Attacks. <i>Bachelor's thesis</i>, ETH Zurich, Switzerland.</p>

REFERENCES

Prof. Laurent Vanbever
ETH Zurich
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Prof. Zhenkai Liang
National University of Singapore
liangzk@comp.nus.edu.sg

Prof. Min Suk Kang
Korea Advanced Institute of Science and Technology
minsukk@kaist.ac.kr

Prof. Hsu-chun Hsiao
National Taiwan University
hchsiao@csie.ntu.edu.tw