Keifer **Lee**

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Education

New York University — *New York, NY*

MS in Computer Engineering | CGPA: 3.78 — *Aug. 2022 - May. 2024*

- Graduate Research Assistant for a Sim2Real project with industry collaborators working on robotics for manufacturing automation.
- Teaching Assistant for the graduate ROB-GY 6203 Robotics Perception course for Fall 2023.
- $14,000 NYU merit scholarship awardee worth.

Taylor's University — *Subang Jaya, MY*

B.Eng. (Hons) in Electrical and Electronic Engineering | CGPA: 3.65 — *Mar. 2015 - Aug. 2019*

- Undergraduate Research Assistant for a project on autonomous monocular target-tracking UAV.
- 5 times Dean's List and 2 times Book Prize awardee.
- $10,000 Taylor's Grand Challenges Scholarship awardee.
- B.Eng Thesis: Development of Low Computational Power Vision Tracking Algorithm on Embedded System.

Research Experience

New York University — *New York City, NY*

Graduate Student Researcher — *Oct. 2022 - Present*

- **Advisor**: Chen Feng @ AI4CE Lab
- Leading research project on optimal Neural Radiance Fields (NeRF) for autonomous robotics. (In Progress)
- Co-led a project on Sim2Real for robotics control via generative models and self-supervised learning. Improved key metrics significantly by ~2x.
- Worked on very large-scale datasets and performed distributed training with PyTorch and Slurm on NYU's Greene supercomputer cluster.

Taylor's University — *Kuala Lumpur, MY*

ML Research Engineer — *Aug. 2019 - Apr. 2020*

Research Assistant — *Dec. 2018 - Aug. 2019*

- **Advisor**: Swee King Phang @ Taylor's Unmanned Aerial Vehicle (UAV) Research Group
- Developed a real-time monocular target tracking algorithm for autonomous UAV operations with a light on-board computer via a novel buffer-based Siamese CNN. No pilots required. Preprint at `https://arxiv.org/abs/1910.08263`
- First-authored publication in the American Institute of Physics Conference Proceedings.

Professional Work

IBM — *New York City, NY*

Data Science Intern — *May. 2023 - Aug 2023*

- Developed a MLOps-compliant NLP starter-kit via IBM's Large Language Foundation Models.
- Improved tasks accuracy by +20% and reduced development time from 2 weeks to 1 day.
- End-to-end deployed models OpenShift & Kubeflow, and reduced deployment time by 90%.
- Created a Retrieval Augment Generation Q&A chatbot with IBM's Foundation Model and other open-sourced model such as LLAMA-2.

MoneyLion Inc — *Kuala Lumpur, MY*

Data Scientist II — *Sep. 2020 - Aug 2022*

- Spearheaded end-to-end projects maximizing user acquisition funnel's return per unit risk, improving acquisition by ~100% and lowering credit risk while improving system run-time by ~7x.
- Led feature development projects including a pricing optimization tool, improving top-line metrics by ~17%, and an optimal lead bidding algorithm (CAC vs LTV) for a high-priority lead generating channel with C-level stakeholders.
- Demonstrated proficiency in complex large-scale online statistical testing via daily experimentation.
- Led a seamless, large-scale multi-stage production database migration effort with Data Engineering for infrastructure enhancement.
- Worked with MLOps to establish continuous model monitoring and automated retraining pipelines to ensure performance across time.
- Served as a mentor to new Data Scientists on all matters from Machine Learning modelling, to live statistical testing, to stakeholder management.

Honors & Awards

2022	**NYU Merit Scholarship**, New York University	*NY, USA*
2019	**Best High Impact Research Award**, 12th International Engineering Research Conference	*Selangor, MY*
2019	**Winner & Best Social Impact Award**, CodeathonX KL 2019	*Malaya Uni, MY*
2018	**Best High Impact Research Award**, 11th International Engineering Research Conference	*Selangor, MY*
2018	**Global Finalist & 1st Runner-Up**, NASA SpaceApp Challenge 2018	*Kuala Lumpur, MY*
2015	**Taylor's Grand Challenge Scholarhsip**, Taylor's University	*Selangor, MY*

Projects

Leave Your Clothes Behind (LYCB) *New York University*

Course Project *May. 2023*

- Created a novel framework to extract virtual-wearable 3D garment models from monocular videos.
- Pipeline covered tasks such as semantic segmentation, structure from motion (SfM), novel view synthesis, and 3D reconstruction.
- Received full mark for the project in the course. Project can be found live at `https://github.com/IamShubhamGupto/LYCB`.

Arbitrage Bot

Personal Project *Aug. 2018 - Jun. 2019*

- Wrote a Python algorithm to arbitrage cryptocurrencies. Capable of performing multi-step arbitrages between a chain of trading pairs.
- Developed a paper-trading (simulation) application with live feed data from various exchanges for real-time validation.
- Capable of parsing 400+ trading pairs across multiple exchanges within 2 sec.

Leadership & Community

1stDayHack 2020 *Selangor, MY*

Founder & Lead Organiser *Sep. 2019 - Jan. 2021*

- Organised and led Malaysia's first Machine Learning Workshop+Hackathon for 60 secondary students from across Peninsular Malaysia.
- Created a beginner-friendly ML course, ran ML workshops, and oversaw the entire program.
- Wrote and produced a free multi-chapter video based crash course, covering topics from introductory Python to Deep Learning. My embarrassing notes can be found at `https://tinyurl.com/1stdayhack`.
- Created 1stDayKit, a ML toolkit that consolidating 12 state-of-the-art models into one easy to use package. Written with Python and PyTorch.

CampusHero *Kuala Lumpur, MY*

Committee Member *Oct. 2017 - Aug. 2019*

- Ran 20+ student community events in Malaysia with leading partners ranging from Google to Microsoft and Petronas.
- Impacted 300+ students in the Peninsular Malaysia through expert-mentoring sessions, hackathons and Python workshops.

Skills & Courses

PROGRAMMING	Python · Matlab · Assembly · Bash · Kubernetes · Docker · Slurm · LaTeX · Verilog · SQL
MACHINE LEARNING	PyTorch · Tensorflow · OpenCV · 3D Vision · OpenAI Gym · Generative AI · Time-Series Modelling
COURSES	Deep Learning · Image & Video Processing · Probability & Stochastic Processes · Real-Time Embedded Systems Control Systems · Signals & Systems · Computing Systems Architecture · Computational Statistics