

ANDRÉ STORHAUG

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EDUCATION

Philosophiae Doctor (PhD) in Computer Science

Norwegian University of Science and Technology (NTNU)

2022 - present
Trondheim, Norway

Advisors: Prof. Jingyue Li, Prof. Zhirong Yang, & Assoc. Prof. Mariusz Nowostawski

Focus: Large language models, Code generation, Security

Master of Science in Engineering (MSE) in Computer Science

Norwegian University of Science and Technology (NTNU)

2020 - 2022
Trondheim, Norway

Thesis: "Secure Smart Contract Code Synthesis with Transformer Models"

Advisor: Prof. Jingyue Li

Bachelor of Engineering (BE) in Computer Science

Norwegian University of Science and Technology (NTNU)

2017 - 2020
Ålesund, Norway

Thesis: "Voxelizer: an Open Source Voxelization Engine"

Advisor: Prof. Ricardo da Silva Torres

EXPERIENCE

PhD Candidate

Norwegian University of Science and Technology (NTNU)

Aug 2022 - Aug 2025
Trondheim, Norway

Research focus on automatic code generation using large language models (LLMs) to produce high-quality, maintainable, and secure code.

- Developed novel "vulnerability-constrained decoding" method for generating more secure code with LLMs.
- Efficient large-scale data scraping, cleaning, labeling, and analysis.
- Distributed training of multi-billion parameter models using advanced parallelism strategies on HPC infrastructure.
- Researched agentic systems for automated code understanding and security analysis.

Visiting Student

CSIRO's Data61

Sep 2024 - Feb 2025
Sydney, New South Wales, Australia

Research visit at CSIRO's Data61, the data and digital specialist arm of Australia's national science agency. Researched agent-based software security patch discovery.

Research Assistant

Norwegian University of Science and Technology (NTNU)

Oct 2017 - Jul 2022
Ålesund, Norway

Part of the [QQMATH](#) Moodle team at NTNU, Department of ICT and Natural Sciences, under the lead of Prof. Hans Georg Schaathun. Involved in the development of several [plugins](#) for the e-learning management system Moodle:

- [JazzQuiz](#): Lets a teacher run a pre-planned quiz, but with the power of improvisation. Used by 500+ sites.
- [ShortMath](#): A Moodle question type for writing beautiful mathematical expressions in WYSIWYG. Used by 300 sites.
- [CAPQuiz](#): Computer Adaptive Practice quiz system. Used by 60+ sites.
- [QTracker](#): Issue tracking system for Moodle questions. Used by 40+ sites.

Main responsible for ShortMath and QTracker, as well as the [TeX2Max](#) transpilation library for converting LaTeX math to Maxima code. Also implemented continuous integration for all development projects.

Learning Assistant

Norwegian University of Science and Technology (NTNU)

Sep 2018 - Jun 2022
Trondheim, Norway

Part of small team at NTNU Section for learning support (earlier Centre for Teaching and Learning) providing several critical teaching related services for the 8,000+ employees and 43,000+ students at NTNU:

- Support for most of the digital services and tools offered by NTNU, like Blackboard, Urkund, KASPER, Zoom, Panopto, and Microsoft Office 365.
- Create and hold physical and digital courses and training sessions for employees and students.
- Create and maintain digital training resources such as wikis and videos.

PUBLICATIONS

Journal articles

- [1] T. Hu, J. Li, B. Li, and A. Storhaug, "Why smart contracts reported as vulnerable were not exploited?" *IEEE Transactions on Dependable and Secure Computing*, vol. 22, no. 3, pp. 2579–2596, 2025. doi: [10.1109/TDSC.2024.3520554](https://doi.org/10.1109/TDSC.2024.3520554)

Peer-reviewed conference publications

- [1] A. Storhaug, J. Li, and T. Hu, "Efficient avoidance of vulnerabilities in auto-completed smart contract code using vulnerability-constrained decoding," 2023 IEEE 34th International Symposium on Software Reliability Engineering (ISSRE), Florence, Italy, 2023, pp. 683-693. doi: [10.1109/ISSRE59848.2023.00035](https://doi.org/10.1109/ISSRE59848.2023.00035)
- [2] J. Li, P. H. Meland, J. S. Notland, A. Storhaug, and J. H. Tysse, "Evaluating the impact of ChatGPT on exercises of a software security course," 2023 ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM), New Orleans, LA, USA, 2023, pp. 1-6. doi: [10.1109/ESEM56168.2023.10304857](https://doi.org/10.1109/ESEM56168.2023.10304857)

Preprints, technical reports, papers under review

- [3] A. Storhaug and J. Li, "Parameter-efficient fine-tuning of large language models for unit test generation: An empirical study," 2024. doi: [10.48550/arXiv.2411.02462](https://doi.org/10.48550/arXiv.2411.02462)

Theses

- [4] A. Storhaug, "Secure smart contract code synthesis with transformer models," Master's thesis, NTNU, 2022. doi: [11250/3015521](https://doi.org/11250/3015521)
- [5] A. Storhaug, "Voxelizer: an open source voxelization engine," Bachelor's thesis, NTNU, 2020. doi: [11250/2663598](https://doi.org/11250/2663598)

ACADEMIC SERVICES

Organizing Committee

- Web Co-Chair, [Foundations of Software Engineering \(FSE\) 2025](#) Jan 2024 - Jun 2025

Program Committee Member

- [Multi-Agent Systems using Generative Artificial Intelligence for Automated Software Engineering \(MAS-GAIN\) 2025](#) 2025

Volunteer Work

- Student Volunteer, [Foundations of Software Engineering \(FSE\) 2025](#) Jun 2025

PROJECTS

ShiftR apps.apple.com/app/id6740135591
 MacOS menu bar utility that reveals hidden items by shifting overflowed icons, improving usability on notched or small-screen Macs.

DeepSpeed Model Memory Calculator huggingface.co/spaces/andstor/deepspeed-model-memory-usage
 Tool for calculating theoretical required memory for the various Zero Redundancy Optimizer (ZeRO) configurations.

latex-math-parser github.com/andstor/latex-math-parser
 LaTeX mathematics parser based on PEG parser generator.

LANGUAGES

Norwegian Bokmål
 Native proficiency

Norwegian Nynorsk
 Native proficiency

English
 Bilingual proficiency

German
 Limited working proficiency