

Aashish Yadavally

Ph.D. Candidate
Department of Computer Science
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Research Summary

Broadly, I am interested in applying AI techniques to eliminate challenges in Software Engineering (AI4SE), specifically to *enable partial program analysis* and *improve security in software systems*.

Education

- 2020 – 2024 **Ph.D. in Computer Science**, *The University of Texas at Dallas*
Research Areas: Software Engineering, Program Analysis, Artificial Intelligence
Advisor: Dr. Tien N. Nguyen
- 2018 – 2020 **M.S. in Artificial Intelligence**, *The University of Georgia*
Thesis: An Exploration of Machine Learning Based Day-Ahead Solar Irradiance Forecasting Methodologies.
Advisor: Dr. Frederick Maier
- 2014 – 2018 **B.Tech in Computer Science**, *Indian Institute of Information Technology Vadodara*
Capstone Project: Automatic Speech Recognition using Deep Learning.
Advisor: Dr. Anil Kumar Vuppula

Paper Submissions

- [13] **Aashish Yadavally**, and Tien N. Nguyen. 2025. Reason, Minimize, and Solve: Analyzing Infeasible String Constraint Systems.
- [12] Xiaokai Rong*, **Aashish Yadavally**^{*1}, and Tien N. Nguyen. 2025. Approximate, Refine, and Analyze: Towards Comprehensive Partial Program Analysis.

Publications

Published 11 peer-reviewed papers accepted at top-tier venues in software engineering (ICSE, ESEC/FSE, ASE, SANER), and programming languages (OOPSLA).

- [11] **[FSE'24] Aashish Yadavally**, Yi Li, and Tien N. Nguyen. 2024. Predictive Program Slicing via Execution Knowledge-Guided Dynamic Dependence Learning. In 31st ACM International Conference on the Foundations of Software Engineering. **★ Nomination for ACM SIGSOFT Distinguished Paper Award**
- [10] **[OOPSLA'24] Aashish Yadavally**, Yi Li, Shaohua Wang and Tien N. Nguyen. 2024. A Learning-Based Approach to Static Program Slicing. In Proceedings of the 2024 ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications. (*To Appear*).

^{1*} denotes equal contribution.

- [9] **[FORGE'24]** Hridya Dhulipala, **Aashish Yadavally**^{§2}, and Tien N. Nguyen. 2024. Planning to Guide LLM for Code Coverage Prediction. In 1st International Conference on AI Foundation Models and Software Engineering. (*To Appear*).
- [8] **[ICSE'24]** Yuchen Cai, **Aashish Yadavally**, Abhishek Mishra, Genesis Montejo, and Tien N. Nguyen. 2024. Programming Assistant for Exception Handling with CodeBERT. In 46th IEEE/ACM International Conference on Software Engineering.
- [7] **[ESEC/FSE'23]** Yi Li, **Aashish Yadavally**, Jiaxing Zhang, Shaohua Wang, and Tien N. Nguyen. 2023. DeMinify: Neural Variable Name Recovery and Type Inference. In 30th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering.
- [6] **[ESEC/FSE'23]** Yi Li, **Aashish Yadavally**, Jiaxing Zhang, Shaohua Wang, and Tien N. Nguyen. 2023. Commit-Level, Neural Vulnerability Detection and Assessment. In 30th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering.
- [5] **[ICSE'23]** **Aashish Yadavally**, Wenbo Wang, Shaohua Wang, and Tien N. Nguyen. 2023. (Partial) Program Dependence Learning. In 45th IEEE/ACM International Conference on Software Engineering.
★ Nomination for ACM SIGSOFT Distinguished Paper Award
- [4] **[ICSE'23]** Wenbo Wang, Tien N. Nguyen, Shaohua Wang, Yi Li, Jiyuan Zhang, and **Aashish Yadavally**. 2023. DeepVD: Towards Class-Separation Features for Neural Network Vulnerability Detection. In 45th IEEE/ACM International Conference on Software Engineering.
- [3] **[ASE'22]** Anh Nguyen, **Aashish Yadavally**, and Tien N. Nguyen. 2022. Next Syntactic-Unit Code Completion and Applications. In 37th IEEE/ACM International Conference on Automated Software Engineering: New Ideas and Emerging Results (NIER) Track.
- [2] **[ASE'22]** Hoan Anh Nguyen, Hung Phan, Samantha Syeda Khairunnesa, Son Nguyen, **Aashish Yadavally**, Shaohua Wang, Hridesh Rajan, and Tien N. Nguyen. 2022. A Hybrid Approach for Inference between Behavioral Exception API Documentation and Implementations, and Its Applications. In 37th IEEE/ACM International Conference on Automated Software Engineering.
- [1] **[SANER'22]** Thang V. Nguyen, **Aashish Yadavally**, and Tien N. Nguyen. 2022. Phrase2Set: Phrase-to-Set Machine Translation and Its Software Engineering Applications. In 29th IEEE International Conference on Software Analysis, Evolution and Reengineering.
★ IEEE TCSE Distinguished Paper Award
- MS Thesis **Aashish Yadavally**. 2020. An Exploration of Machine Learning Based Day-Ahead Solar Irradiance Forecasting Methodologies. In University of Georgia ProQuest Dissertations Publishing.

