

Aashish Yadavally

Assistant Professor
Department of Computer Science
The University of Central Florida

4328 Scorpius St
Orlando, FL 32816
☎ +1 (321)503-9937
✉ aashish.yadavally@utdallas.edu
📄 aashishyadavally.github.io

Overview

I am a researcher in the field of Artificial Intelligence for Software Engineering (AI4SE, a coalescence between AI and SE), specializing in optimizing software processes. My recent work focuses on using large language models for understanding program behaviors, and improving software security.

Focus Areas: AI for {Program Analysis, Software Security, Software Evolution}

Employment

2025–now **Assistant Professor**, *The University of Central Florida*.
Department of Computer Science

Previous Research Experience

2024 **Applied Scientist Intern**, *AWS AI Labs*.
Builder Tools Science / Next Gen Developer Experience
◦ *Hosted By:* Gauthier Guinet, Hoan A. Nguyen

2022 – 2024 **Graduate Research Assistant**, *The University of Texas at Dallas*.
AI for Software Engineering
◦ *Advisor:* Dr. Tien N. Nguyen

2018 – 2020 **Graduate Research Assistant**, *The University of Georgia*.
Institute for Artificial Intelligence
◦ *Advisor:* Dr. Frederick Maier

2018 **Undergraduate Research Assistant**, *IIIT Hyderabad*.
Language Technologies Research Center
◦ *Advisor:* Dr. Anil Vuppula

2017 **Undergraduate Research Assistant**, *DA-IICT Gandhinagar*.
Speech Research Lab
◦ *Advisor:* Dr. Hemant A. Patil

Education

2020 – 2025 **Doctor of Philosophy**, Computer Science
The University of Texas at Dallas *Advisor:* Dr. Tien N. Nguyen
Dissertation: “Neural Modeling of Reasoning about Program Behaviors”
Committee: Dr. Wei Yang and Dr. Shiyi Wei (The University of Texas at Dallas)
Dr. Baishakhi Ray (Columbia University)

2018 – 2020 **Master of Science**, Artificial Intelligence
The University of Georgia *Advisor:* Dr. Frederick Maier
Thesis: Machine Learning Techniques for Solar Irradiance Prediction

2014 – 2018 **Bachelor of Technology**, Computer Science
Indian Institute of Information Technology Vadodara *Advisor:* Dr. Anil Vuppula
Capstone Project: “Automatic Speech Recognition using Deep Learning”

Honors & Awards

Paper Awards

- 2024 **ACM SIGSOFT Distinguished Paper Award** at the 31st ACM International Conference on the Foundations of Software Engineering (FSE 2024).
- 2023 Nomination for the **ACM SIGSOFT Distinguished Paper Award** at the 45th IEEE/ACM International Conference on Software Engineering (ICSE 2023).
- 2022 **IEEE TCSE Distinguished Paper Award** at the 29th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2022).

Recognition

- 2024 **Distinguished Junior PC Reviewer Award** at the 21st International Conference on Mining Software Repositories (MSR 2024).
- 2021 *First Prize*, Project Dazzle, AI Camp Hackathon
- 2016 *First Prize in Public Voting Category*, IIITV Hackathon

Grants & Scholarships

- {2024, 2023} ACM SIGSOFT CAPS Travel Award of USD 500 for FSE 2024, USD 400 for ESEC/FSE 2023, and USD 500 for ICSE 2023.
- 2023 NSF Student Travel Grant for MAPS Workshop 2023.
- {2019 – 2020, 2018 – 2019} *Research Scholarship* including a full tuition remission, from the *Institute for Artificial Intelligence* at the University of Georgia (one of three chosen M.S. students).

Publications

(* denotes equal contribution, § denotes mentorship experience)

Published 19 peer-reviewed papers (16 full, 3 short)¹accepted at top-tier venues in software engineering (ICSE, FSE, ASE), and programming languages (OOPSLA). My work can be categorized into the following thrusts of research:

- [T1] LLMs for Reasoning on Source Code (C11–C15, J3)
- [T2] Artificial Intelligence for Program Analysis (C5, C6, J1, J2, J4)
- [T3] Artificial Intelligence for Software Security (C4, C7–C10)
- [T4] Source Code Manipulation for Software Engineering Applications (C1–C3)

► Journal Papers

- [J4] [FSE'25] Yi Li, Hridya Dhulipala, **Aashish Yadavally**, Xiaokai Rong, Shaohua Wang, and Tien N. Nguyen. 2025. Blended Analysis for Predictive Execution. In 32nd ACM International Conference on the Foundations of Software Engineering.
- [J3] [FSE'25] Hridya Dhulipala, **Aashish Yadavally**§, Smit Soneshbai Patel, and Tien N. Nguyen. 2025. CRISPE: Semantic-Guided Execution Planning and Dynamic Reasoning for Enhancing Code Coverage Prediction. In 32nd ACM International Conference on the Foundations of Software Engineering.
- [J2] [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.

