Ishrak Hayet

 Raleigh, NC, USA   ✉ ihayet@ncsu.edu   ☏ +1(984)358-0662   🔗 /in/ishrakhayet/   🌐 ihayet.github.io

SUMMARY

I am a third-year CS PhD student at NCSU. I am advised by Prof. Dr. Marcelo d'Amorim, an excellent scholar in Software Engineering research. I have acquired over 6 years of experience in software and machine learning engineering, specifically, one year as an Android application developer, three years as a Machine Learning privacy researcher, and two years of extensive research and development on Software Testing and Analysis. As a software engineering researcher, I am focused on advancing software testing methodologies and debugging tools. My work combines practical development skills with cutting-edge research to drive innovation in reliable and AI-assisted software engineering.

EDUCATION

PhD in Computer Science
North Carolina State University • Raleigh, NC • 2026

MSc in Computer Science
University of Kansas • Lawrence, KS • 2022

BSc in Computer Science and Engineering
IUT • Dhaka, Bangladesh • 2017

EXPERIENCE

Software Engineering Researcher   **Aug. 2022 - Present, NC, USA**
WISER Lab, North Carolina State University (github.com/ncsu-swat)

- Implemented a technique to execute incomplete Python snippets using feedback-directed mock generation and type inference
- Developed a prompt engineering framework to generate and repair JUnit test oracles using LLMs beating SoTA accuracy by >10%
- Received training in fuzzing, oracle generation, debugging, mutation testing, pairwise testing, property-based testing
- Collected data from GitHub and StackOverflow and fine-tuned large language models for type inference and oracle generation

Machine Learning Privacy Researcher   **Aug. 2019 - May 2022, KS, USA**
InfoSec Lab, University of Kansas (github.com/ihayet/Invernet)

- Built a deep neural model to infer private natural language dataset from pre-trained and fine-tuned embeddings with >50% accuracy
- Trained Word2Vec, GloVe, BERT embeddings and built RNN, LSTM, CNN, and Transformer models
- Exercised transfer learning, domain adaptation, time-series forecasting, classification, clustering, and exploratory data analysis
- Attended reading sessions on privacy-preserving machine learning, federated learning, attention networks, XAIs, and GANs

Android App Developer   **Jan. 2018 - Jul. 2019, Bangladesh**
Porate Chai (gitlab.com/poratechai)

- Implemented Java-based student-tutor matchmaking Android app; accessed by 1000+ users.
- Designed application system, and matchmaking server and used local SQLite database caching to optimize loading times under 1s.
- Developed a REST API-based application server using Node.js, integrated third-party payment API, and maintained app deployment
- Collaborated with UX developers and other App developers to increase user retention by ~50%

PUBLICATIONS

- I. Hayet, A. Scott, and M. d'Amorim. 2024. Feedback-Directed Partial Execution. In Proceedings of the 33rd ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA '24), September 16–20, 2024, Vienna, Austria. ACM, New York, NY, USA, 13 pages. doi.org/10.1145/3650212.3680320
- I. Hayet, A. Scott, M. d'Amorim. 2024. "ChatAssert: LLM-based Test Oracle Generation with External Tools Assistance". (Under revision in IEEE Transactions on Software Engineering)
- I. Hayet, Z. Yao, and B. Luo. "Invernet: An inversion attack framework to infer fine-tuning datasets through word embeddings." Findings of the Association for Computational Linguistics: EMNLP 2022. 2022. aclanthology.org/2022.findings-emnlp.368
- I. Hayet, et al. "Designing a hierarchical keyboard layout for brain-computer interface based text entry." 2019 International Conference on Electrical, Computer and Communication Engineering (ECCE). IEEE, 2019. ieeexplore.ieee.org/abstract/document/8679487