

Nhat-Minh Nguyen

✉ nmnguyen@smu.edu.sg

🐙 <http://www.github.com/minhnn-tiny>

🌐 <http://www.linkedin.com/in/minhnn7081>

🌐 <http://minhnn-tiny.github.io>



Employment History

2022 – Present

- **Research Engineer**, School of Computing and Information Systems, Singapore Management University.

Projects

- **MANDO** – An Enhanced Smart Contract Security Framework at mandoscan.com
 - Engineered a syntax-based parser tool to parse smart contracts into multiple types of graphs, such as AST, CFG, and CG.
 - Designed a novel Heterogeneous Graph Transformer architecture combined with LLMs to identify buggy smart contracts.
 - Developed a full-stack MVP web application allowing users to visualize graph-based vulnerability detection, bridging the gap between theoretical research and practical industry application at mandoguru.com
 - Design cloud architecture and CI/CD for the MVP on AWS cloud.
- **ContractHyperAgent** – A multi-agent code generation framework specialized for smart contracts
 - Orchestrate LLM-based agents into a development team to facilitate contract generation from natural language requirements.
 - Integrated specialized security agents into the generation pipeline and developed user-friendly interfaces (GitHub Action, Telegram Bot) to streamline developer adoption.
- **SoChainDB** – An Decentralized Social Network Database sochaindb.com/
 - Propose a pipeline for extracting big data from blockchain-based decentralized social networks.
 - Publish the entire big dataset and provide APIs for database queries and compressed archive files for the research community.

Grants & Funding

- SMU Business Innovations Generator Grant: S\$1,500.
- AWS Activate Program Credits for Start-up: US\$5,000.
- SMU IIE MOE De-Centralised Gap Funding for Market Discovery: S\$50,000.
- SMU IIE MOE De-Centralised Gap Funding: S\$250,000 (*Application in progress*)

2018 – 2022

- **AI team leader**, Unicloud Group, Vietnam.

Projects

- **eKYC** – Automatically authenticated customer system.
 - Construct a pipeline model to extract information from ID cards.
 - Liveness detection, and face matching in the customer documents.
 - Design APIs and deploy the server as a third-party service.
 - Delivered to a number of partners, such as: KienlongBank Plus, My Sunshine, KS Securities, KSFinance, etc.

Employment History (continued)

- **Smart Parking** – Parking management leveraging Computer Vision and IoT devices.
 - Extract information from license plates.
 - Build an API service to manage the in/out vehicles in the parking lots.
 - Admin dashboard for managing users and visualizing the parking lots.
 - Install on 2 buildings' parking management systems.
- **Keyword Spotting** – "Hey Siri!" for the devices with limited resources.
 - Build the optimized libraries for matrix operations using C language.
 - Optimize and convert a light Deep Learning model to the tflite-micro format.
 - Embed the models to the embedding board with ESP32 core chip.
 - Wake up real-time devices.

Education

- 2016 – 2020 ■ **B.Eng** *Computer Science and Engineering* in Ho Chi Minh City University of Technology (HCMUT).

Publications

- **Nhat-Minh Nguyen**, Hoang H. Nguyen, Long Le Thanh, Zahra Ahmadi, Thanh-Nam Doan, Daoyuan Wu, and Lingxiao Jiang. "MANDO-LLM: Heterogeneous Graph Transformers with Large Language Models for Smart Contract Vulnerability Detection". In ACM Trans. Softw. Eng. Methodol. **TOSEM** Dec. 2025. DOI: <https://doi.org/10.1145/3765751>
- Hoang H. Nguyen*, **Nhat-Minh Nguyen***, Chunyao Xie, Zahra Ahmadi, Daniel Kudenko, Thanh-Nam Doan and, and Lingxiao Jiang. "MANDO-HGT: Heterogeneous Graph Transformers for Smart Contract Vulnerability Detection". In Proceedings of the 20th International Conference on Mining Software Repositories. **MSR '23**. DOI: <https://doi.org/10.1109/MSR59073.2023.00052>
- Hoang H. Nguyen, **Nhat-Minh Nguyen**, Hong-Phuc Doan, Zahra Ahmadi, Thanh-Nam Doan and, and Lingxiao Jiang. "MANDO-GURU: Vulnerability Detection for Smart Contract Source Code By Heterogeneous Graph Embeddings". In Proceedings of the 30th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering. **ESEC/FSE 2022**. DOI: <https://doi.org/10.1145/3540250.3558927>
- Hoang H. Nguyen, **Nhat-Minh Nguyen**, Chunyao Xie, Zahra Ahmadi, Daniel Kudenko, Thanh-Nam Doan, and Lingxiao Jiang. "MANDO: Multi-Level Heterogeneous Graph Embeddings for Fine-Grained Detection of Smart Contract Vulnerabilities". In Proceedings of the 9th IEEE International Conference on Data Science and Advanced Analytics. **DSAA '22**. DOI: <https://doi.org/10.1109/DSAA54385.2022.10032337>
- Hoang H. Nguyen, Dmytro Bozhkov, Zahra Ahmadi, **Nhat-Minh Nguyen**, and Thanh-Nam Doan. "SoChainDB: A Database for Storing and Retrieving Blockchain-Powered Social Network Data". In Proceedings of the 45th International ACM SIGIR Conference on Research and Development in Information Retrieval. **SIGIR '22**. DOI: <https://doi.org/10.1145/3477495.3531735>
- **Provisional Patent**: "Electronic platform for detecting bugs in smart contract code". Application No.10202500228T. Full patent in progress.
[* *Equal contribution*]

Skills

- | | |
|-------------|--|
| Languages | ■ English and Vietnamese |
| Programming | ■ Python, C/C++, R, Javascript/Typescript, HTML, CSS, SQL, XML/XSL, \LaTeX , ... |
| Misc. | ■ Academic Research, Publishing, Full-stack, DevOps, Cloud Architecture, Docker. |

Miscellaneous Experience

- 2025  **Gemini Educator: Use AI in Education.** Issued by Google.
  **Gemini Faculty: Use AI in Education.** Issued by Google.

References

Professor Lingxiao JIANG - lxjiang@smu.edu.sg
Professor Hoang H. Nguyen - dr.hhn@hoanghnguyen.com
Dr. Thanh-Nam Doan - me@tndoan.com
Professor Tho Quan - qttho@hcmut.edu.vn