

# Pye Sone Kyaw

pyesonekyaw@gmail.com

{github.com, huggingface.co, linkedin.com/in}/pyesonekyaw

pyesonekyaw.com

## WORK EXPERIENCE

### AI Engineer, GovTech

Jul 2023 – Present

- Spearheading the development of a **multimodal AI capability demonstration platform**, comprising over **80 diverse showcases**. This platform significantly enhanced pre-sales demonstrations, enabled detailed feasibility studies, greenfield and whitespace experiments, and expedited swift prototyping of new concepts and initiatives.
- Translating latest research in **large multimodal models** and **retrieval-augmented generation** for agency use cases such as AI-assisted artifact cataloguing. Work is projected to **slash manhours needed by >90%**, markedly improving operational efficiency.
- Optimized and deployed edge vision pipelines on **Jetson Xavier**, utilizing **PyTorch**, **Darknet**, **onnx**, and **TensorRT**. This effort focused on classification, detection, and reidentification for illegal smoking in public spaces, achieving a **90.17% reduction in errors**. This crucial advancement is a key enabler for larger-scale operationalization.

### Computer Vision Engineer Intern, TikTok

Jan 2022 – Dec 2022

- Enhanced the efficiency and accuracy of AI-automated **Trust & Safety** moderation pipelines through the integration of innovative training methodologies and cutting-edge algorithms in **metric learning**, **semi-supervised learning**, and **face forgery detection**, utilizing PyTorch and internal libraries, contributing to a safer, more reliable platform.
- Developed a set of **development tools and templates** designed to optimize data cleaning processes, expedite model iteration cycles, and streamline the overall model development pipeline. This **reduced development time** and improved the **robustness of moderation pipelines**, enhancing the team's capability to deliver timely and effective AI solutions.

### Machine Learning Engineer Intern, Polybee

May 2021 – Aug 2021

- Implemented autonomous data acquisition and annotation pipeline using depth, tracking and infrared cameras on a **Raspberry Pi**-mounted drone, utilizing pseudo-labelling and semi-supervised learning, to reduce data collection & annotation time by 90%.
- Responsible for the entire model development lifecycle of all detection, segmentation and tracking models, using **PyTorch**, **TorchServe**, and **AWS EC2**, ensuring high mean average precision and throughput.

## EDUCATION

### Nanyang Technological University, Singapore

Aug 2019 – June 2023

*Bachelor of Engineering (Computer Science), Artificial Intelligence specialization*

- **Lee Kuan Yew Gold Medal** – Top graduating student ; **Dean's List** for all years; GPA: 4.97/5.00 (Honours – Highest Distinction).
- Part of CN Yang Scholars Programme : research-intensive, multi-disciplinary course limited to top 50 students per cohort.

## RESEARCH

### Generalizable Face Forgery Detection, TikTok & Nanyang Technological University

Jun 2022 – Dec 2022

- Developed a novel approach for generalizable face forgery detection with self-blended images and consistent representation learning, achieving new state-of-the-art performance on multiple benchmark datasets using **PyTorch** and **Python**.
- Awarded '**Global Winner**' in the Computer Science category at **The Global Undergraduate Awards 2023**.

### Personalised Federated Learning: A Combinational Approach, Nanyang Technological University

Aug 2020 – May 2021

- Conducted research on a combinational approach for personalisation of federated learning models to achieve superior performance on various datasets and tasks using **PyTorch** and **Python**.
- Presented at International Student Conference on Artificial Intelligence 2021 and attained the **2nd Best Paper Award**.

### Personalised Cross-Silo Federated Learning, Nanyang Technological University

Dec 2019 – May 2020

- Assessed performance of personalisation approaches for cross-silo horizontal federated learning models on computer vision and natural language processing datasets and tasks using **PyTorch**.
- Achieved CN Yang Research Award for exceptional performance in the project, an accolade limited to ten students per cohort.

## COMPETITIONS & PROJECTS

- **CVPR2022 Biometrics Workshop Image Forgery Detection Challenge (2022)** – 21st/674 Teams – Trained an ensemble of vision transformers and convolutional nets for generalizable face forgery detection on a multi-forgery dataset using **PyTorch**, achieving 0.996 AUC on the validation set and 0.951 AUC on the out-of-distribution test set.
- **RecycleTree (2021)** – Developed a one-stop recycling information portal in **React**, allowing users to find nearest recycling bins using Google Maps API and **Supabase**, learn about recycling campaigns, and classify waste items to determine recyclability using image classification models trained using **PyTorch** and deployed with **FastAPI**.
- **BinMax: AI Recycling Bin (2020)** – Built an embodied full-stack platform, a smart recycling bin, to classify trash and educate users on recyclables contamination on a **Jetson Nano**, using **TensorRT**, **React**, and a Telegram chatbot. Involved training a multistage trash classifier using **PyTorch**, to achieve 95% accuracy on fine-grained classification of 64 classes of trash.

## LANGUAGES & TECHNOLOGIES

**Fluent Languages:** English, Burmese | **Natural Languages:** Python, Javascript, SQL | **Technology:** Git, Docker, Linux

**Machine Learning:** PyTorch, Lightning, OpenCV, HuggingFace, TensorRT, Gradio, Streamlit, Pandas, timm, LlamaIndex

**Web & Cloud:** HTML/CSS, React.js, Next.js, Tailwind, Flask, FastAPI, AWS, Vercel | **Edge Hardware:** Jetson Nano, Raspberry Pi