

Greetings, my name is Michael Stephen Lui. I recently graduated from Brawijaya University with a bachelor degree in Computer Science. While studying at Brawijaya University, my activity revolves around artificial intelligence research.

Artificial Intelligence has fascinated me since my childhood. When I was 10 years old, I was obsessed with chess. I learned how to play from my uncle, which later led me to join a chess club so that I can meet other players. During my time there, one of the club members told me that the best chess player is not human, but a computer. At that time, I didn't really understand what he was saying. It was not until later in my life that I learned that he was talking about the match between IBM's Deep Blue and Garry Kasparov, a chess grandmaster. The match ended with Deep Blue victory, which shocked both the chess community and the tech industry. This story sparked my interest in computer and artificial intelligence, which ultimately lead me to choose Computer Science as my undergraduate major. I firmly believe that artificial intelligence is the next groundbreaking technological innovation, akin to how the internet revolutionized the world in the early 2000s.

During my time studying at Brawijaya University, I had the opportunity to publish several papers in both local and international journal. My first paper explored image segmentation problem and proposed the implementation of U-Net architecture to segment images into three components: object, border, and background. The paper has been submitted to Jurnal Mantik. In my second paper, I implemented YOLOv5, an object detection algorithm to effectively detect sign language. I had the privilege to present this paper during SIET 2022 international conference. My third paper is the paper version of my undergraduate thesis, which focused on Generative Adversarial Network (GAN), which is a type of generative model capable of creating images based on existing images. GAN employ a unique architecture consisting of two components: a generator and a discriminator. The generator learns to generate synthetic images, while the discriminator acts as a critic, attempting to distinguish between real images from the dataset and fake images created by generator. The training process of GANs involves a zero-sum game between the generator and discriminator, as the generator's objective is to generate images that is indistinguishable from real images while the discriminator's goal is to accurately identify the real images. Through this adversarial game, GANs continuously try to improve its ability to produce increasingly realistic images. During my research, I explored various techniques and methodologies for training GANs effectively. This involved experimenting with different hyperparameter values, loss functions, optimization algorithms, and model architectures. By fine-tuning these parameters, I was able to enhance the performance of my model and generate high-quality synthetic image. It was published in Brawijaya University's own journal, JTIK.

While my primary focus is on artificial intelligence, I also have valuable internship experience as a full-stack web developer at Dinas Komunikasi dan Informatika (Kominfo) Malang. This internship lasted for six months and provided me with practical experience in the industry. During my time at Kominfo, I had the opportunity to design a website for Kanjuruhan Stadium, a local facility in Malang. I maintained the website by updating the database, adding news article every week, and also bug fixes for the duration of my internship. Unfortunately, this project was eventually scrapped due to an incident that occurred on October 2022, which resulted in the permanent closure of Kanjuruhan Stadium. Despite the outcome, this experience allowed me to

further develop my skills and understand the challenges associated with real-world project implementation.

Currently, I am working as an AI freelancer in Upwork. As a freelancer, I have provided service to international clients for project that includes AI technology such as image generation, large language model (LLM), and natural language processing (NLP). For image generation, I am using my knowledge of prompt engineering to utilize publicly available image generation service (e.g. Microsoft Designer, Midjourney, etc) to create an image that suit my client's demand. As for LLM, I have fine-tuned Phi 3.5 and equip it with internet access to assist my client in financial matter. It's capable of giving a response based on news and historical data it found on the internet. In NLP, I have utilized XTTS-v2 for voice cloning purpose. It's capable of mimicking inputted voice to speak whatever the user text prompt is. I deployed it using Gradio for simplicity and convenience purpose.

Sincerely,

A handwritten signature in black ink, appearing to be 'Michael Stephen Lui', with a stylized, cursive-like script.

Michael Stephen Lui