ANDRÉ STORHAUG

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github.com/andstor ◇ huggingface.co/andstor ◇ scholar.google.com/citations?user=XEhRmSgAAAAJ

EDUCATION

Philosophiae Doctor (PhD) in Computer Science 2022 - present
Norwegian University of Science and Technology (NTNU) *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 2020 - 2022
Norwegian University of Science and Technology (NTNU) *Trondheim, Norway*

Thesis: "Secure Smart Contract Code Synthesis with Transformer Models"
Advisor: Prof. Jingyue Li

Bachelor of Engineering (BE) in Computer Science 2017 - 2020
Norwegian University of Science and Technology (NTNU) *Ålesund, Norway*

Thesis: "Voxelizer: an Open Source Voxelization Engine"
Advisor: Prof. Ricardo da Silva Torres

EXPERIENCE

PhD candidate Aug 2022 - Aug 2025
Norwegian University of Science and Technology (NTNU) *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 Sep 2024 - Feb 2025
CSIRO's Data61 *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 Oct 2017 - Jul 2022
Norwegian University of Science and Technology (NTNU) *Ålesund, Norway*

Part of the KQMATH 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 Sep 2018 - Jun 2022
Norwegian University of Science and Technology (NTNU) *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 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

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

[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

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

Theses

[4] **A. Storhaug**, "Secure smart contract code synthesis with transformer models," Master's thesis, NTNU, 2022. doi: 11250/3015521

[5] **A. Storhaug**, "Voxelizer: an open source voxelization engine," Bachelor's thesis, NTNU, 2020. doi: 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

LANGUAGES

Norwegian Bokmål	**Norwegian Nynorsk**	**English**	**German**
Native proficiency	Native proficiency	Bilingual proficiency	Limited working proficiency

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.