

# Pye Sone Kyaw

pyesonekyaw@gmail.com

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

pyesonekyaw.com

## WORK EXPERIENCE

---

### AI Engineer, *GovTech*

Jul 2023 – Present

- Harnessing computer vision technologies for public good as part of the video analytics team in the Data Science and Artificial Intelligence Division (DSAID), under the Technology Associate Program.

### Computer Vision Engineer Intern, *TikTok*

Jan 2022 – Dec 2022

- Improved performance of advertisement moderation model pipelines through the investigation and implementation of new training methodologies and algorithms from areas such as metric learning, semi-supervised learning, and face forgery detection, using **Python** and **PyTorch**, as part of the **monetization integrity** team.
- Built development tools to facilitate data cleaning, fast model iteration, and streamlined model development pipeline.

### 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, pseudo-labelling, and semi-supervised learning, reducing data collection and annotation time by 90%.
- Trained and deployed detection, segmentation and tracking models in an iterative and incremental manner using **PyTorch** and **TorchServe** on **AWS EC2** for Agri-tech specific tasks, 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**.
- Created a web demo using **Gradio**, enabling image and video inference, and visualization of developed approach.

### 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 – 21st/674 Teams

May 2022

- 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.

### Advanced Software Engineering Project – *RecycleTree*

Jan 2021 – May 2021

- Developed an information portal web application in **React** for recycling in Singapore, allowing users to find nearest recycling bins using Google Maps API and **Firestore**, and learn about recycling campaigns.
- Trained and deployed image classification models using **PyTorch**, **FastAPI** to classify waste items and determine recyclability.

### Making and Tinkering Project – *BinMax: AI Recycling Bin*

May 2020 – Jul 2020

- Built a smart recycling bin that classifies trash and educates users on contamination of recyclables using **Jetson Nano**, a **React** web application in **Javascript** and a Telegram chatbot in **Python** to provide a smooth and fluid user experience and interaction.
- Trained and deployed a multistage classifier using **PyTorch**, **TensorRT** and **Jetson Nano** to achieve 95% accuracy on classification of 64 classes of trash.

### Brainhack 2019 Today I Learned AI Competition – *Champion, University Category*

Jun 2019

- Designed deep learning pipelines for computer vision models such as EfficientNet, ResNet and DenseNet to recognise various human action poses using **PyTorch** in **Python** to achieve highest accuracy amongst all teams.
- Utilized image segmentation and inpainting to perform synthetic data generation, massively increasing dataset size, resulting in significant performance improvements with a final accuracy of 88% on an unseen test set for human pose classification.

## SKILLS & ADDITIONAL INFORMATION

---

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

**Machine Learning:** PyTorch, OpenCV, Scikit-learn, Pandas, Detectron2, timm, TensorFlow, HuggingFace, LangChain

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