²§ denotes mentoring experience.

Honors and Awards

- 2024 Nomination for **ACM SIGSOFT Distinguished Paper Award** at the 31st ACM International Conference on the Foundations of Software Engineering (FSE 2024).
- 2023 Awarded **NSF Student Travel Grant** for MAPS Workshop 2023.
- 2023 Awarded **ACM SIGSOFT CAPS Travel Grant** of USD 400 for ESEC/FSE 2023.
- 2023 Nomination for **ACM SIGSOFT Distinguished Paper Award** at the 45th IEEE/ACM International Conference on Software Engineering (ICSE 2023).
- 2023 Awarded **ACM SIGSOFT CAPS Travel Grant** of USD 500 for ICSE 2023.
- 2022 **IEEE TCSE Distinguished Paper Award** at the 29th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2022).
- 2021 **First Prize**, Project Dazzle, AI Camp Hackathon

Talks and Presentations

Invited Talks:

- 01/2024 “*Contextuality of Code Representation Learning*”, at the Trux Open Online Seminar (TOOS), University of Luxembourg.

Paper Presentations:

- 01/2024 “*DeMinify: Neural Variable Name Recovery and Type Inference*” [7], at ESEC/FSE 2023.
- 01/2024 “*Commit-level, Neural Vulnerability Detection and Assessment*” [6], at ESEC/FSE 2023.
- 05/2023 “*(Partial) Program Dependence Learning*” [5], at ICSE 2023.
- 05/2023 “*DeepVD: Toward Class-Separation Features for Neural Network Vulnerability Detection*” [4], at ICSE 2023.
- 10/2022 “*Next Syntactic-Unit Code Completion and Applications*” [3], at ASE 2022.
- 03/2022 “*Phrase2Set: Phrase-to-Set Machine Translation and Its Software Engineering Applications*” [1], at SANER 2022.

Poster Presentations:

- 05/2023 “*(Partial) Program Dependence Learning*”, at ICSE 2023.
- 12/2019 “*Sentiment Analysis-Based Language Model Evaluation*”, at The Linguistics Final Project Poster Conference.
- 10/2019 “*Solar Irradiance Prediction Using Distributed Machine Learning Techniques*”, at UGA Computer Science Research Day.

Work Experience

- 2022 – 2024* **Graduate Research Assistant**, *The University of Texas at Dallas*.
AI for Software Engineering Advisor: Dr. Tien N. Nguyen
- 2021 **Data Scientist Intern**, *AI Camp Inc.*
- 2020 – 2022 **Graduate Teaching Assistant**, *The University of Texas at Dallas*.
Department of Computer Science

- 2018 – 2020 **Graduate Research Assistant**, *The University of Georgia*.
Institute for Artificial Intelligence Advisor: Dr. Frederick Maier
- 2018 **Undergraduate Research Assistant**, *IIT Hyderabad*.
Language Technologies Research Center Advisor: Dr. Anil Kumar Vuppula
- 2017 **Undergraduate Research Assistant**, *DA-IICT Gandhinagar*.
Speech Research Lab Advisor: Dr. Hemant A. Patil

Academic Service

- MSR 2024 **Junior Program Committee**, *Technical Track*.
International Conference on Mining Software Repositories.
- ICSE 2024 **Program Committee**, *Artifact Evaluation Track*.
International Conference on Software Engineering
- MSR 2023 **Junior Program Committee**, *Technical Track*.
International Conference on Mining Software Repositories.

Teaching

- Spring 2022 **Teaching Assistant**, *The University of Texas at Dallas*.
Department of Computer Science
CS 4341 - Digital Logic and Computer Design
- Fall 2021 **Teaching Assistant**, *The University of Texas at Dallas*.
Department of Computer Science
CS 4341 - Digital Logic and Computer Design
- Spring 2021 **Teaching Assistant**, *The University of Texas at Dallas*.
Department of Computer Science
CS 4384 - Automata Theory
- Fall 2020 **Teaching Assistant**, *The University of Texas at Dallas*.
Department of Computer Science
CS 3341 - Probability and Statistics in Computer Science and Software Engineering
CS 6301 - Convolutional Neural Networks