Jian Gu

jian.gu@monash.edu
https://jianguda.github.io

EDUCATION

- **(Top 50) Monash University** — Melbourne, Australia
  PhD Candidate (Supervised by Prof. Aldeida Aleti, Prof. Chunyang Chen, Prof. Hongyu Zhang) — *Oct. 2022 – Present*
  - **Visiting Scholar**: NLP Lab @ Tsinghua University (Oct. 2024 – Jun. 2025)
  - **Visiting Scholar**: SE&AI Lab @ Technical University of Munich (Jun. 2025 – Aug. 2025)
  - **Research Intern**: Fermat Lab @ Huawei Hong Kong Research Center (Aug. 2025 – Present)
- **(Top 100) University of Zurich** — Zurich, Switzerland
  PhD Candidate (Supervised by Prof. Harald C. Gall) — *Sept. 2020 – Sept. 2022*
- **(Top 100) KTH Royal Institute of Technology** — Stockholm, Sweden
  Master's Degree in Machine Learning (Thesis Supervisor: Prof. Martin Monperrus) — *Aug. 2018 – Aug. 2020*
- **(Project 985) Shandong University (the Elite Class)** — Jinan, China
  Bachelor's Degree in Computer Science (Thesis Supervisor: Prof. Jun Ma) — *Sept. 2012 – Jun. 2016*

PUBLICATIONS

- **SeMe: Training-Free Language Model Merging via Semantic Alignment**
  Jian Gu, *Aldeida Aleti, Chunyang Chen, Hongyu Zhang* — *Under Review*
- **Semantic-based Optimization for Repairing LLMs: Case Study on Code Generation**
  Jian Gu, *Aldeida Aleti, Chunyang Chen, Hongyu Zhang* — *Under Review*
- **Semantic-Aware Layer-Freezing for Computation-Efficient Fine-Tuning of LMs**
  Jian Gu, *Aldeida Aleti, Chunyang Chen, Hongyu Zhang* — *ACL'25 @ Vienna*
- **Vocabulary-Defined Semantics: Latent Space Clustering for Beyond-Context Learning**
  Jian Gu, *Aldeida Aleti, Chunyang Chen, Hongyu Zhang* — *Under Review*
- **Focus-aware Neurons: Robust LM Repair leveraging Selective Attention**
  Jian Gu, *Aldeida Aleti, Chunyang Chen, Hongyu Zhang* — *Under Review*
- **Neuron Patching: Semantic-based Neuron-level LM Repair for Code Generation**
  Jian Gu, *Aldeida Aleti, Chunyang Chen, Hongyu Zhang* — *Under Review*
- **Semantic-based Memory Augmentation for Continual Code Understanding**
  Jian Gu, *Harald C. Gall* — *Under Review*
- **Towards Top-Down Deep Code Generation in Limited Scopes**
  Jian Gu, *Harald C. Gall* — *FSE'23 @ San Francisco*
- **Assemble Foundation Models for Automatic Code Summarization**
  Jian Gu, *Pasquale Salza, Harald C. Gall* — *SANER'22 @ Hawaii*
- **Multimodal Representation for Neural Code Search**
  Jian Gu, *Zimin Chen, Martin Monperrus* — *ICSME'21 @ Luxembourg*
- **On the Effectiveness of Transfer Learning for Code Search**
  Pasquale Salza, Christoph Schwizer, ***Jian Gu***, *Harald C. Gall* — *TSE 2022*
- **Automated Classification of Overfitting Patches with Statically Extracted Code Features**
  He Ye, ***Jian Gu***, *Matias Martinez, Thomas Durieux, Martin Monperrus* — *TSE 2021*

SERVICES

- **SE Conferences & Journals (TSE, TOSEM, etc)** Reviewer
- **AI Conferences & Journals (AAAI, TAI, etc)** Reviewer

GRANTS

- **$52K (1.3M SU) Research Grant** AU National Computational Infrastructure 2024 – 2025
- **$30K HPC Research Grant** DUG Technology Ltd 2023 – 2024

WORK EXPERIENCE

- **Monash University** Melbourne, Australia
  Teaching Assistant *Jul. 2023 – Present*
  - **Lab tutoring (1 semester)**: FIT5003 Software Security.
  - **Co-supervisor (2 semesters)**: FIT4701/FIT4702 Final-year Project; Honours Project and Research Thesis.
- **University of Zurich** Zurich, Switzerland
  Research Assistant *Sep. 2020 – Sep. 2022*
  - **Course and Seminar**: In charge of Q&A, reviewing assignments and the exam content, and scoring projects.
  - **AI for Pair Programming**: Designed and guided a Master's project on code intelligence (retrieval, generation).
- **KTH Royal Institute of Technology** Stockholm, Sweden
  Research Engineer *Jun. 2019 – Aug. 2019*
  - **Repairnator**: Integrated Coming and SequenceR into Repairnator for overfitting ranking to enhance the repairing ability. Repairnator is an influential software for automated program repair. Implemented its official GitHub app.
  - **Coming & DSpot**: Integrated Prophet4J and Sketch4Repair into Coming to capture code features, and integrated Context2Name into DSpot to prettify the generated test cases. Coming is a tool for mining git repositories and DSpot is a tool for generating missing assertions in JUnit tests.
  - **Prophet4J**: Implemented Prophet4J, a patch evaluation tool inspired by Prophet but for Java software ecosystem. Prophet is a automatic patch-generation system by learning the correct code samples.
- **Smart Software Studio** Yancheng, China
  Software Engineer *Jul. 2017 – Jun. 2018*
  - **BAMI**: Translated a living book named Biological and Machine Intelligence, which continuously documents a novel theoretical framework for both biological and machine intelligence, authored by Numenta Inc.
  - **YoYo**: The web community for identity-based social needs, such as online communication with alumni or fellow citizens. Delivered a whole solution containing clients and the server. It also includes features to benefit local life.
  - **WiiPM**: Developed one 2D roguelike game on the mobile platform. WiiPM contains elements of turn-based battles as well as collection and role-plays adventure. The technique of procedural content generation is adopted.
- **UCar Inc.** Beijing, China
  Software Engineer *Mar. 2016 – Nov. 2016*
  - **Anti-Fraud / Anomaly Detection**: Analyzed unusual operation logs and GPS records, summarized common patterns of anomaly patterns, to help punish promotion abuse activities.
  - **Java EE Development**: Implemented some functional modules in internal business platform.
  - **Streaming Data Pipeline**: Maintained the streaming pipeline for real-time transaction data.
- **Hisense Group (R&D Center)** Qingdao, China
  Algorithm Intern *Sep. 2015 – Feb. 2016*
  - **Recommendations**: Improved online recommender systems (itemCF and content-based). Extracted plot tags and review tags to build movie knowledge graph. Designed unified knowledge base to fuse multiple data providers.
  - **GenePool**: Developed one workflow system collecting and processing movie metadata as well as one corresponding recommender system for demonstration.

HONORS & AWARDS

- **Ranked #1 (until June)** GitHub CodeSearchNet Challenge (2020)
- **Honorable Mention** Mathematical Contest in Modeling (2014, 2015)