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Taufiq Daryanto

Blacksburg, VA, USA

Education

Virginia Tech — Blacksburg, VA
Ph.D in Computer Science, GPA: 4.0/4.0 — *Aug 2023 – May 2028*

Institut Teknologi Bandung (ITB) — Bandung, Indonesia
B.S in Computer Science, GPA: 3.84/4.0 — *Aug 2018 – July 2022*
Awarded "Most Outstanding Student" in Computer Science (1st/150)

Experience

Virginia Tech — Blacksburg, VA
Graduate Student Researcher — *Aug 2023 – Present*

Human-Centered AI to Support Software Engineers

- Developed a multimodal coding interview practice platform integrating LLM, text-to-speech, and speech-to-text models to facilitate think-aloud practice for coding interviews. Built with Python, Flask, Vue.js, TypeScript.
- Implemented a conversational AI for interview practice that leverages LLM, grounded in reflective learning and dialogic feedback theory. Developed an interaction to reshape learners as active agents in human-AI collaboration.
- Developed an LLM agent to debug production issues based on the log and codebase using retrieval-augmented generation (RAG) and a human-in-the-loop approach. Built with Python, Flask, LangChain, Vue.js, Graylog.

Machine Learning for News Understanding

- Analyzed dialogue acts in U.S. presidential debates (2012–2024) by leveraging few-shot prompting with GPT-4, enabling classification of dialogue acts and uncovering patterns in debate transcripts.
- Visualized news narratives using graph-based visualization for data exploration. Applied UMAP to project news embeddings into a 2D space, performed clustering, and visualized narrative paths to understand the storyline across the news. Built with Python, D3.js, JavaScript

Shopee — Jakarta, Indonesia
Backend Software Engineer — *Sept 2022 – July 2023*

- Developed backend APIs for gamification in Shopee e-commerce using Golang, MySQL, Redis, and Kafka.
- Led backend development for new projects. Collaborated with the tech lead, product owner, and senior engineers to develop API designs and system designs for new projects and presented them to over 15 employees.
- Developed ads integration and leaderboard features in an in-app game, increased the game revenue by over 100%.
- Implemented a push notification feature using Kafka, re-engaging churned users by sending personalized messages.
- Migrated a large scale application from Google Cloud Platform (GCP) to an internal cloud system.
- Mentored one junior engineer in the team, providing guidance on technical implementation and project knowledge.

Boston University — Boston, MA (Remote Work)
Remote Research Assistant (Machine Learning) — *July 2020 – Aug 2022*

- Collaborated with researchers on projects about NLP and machine learning, advised by Prof. Derry Wijaya.
- Co-authored two research papers on NLP and machine learning, published in EMNLP and NLPI conferences.
- Developed transformer-based models for multimodal news framing text classification using fine-tuning techniques.
- Implemented machine learning pipelines focused on explainable AI to generate referring expressions from images, using computer vision and NLP techniques. Developed the solution with Graph R-CNN, Detectron2, and T5.
- Developed machine learning models to analyze 10 years of news data, aiming to understand racial stereotypes in media.

Skills

Programming Language: Python, Golang, Java, C, C++, JavaScript, TypeScript.

Technologies: VueJS, NodeJS, Flask, Spring, Scala, Spark, SQL, MySQL, PostgreSQL, MongoDB, Git, Amazon Web Service (AWS), Terraform, Docker, Redis, Kafka, PyTorch, Scikit-learn.

Areas of Expertise: Machine Learning, Software Development, Backend Engineering, Web Application Development, Data Science, Artificial Intelligence, Human-Computer Interaction.

Selected Publications

- **Daryanto, T.**, Ding, X., Wilhelm, L., Still, S., Knutsen, K., and Rho, E. (2025). Conversate: Supporting Reflective Learning in Interview Practice Through Interactive Simulation and Dialogic Feedback. *The ACM International Conference on Supporting Group Work (ACM GROUP) 2025.*
- Tourni, I., Guo, L., **Daryanto, T.**, Zhafransyah, F., Halim, E. E., Jalal, M., ..., and Wijaya, D. T. (2021). Detecting frames in news headlines and lead images in US gun violence coverage. *Findings of the Association for Computational Linguistics (ACL): 2021 Conference on Empirical Methods in Natural Language Processing (EMNLP).*
- **Daryanto, T.**, and Khodra, M. (2022). Indonesian AMR-to-Text Generation by Language Model Fine-tuning. *2022 9th International Conference on Advanced Informatics: Concepts, Theory and Applications (ICAICTA).*
- Le, H., **Daryanto, T.**, Zhafransyah, F., Wijaya, D., Coppock, E., and Chin, S. (2022). Referring expressions with rational speech act framework: A probabilistic approach. *2022 2nd International Conference on NLP and Information Retrieval.*

Honors & Awards

- **Best UT Prosim Hack at VTHacks11**: Won a hackathon at Virginia Tech with over 600 participants. Built an LLM-based application leveraging GPT-4 and the YouTube API to recommend videos and generate learning content.
- **ICPC Mid-Atlantic USA Regional (2023)**: Top 25 in the division 1 regional competitive programming contest.
- **ICPC Asia Jakarta Regional (2018, 2020, 2021)**: Finalist at Southeast Asia level programming competition.
- **Top 100 Global, IEEExtreme Programming Competition**: Placed at 89 out of 3700+ participants at international level competitive programming competition, held by IEEE.
- **Top 12 Global Finalist in EY Data Challenge**: An International Data Science competition. Selected as a global finalist out of 8700+ participants. Implemented algorithm to predict fire behavior in forest fire using Python.