¹Full papers indicated with , and short papers with

- [J1] **[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.
★ **ACM SIGSOFT Distinguished Paper Award**

► **Conference Papers**

- [C15] **[ICSE'26] Aashish Yadavally**, and Tien N. Nguyen. 2026. From Seed to Scope: Reasoning to Identify Change Impact Sets. In 48th IEEE/ACM International Conference on Software Engineering. (*Major Revision*).
- [C14] **[ICSE'26] Aashish Yadavally***, Xiaokai Rong*, and Tien N. Nguyen. 2026. Large Language Model-Aided Partial Program Dependence Analysis. In 48th IEEE/ACM International Conference on Software Engineering. (*Major Revision*).
- [C13] **[ICSE'25] Aashish Yadavally**, Xiaokai Rong, Phat Nguyen, and Tien N. Nguyen. 2025. Large Language Models for Safe Minimization. In 47th IEEE/ACM International Conference on Software Engineering.
- [C12] **[ICSE'25] Smit Patel, Aashish Yadavally[§]**, Hridya Dhulipala and Tien N. Nguyen. 2024. Planning a Large Language Model for Static Detection of Runtime Errors in Code Snippets. In 47th IEEE/ACM International Conference on Software Engineering.
- [C11] **[FORGE'24] Hridya Dhulipala, Aashish Yadavally[§]**, and Tien N. Nguyen. 2024. Planning to Guide LLM for Code Coverage Prediction. In 1st International Conference on AI Foundation Models and Software Engineering.
- [C10] **[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.
- [C9] **[ICSE'24 - Poster] Yi Li, Tien N. Nguyen, Yuchen Cai, Aashish Yadavally**, Abhishek Mishra, and Genesis Montejo. 2024. Neural Exception Handling Recommender. In 46th IEEE/ACM International Conference on Software Engineering: Posters Track
- [C8] **[ICSE'24 - Poster] Yi Li, Tien N. Nguyen, Shaohua Wang, and Aashish Yadavally**. 2024. Poirot: Deep Learning for API Misuse Detection. In 46th IEEE/ACM International Conference on Software Engineering: Posters Track
- [C7] **[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.
- [C6] **[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.
- [C5] **[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**
- [C4] **[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.

- [C3] **[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.
- [C2] **[ASE'22 - NIER]** 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.
- [C1] **[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

► **Conference Papers – Submitted, Under Review**

- [U1] **Aashish Yadavally**, Hoan Nguyen, Laurent Callot, and Gauthier Guinet. 2025. Large Language Model Critics for Execution-Free Evaluation of Code Changes.

► **Ph.D. Dissertation**

Aashish Yadavally. 2025. Neural Modeling of Reasoning about Program Behaviors. In University of Texas at Dallas ProQuest Dissertations Publishing.

► **Masters Thesis**

Aashish Yadavally. 2020. An Exploration of Machine Learning Based Day-Ahead Solar Irradiance Forecasting Methodologies. In University of Georgia ProQuest Dissertations Publishing.

Teaching Experience

- 2024 **Graduate Teaching Assistant**, *The University of Texas at Dallas*.
- 2020 – 2022
- {Spring 2025} - Software Engineering
 - {Fall 2024, Spring 2021} - Automata Theory
 - {Spring 2022, Fall 2021} - Digital Logic and Computer Design
 - {Fall 2020} - Probability and Statistics in Computer Science and Software Engineering
 - {Fall 2020} - Convolutional Neural Networks
- 2021 **Associate Instructor**, *A.I. Camp*.
Courses: Natural Language Processing, Computer Vision²

Mentoring Experience

- 2024 – 2025* **Marilyn Rego**, *Purdue University*.
SIGPLAN-M Mentee
- 2024 – 2025* **Akshit Kumar**, *International Institute of Information Technology, Hyderabad*.
SIGPLAN-M Mentee
- 2023 **Abhishek Mishra**, *The University of Texas at Dallas*.
Undergraduate Student
2 co-authored papers at the International Conference on Software Engineering (ICSE'24)

²Average daily rating of 4.61, 4.6, and 4.81 out of 5 across three batches

2023 **Genesis Montejo**, *The University of Texas at Dallas*.
Undergraduate Student
2 co-authored papers at the International Conference on Software Engineering (ICSE'24)

