Rahul Yedida

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EDUCATION

North Carolina State University — Raleigh, NC
Ph.D. Computer Science — Advisor: Dr. Tim Menzies — *Aug. 2019 – Exp. Dec. 2023*

PES University — Bangalore, India
B.E. Computer Science - GPA: 7.9/10.0 — *Aug. 2015 – May 2019*

EMPLOYMENT

Amazon — New York, NY
Software Dev Engineer Intern — *May 2023 – Aug 2023*
- Implemented profile locks for Prime Video on Echo Show devices.
- **Technology:** React Native, TypeScript

North Carolina State University — Raleigh, NC
Graduate Teaching Assistant — *Aug 2022 – Apr 2023*
- TA (with 3 others) for 119 students for a graduate Automated Software Engineering class.
- TA (with 4 others) for 243 students for a graduate Software Engineering class.

Graduate Research Assistant — *Jan. 2020 – May 2022*
- **Better, faster deep learning for SE:** Improved defect prediction by up to 123% (F-1 score), code smell detection by up to 30% (AUC)
- **Semi-supervised learning:** Achieved state-of-the-art results on static code warnings analysis using 10% labels.

Graduate Teaching Assistant — *Aug. 2019 – Jan. 2020*
- Held office hours for 54 undergraduate students and delivered lectures on C++.

Amazon — Bellevue, WA
Software Dev Engineer Intern — *May 2022 – Jul 2022*
- Developed a full-stack system to publish announcements in scorecards used by delivery service partners (DSPs).
- **Technology:** React/Redux, TypeScript, Redux Saga, DynamoDB, Java Spring

Indian Institute of Astrophysics — Bangalore, India
Research Intern — *Jul. 2018 - Mar. 2019*
- **Image denoising:** Worked on image restoration of globular clusters using convolutional neural networks.
- **Research:** Proposed novel adaptive learning rate scheme for deep neural networks and demonstrated faster convergence by up to 100,000x.

PUBLICATIONS

1. Baldassarre, M. T., Ernst, N., Hermann, B., Menzies, T., & **Yedida, R.** (2023). (Re)use of Research Results (is Rampant). *Communications of the ACM, 66(2), 75-81.*

2. **Yedida, R.**, Kang, H. J., Tu, K., Lo, D., & Menzies, T. (2023). How to Find Actionable Static Analysis Warnings: A Case Study with FindBugs. *IEEE Transactions on Software Engineering, (01), 1-17.*

3. **Yedida, R.**, Krishna, R., Kalia, A., Menzies, T., Xiao, J., & Vukovic, M. (2023). An Expert System for Redesigning Software for Cloud Applications. *Expert Systems with Applications.*

4. **Yedida, R.**, Menzies, T. (2022). How to Improve Deep Learning for Software Analytics (a case study with code smell detection). In *2022 IEEE/ACM 19th International Conference on Mining Software Repositories (MSR). IEEE, 2022.*

5. **Yedida, R.**, & Saha, S. (2021). Beginning with Machine Learning: A Comprehensive Primer. *The European Physical Journal Special Topics: 1-82.*

6. Agrawal, A., Yang, X., Agrawal, R., **Yedida, R.**, Shen, X., & Menzies, T. (2021). Simpler Hyperparameter Optimization for Software Analytics: Why, How, When?. *IEEE Transactions on Software Engineering, doi: 10.1109/TSE.2021.3073242*

7. Yang, X., Chen, J., **Yedida, R.**, Yu, Z., & Menzies, T. (2021). Learning to recognize actionable static code warnings (is intrinsically easy). *Empirical Software Engineering, 26(3), 1-24.*

8. **Yedida, R.**, & Menzies, T. (2021). On the Value of Oversampling for Deep Learning in Software Defect Prediction. *IEEE Transactions on Software Engineering, doi: 10.1109/TSE.2021.3079841*

9. **Yedida, R.**, Krishna, R., Kalia, A., Menzies, T., Xiao, J., & Vukovic, M. (2021). Lessons learned from hyper-parameter tuning for microservice candidate identification. *Proceedings of the thirty-sixth IEEE/ACM International Conference on Automated Software Engineering (ASE).*

10. Saha, S., Nagaraj, N., Mathur, A., **Yedida, R.**, & Sneha, H. R. (2020). Evolution of novel activation functions in neural network training for astronomy data: habitability classification of exoplanets. *The European Physical Journal Special Topics, 229(16), 2629-2738.*

11. **Yedida, R.**, Saha, S., & Prashanth, T. (2020). LipschitzLR: Using theoretically computed adaptive learning rates for fast convergence. *Applied Intelligence, 1-19.*

