Bivan Alzacky **Harmanto**

Full-Stack Software Engineer · AI Centre for Educational Technologies (AICET) - NUS

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Summary

Software Engineer with 5 years of experience, including 2 years as a Full Stack Software Engineer and 3 years as a Machine Learning Engineer. As a Full Stack Software Engineer, I contributed to Coursemology, an ed-tech platform serving hundreds of thousands of users, by developing scalable features that boosted student engagement through gamification, automated grading, and interactive feedback. Additionally, I streamlined teaching workflows by writing efficient, scalable code, optimizing performance, deploying cloud-based solutions with CI/CD pipelines, and collaborating with cross-functional teams to deliver impactful products.

Furthermore, as a Machine Learning Engineer, I applied ML/DL models to solve business challenges, specializing in data wrangling, pipeline development, and large-scale data processing to extract insights and support data-driven decisions.

Work Experience

AICET (AI Centre for Educational Technologies) - NUS *Singapore*
Full-Stack Software Engineer - Coursemology *Jan. 2023 - Present*

Skills/Technologies used: React Typescript, Redux, Ruby on Rails, Sidekiq, PostgreSQL, UI/UX Design, AWS

- **Integrated an LLM-powered third-party API to develop an interactive feedback system**, enabling students to ask programming-related questions and receive tailored responses, projected to reduce direct instructor or teaching assistant support requests by 10-20%.
- **Led the integration of Coursemology (a Learning Management System) with Koditsu (an online coding assessment platform)** by developing and implementing solutions from Coursemology's side. Currently supporting a pilot course with 30 students, this integration provides a tailored exam environment for programming challenges and is designed to scale for broader adoption across future courses and larger student cohorts.
- **Led Coursemology's backend upgrade from Rails 6.0 to 7.0**, modernizing core dependencies to enhance compatibility, security, and maintainability. The upgrade ensured a smooth transition with minimal disruptions while improving performance, scalability, and developer productivity.
- **Designed and deployed a polymorphic real-time autosave mechanism to handle multiple answer types**, ensuring seamless progress saving for tens of thousands of active students and enhancing data reliability.

Shopee Online Private Limited *Singapore*
Software Engineer (Machine Learning) - Shopping Guide Team *Sep. 2019 - Sep. 2022*

Skills/Technologies used: Python, Go, Scala, Tensorflow, Deep Learning, SparkSQL

- **Implemented Swing Algorithm (a graph-based heuristic algorithm based on users' past behavior and keywords' statistical data)**, increasing keyword recommendation click rates by 20% across 8 markets.
- **Contributed to developing a Personalized Deep Learning model to rank the generated list of recommended keywords**, achieving over 80% AUC in training and validation.
- **Extracted keyword and user features using data engineering**, enhancing model training and improving team efficiency.

Projects

Computing for Voluntary Welfare Organization (CVWO) *Singapore*
Full-Stack Software Engineer - Cornerstone Project *May. 2023 - Aug. 2023*

Skills/Technologies used: React Typescript, Redux, Go, GORM, PostgreSQL, UI/UX Design, AWS

- **Contributed as part of a team of five to the development of Project Cornerstone** (a modular, componentized platform that supports existing applications and accelerates customized solutions for new clients). Currently adopted by around 10 clients, the platform enhances scalability and streamlines business modeling and feature deployment.
- **Led the development of a web platform for a Singapore-based learning center**, gathering requirements, designing UI/UX, and building key systems from scratch while leveraging components from Project Cornerstone to accelerate development, ensuring a seamless user experience and operational efficiency.
- **Assisted in deploying the system to production using AWS (Amazon Web Services).**

Education

KAIST (Korea Advanced Institute of Science and Technology) *Daejeon, South Korea*
M.S. in the School of Computing (Research Track) *Feb. 2017 - Feb. 2019*

- **Advising Professor: Sungho Jo (Neuro-Machine Augmented Intelligence Lab (NMAIL) KAIST)**
- Thesis Title : Iterative and Interactive Feedback Model for the Personalization of Deep Learning
- Cumulative GPA : **3.72/4.3** (overall), **3.88/4.3** (major only (unofficial))

KAIST (Korea Advanced Institute of Science and Technology) *Daejeon, South Korea*
B.S. in the School of Computing (with minor in Mathematical Sciences) *Sep. 2013 - Feb. 2017*

- Cumulative GPA : **3.85/4.3 (Magna cum Laude)**

Honors & Awards

2016 **KCAMP,** KAIST Convergence AMP Scholarship for the gifted Undergraduate Students in the School of Computing *South Korea*
2013 **IMO,** Bronze Medal in the 54th International Mathematical Olympiad *Colombia*