Talks & Presentations

Invited Talks

- 03/2025 "*Can Large Language Models Reason about Program Behaviors?*", **Department of Electrical and Computer Engineering - University of Arizona**.
- 03/2025 "*Can Large Language Models Reason about Program Behaviors?*", **Department of Computer Science - University of Vermont**.
- 02/2025 "*Can Large Language Models Reason about Program Behaviors?*", **School of Computing - Binghamton University**.
- 02/2025 "*Can Large Language Models Reason about Program Behaviors?*", **Department of Computer Science - University of Central Florida**.
- 02/2025 "*Can Large Language Models Reason about Program Behaviors?*", **School of Electrical Engineering and Computer Science - Washington State University**.
- 06/2024 "*Learning to Analyze Program Behaviors*", **Doctoral Symposium - FSE 2024**.
- 01/2024 "*Contextuality of Code Representation Learning*".
Trux Open Online Seminar (TOOS), University of Luxembourg
Hosts: Prof. Dr. Jacques Klein, Prof. Dr. Tegawendé Bissyandé

Paper Presentations

- 10/2024 "*A Learning-Based Approach to Static Program Slicing*", **OOPSLA 2024**.
- 06/2024 "*Predictive Program Slicing via Execution Knowledge-Guided Dynamic Dependence Learning*", **FSE 2024**.
- 01/2024 "*Commit-level, Neural Vulnerability Detection and Assessment*", **ESEC/FSE 2023**.
- 01/2024 "*DeMinify: Neural Variable Name Recovery and Type Inference*", **ESEC/FSE 2023**.
- 05/2023 "*(Partial) Program Dependence Learning*", **ICSE 2023**.
- 05/2023 "*DeepVD: Toward Class-Separation Features for Neural Network Vulnerability Detection*", **ICSE 2023**.
- 10/2022 "*Next Syntactic-Unit Code Completion and Applications*", **ASE 2022**.
- 03/2022 "*Phrase2Set: Phrase-to-Set Machine Translation and Its Software Engineering Applications*", **SANER 2022**.

Poster Presentations

- 06/2024 "*Predictive Program Slicing via Execution Knowledge-Guided Dynamic Dependence Learning*", **FSE 2024**.
- 05/2023 "*(Partial) Program Dependence Learning*", **ICSE 2023**.
- 12/2019 "*Sentiment Analysis-Based Language Model Evaluation*".
The Linguistics Final Project Poster Conference, University of Georgia
- 10/2019 "*Solar Irradiance Prediction Using Distributed Machine Learning Techniques*".
UGA Computer Science Research Day

Academic Service

- ICSE **International Conference on Software Engineering**.
- 2025 - Shadow Program Committee, *Technical Track*.
 - 2024 - Program Committee, *Artifact Evaluation Track*.

- ICSME **International Conference on Software Maintenance and Evolution.**
 ○ 2025 - Program Committee, *Artifact Evaluation Track*.
- FORGE **International Conference on AI Foundation Models and Software Engineering.**
 ○ 2026 - Program Committee, *Research Track*.
- DL4C@NeurIPS **Deep Learning for Code Workshop at NeurIPS.**
 ○ 2025 - Reviewer, *Research Track*.
- ICLR **International Conference on Learning Representations.**
 ○ 2025 - Reviewer, *Research Track*.
- EASE **International Conference on Evaluation and Assessment in Software Engineering.**
 ○ 2026 - Program Committee, *AI Models/Data Track*.
 ○ 2025 - Program Committee, *AI Models/Data Track*.
- MSR **International Conference on Mining Software Repositories.**
 ○ 2024 - Junior Program Committee, *Technical Track*.
 ★ Distinguished Junior PC Reviewer Award
 ○ 2023 - Junior Program Committee, *Technical Track*
- SIGPLAN-M **Special Interest Group in Programming Languages.**
 Mentor.
- TSE **IEEE Transactions on Software Engineering.**
 (Journal) Reviewer.
- EMSE **Empirical Software Engineering.**
 (Journal) Reviewer.

References

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| ○ Dr. Tien N. Nguyen
<i>Professor</i>
The University of Texas at Dallas
tien.n.nguyen@utdallas.edu | ○ Dr. Wei Yang
<i>Associate Professor</i>
The University of Texas at Dallas
wei.yang@utdallas.edu |
| ○ Dr. Baishakhi Ray
<i>Associate Professor</i>
Columbia University
rayb@cs.columbia.edu | ○ Dr. Omer Tripp
<i>Principal Applied Scientist</i>
AWS AI Labs
omertrip@amazon.com |