12. Sridhar, S., Saha, S., Shaikh, A., **Yedida, R.**, & Saha, S. (2020, July). Parsimonious Computing: A Minority Training Regime for Effective Prediction in Large Microarray Expression Data Sets. In *2020 International Joint Conference on Neural Networks (IJCNN) (pp. 1-8). IEEE.*

13. Khaidem, L., **Yedida, R.**, & Theophilus, A. J. (2019, November). Optimizing Inter-nationality of Journals: A Classical Gradient Approach Revisited via Swarm Intelligence. In *International Conference on Modeling, Machine Learning and Astronomy (pp. 3-14). Springer, Singapore.*

Funding

Service to Profession

Reviewer, NeurIPS, 2023; Journal of Big Data, 2023; Automated Software Engineering (ASE), 2023; Empirical Software Engineering (EMSE), 2021; IEEE Symposium Series on Computational Intelligence (SSCI) 2020

PC Member, Automated Software Engineering (ASE) Artifact Evaluation Track, 2022; International Conference on Software Maintenance and Evolution (ICSME) Artifact Evaluation Track, 2021, 2022; International Conference on Modeling, Machine Learning, and Astronomy (MMLA), 2019

Student Volunteer, Automated Software Engineering (ASE) '21

Honors

2022, [Google Cloud Champion Innovator](#)

Relevant Projects

pysh   May 2021 - Present
C++, TMLanguage   [GitHub](#)

Developed a superset of Python that allows running Shell code natively, with a VS Code syntax highlighting extension.

RAISE   Aug. 2020 – Present
Python, Keras   [GitHub](#) :: [PyPI](#)

Sole developer for a PEP8/PEP257-compliant, ML Python package used by our research lab and others for replicable results. Downloaded 16k times.

Google/Meta Data Mining   Feb. 2021 – May 2021
Python, Keras   [GitHub](#)

Data science project to use Google Takeout and Meta user data to suggest products to advertise to a user from Amazon best sellers using DistilGPT-2 and achieved 0.6 F-1 score.

Threaded Discussions Website Feb. 2021 – June 2021
MongoDB, Node.js, React [GitHub](#)

Companion website for video calls that allows for Reddit-style, threaded discussions.

NearConnect Nov. 2020 – Mar. 2021
iOS, Swift [GitHub](#) :: [App Store](#)

iOS app to connect with people nearby using multicast peer-to-peer connections.

Personalized Chatbot May 2019
Python, Keras [GitHub](#)

Fine-tuned a GPT-2 345M model on 730k messages from Telegram logs to create a personalized chatbot.

Intelligent Tutoring System Sep. 2018 – May 2019
Python [GitHub](#)

Implemented an Intelligent Tutoring System backend using Bayesian Knowledge Tracing and a novel question selection algorithm.

Human Activity Data Project Oct. 2018 – Nov. 2018
Python, Keras [GitHub](#)

Collected personal activity data for 9 months, grouped tasks into 21 categories. Analyzed most productive hours of the day and built a 2-layer predictive LSTM model, achieving 42% top-5 accuracy.

JournalBear Jun. 2017 – Feb. 2019
JavaScript, Electron [GitHub](#) :: [Softpedia](#)

Cross-platform journal application with AES-256 encryption. Rated 4/5 by Softpedia.

Results Scraper Mar. 2018 – Aug. 2018
MongoDB, Express, React, Node.js [GitHub](#)

Website for scraping university examination results and displaying charts and printable reports, with caching using a database.

Video Sharing Website Oct. 2017 – Dec. 2017
MySQL, Express, React, Node.js, Sass, Elasticsearch [GitHub](#)

Simplified implementation of a video-sharing website with subscriptions and custom searching.

Xtreme Calculations Apr. 2013 – Oct. 2017
VB.NET, Python [Softpedia](#)

Windows math software to solve scientific and mathematical problems, with over 30,000 downloads over multiple sites.

Video Indexer Jun. 2017 – Sep. 2017
C++, Qt, CMUSphinx [GitHub](#)

Cross-platform desktop application to detect the time(s) a given keyword was spoken in a given video.

Web development projects Jan. 2017 – Nov. 2017
MongoDB, Express, React, Node.js, D3, Sass [GitHub](#)

Projects include URL shortener, rogue-like dungeon crawler game, voting application, Simon game, land surface temperature heatmap, and mapping meteorite impacts across the globe.

SKILLS

Languages: Python, TypeScript, Java, C++

Frameworks: Flask, Keras, PyTorch, Node.js, React

Databases: SQL, MongoDB, DynamoDB