Răzvan Mihai Popescu

r.m.popescu@tudelft.nl | linkedin.com/in/razvan
scholar.google.com/razvan | orcid.org/razvan | Delft, Netherlands

Education

Delft University of Technology — Delft, NL
Ph.D. in Computer Science, AI-enabled SE — *Mar. 2025 - Present*

Delft University of Technology — Delft, NL
Master of Computer Science, Artificial Intelligence — *Sept. 2023 - Feb. 2025*
Courses: Supercomputing for Big Data, Software Architecture, Information Retrieval, Artificial Intelligence Techniques, Conversational Agents, Analytics and Machine Learning for Software Engineering, Testing and Validation for AI-Intensive Systems, Artificial Intelligence for Software Testing and Reverse Engineering, Natural Language Processing, Release Engineering for Machine Learning Applications

Delft University of Technology — Delft, NL
Bachelor of Computer Science and Engineering — *Sept. 2020 - Jul. 2023*
Courses: Algorithms and Data Structures, Object-oriented Programming, Software Engineering Methods, Software Quality and Testing, Big Data Processing, Data Mining, Machine Learning, Computational Intelligence, Collaborative Artificial Intelligence, Human-Computer Interaction

Technical Skills & Languages

Programming Languages: Python, Java, C++, JavaScript, Scala, SQL

Technologies & Frameworks: Git, Docker, AWS, Hugging Face, PyTorch, Scikit-learn, Apache Spark, Apache Kafka

Languages Spoken: Romanian (Native), English (C2), German (A2)

Publications

Automated Attention Pattern Discovery at Scale in Large Language Models	*Under Review*
The Heap: A Contamination-Free Multilingual Code Dataset for Evaluating Large Language Models	*FORGE '25*
An Exploratory Investigation into Code License Infringements in LLM Training Datasets	*FORGE '24*
Language models for code completion: A practical evaluation	*ICSE '24*
A Study on the Impact of Common Code Structures on CodeParrot's Autocompletion Performance	*TU Delft*

Work Experience

Responsible Data Science and AI Engineering Teaching Assistant — Feb. 2025 – Present
Delft University of Technology — *Delft, NL*

- Supported a 400-student course, addressing student queries on responsible DSAIT
- Facilitated in-class discussions, encouraging students to reflect on the ethical and social aspects of DSAIT
- Assisted in reviewing 10+ group reports, providing timely feedback
- Graded 10+ final projects, evaluating students' ability to analyze and present responsible DSAIT solutions
- Helped organize and assess 20+ final project presentations

Research Assistant — Mar. 2023 – Mar. 2025
AISE-TUDelft — *Delft, NL*

- Evaluated the impact of common code structures on CodeParrot's completion performance, revealing up to a 50% reduction in prediction depth compared to uncommon structures
- Carried out an attention-based cross-lingual analysis showing that common code structures reduce null attention by up to 30% for code completion
- Collaborated to Code4Me's design, an open-source IDE extension for assessing LLMs in real-world code completion
- Investigated licensing inconsistencies in LLM public training datasets, revealing up to 22% license infringements
- Contributed to developing AP-MAE, a scalable vision transformer-based auto-encoder for identifying and reconstructing attention patterns in LLMs
- Created The Heap, a multi-lingual copyleft dataset, deduplicated against all publicly available training datasets to ensure consistency and reproducibility in LLM evaluation
- Conducted a systematic literature survey on evaluation techniques and experimental settings for LLMs
- Reviewed LLM4SE submissions for top SE conferences and journals, including ICSE, FSE, and TOSEM

Machine Learning for Software Engineering Teaching Assistant Nov. 2024 – Feb. 2025
Delft University of Technology *Delft, NL*
- Created LLM4SE project ideas, focusing on applying NLP techniques to SE problems
- Mentored 4 student teams, providing guidance on project implementation and academic paper writing
- Graded student submissions, evaluating both technical implementation and research quality
- Organized and assessed final project presentations

Computer Science Master Mentor Sep. 2024 – Jan. 2025
Delft University of Technology *Delft, NL*
- Guided first-year CS MSc students during the Master Your Start event, helping them transition into their program
- Conducted weekly meetings to mentor students on theme selection, study planning, research groups, and course setup
- Led discussions on various academic topics, encouraging student engagement and critical thinking
- Organized social events to facilitate student networking and community engagement

Software Architecture Head Teaching Assistant Feb. 2023 – Apr. 2023, Sep. 2024 – Nov. 2024
Delft University of Technology *Delft, NL*
- Supported a 260-student course, providing guidance and addressing student queries
- Mentored student teams weekly in developing and documenting software architectures for socially-relevant systems
- Graded 20+ essays and proof-of-concept implementations, providing timely feedback
- Assisted in organizing and grading 20+ project presentations
- Managed software logistics for all 65 teams, improving workflow efficiency

Full-Stack Developer Oct. 2021 – Jul. 2023
Lunar Zebro *Delft, NL*
- Designed a ground segment web application for the MINAR IX Mission in collaboration with Edinburgh University
- Improved terrestrial rovers control efficiency by 80% with real-time sensor data display, camera feeds, and tablet control
- Handled sensor data pre-processing, WebSocket & API communication, and database integration for terrestrial rovers
- Developed a ground segment web application for the IAC rover swarm, enhanced with real-time sensor data analysis, exploration mapping, object detection, and collision alerts
- Configured an asynchronous message broker for efficient control of 4 lunar rovers
- Participated in the 2022 International Astronautical Congress in Paris as the only student team

Software Engineer Apr. 2022 – Jul. 2022
Feedback-Analytics *The Hague, NL*
- Collaborated on developing a word processor with form logic support, reducing report creation time by 30%
- Integrated the editor with the company's survey platform to create customized reports based on customer feedback
- Implemented an automated PDF generation system for email delivery of feedback reports
- Designed the CI/CD pipeline to optimize deployment and integration for the word processor system

Projects

CNN-Based URL Phishing Detection Apr. 2024 - Jun. 2024
- Developed a comprehensive release engineering pipeline for a CNN-based URL phishing detection model
- Contributed to key components of the pipeline, including versioning, provisioning, and containerization
- Performed testing and monitoring of the deployed model, ensuring quality control and consistency in performance

RAG for Complex QA Jan. 2024 - Apr. 2024
- Investigated the impact of context types on answer generation in a RAG system for complex multi-hop questions
- Implemented and evaluated a RAG pipeline using Contriever and quantized LLaMa3 on 2WikiMultiHopQA dataset
- Analyzed the effects of negative and random contexts on model performance compared to relevant retrieved contexts

Conversational Movie Agent Nov. 2023 - Jan. 2024
- Developed a conversational agent for movie recommendations integrated with memory, using the Furhat SDK
- Contributed to implementing the agent's memory model, utilizing LTM, STM, named entity recognition, sentiment analysis, and a movie recommendation system
- Conducted a controlled experiment with 30 participants, showing the memory-equipped agent outperformed the memory-free agent in user satisfaction and recommendation accuracy

Prompt Augmentation for Code Generation Sep. 2023 - Nov. 2023
- Investigated prompt augmentation techniques with partial software artifacts in LLM code generation performance
- Achieved a 43% increase in pass@1 functional performance through test case augmentation, while function signature prompts improved BLEU scores by up to 6%
- Evaluated WizardCoder and CodeGPT on the MBPP benchmark, showing that prompt augmentation enhances code generation performance, particularly in larger models