SEAH SHAO XUAN

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Motivated professional with a proven track record in crafting innovative solutions for computer vision. Proficient in real-time small object detection, 3D pose estimation and edge device deployment. Equipped with strong foundation in ML fundamentals and knowledge in emerging trends, especially in generative models for image / video generation.

SKILLS

Programming Languages:	Python, SQL, R, C/C++, Java, CUDA
Data and Machine Learning:	PyTorch, TensorFlow, Hugging Face Scikit-learn, NumPy, Pandas, Matplotlib, OpenCV
Big Data and Cloud:	Spark, Hadoop, HDFS, Hive, YARN, Airflow, AWS
Automation and Scale:	Git, Shell Scripting, Docker, Jenkins

EDUCATION

Carnegie Mellon University — *Pittsburgh, PA, USA*
Master of Science in Machine Learning, School of Computer Science (4.00/4.00) — *Aug '23 to Aug '24*
- Learning-based Image Generation
- Variational Inference and Sampling
- Distributed Machine Learning
- Deep Learning Systems

National University of Singapore — *Singapore*
Bach. of Eng. (Mech. Eng.) (4.79/5.00) and Bach. of SocSci. (Economics) (4.81/5.00) — *Aug '18 to May '22*
Minor in Computer Science, Minor in Statistics
- Small Object Detection and Tracking
- 3D Reconstruction and Pose Estimation
- Multi-agent Reinforcement Learning
- Machine Learning and Deep Learning
- Statistical Simulation
- Data Structures and Algorithms

EXPERIENCE

Sea Labs, Sea Limited — *Singapore*
Data Engineer — *Jun '22 to Jul '23*
- Optimised distributed data computations within the Spark-Hadoop ecosystem for petabytes of data, reducing cluster-memory resource consumption of tasks by 80%
- Developed CI/CD testing and pipelines for operational continuity and task accuracy
- Developed in-house tools for operational diagnostics and monitoring

Temasek Labs, National University of Singapore — *Singapore*
Computer Vision Research Assistant — PART TIME *Jan '21 to May '22,* FULL TIME *May '21 to Aug '21*
- Developed real-time small object detection system by utilising ensembles of correlation filters
- Developed real-time algorithm for 3D reconstruction of a spacetime curve using camera invariants
- Led software operationalisation and deployment in lightweight embedded systems for field use

PUBLICATIONS

Seah Shao Xuan, Sutthiphong Srigrarom (2023). Multiple UAS Traffic Planning Based on Deep Q-Network with Hindsight Experience Replay and Economic Considerations. MDPI Aerospace.

Seah Shao Xuan, Lau Yan Han, Sutthiphong Srigrarom (2022). Multiple Aerial Targets Re-identification by 2D and 3D Kinematics-based Matching. MDPI Imaging.

Seah Shao Xuan, Sie Jun Liang Niven, Sutthiphong Srigrarom (2021). Tracking of High-speed and Aggressively-maneuvered Aerial Targets by Kalman-Kernelized and Kalman-Discriminative Correlation Filters (K-KCF & K-DCF). International Conference on Intelligent Unmanned Systems.

PROJECTS

- 3D CAD Instruction File Generation using Diffusion
- Improving Representations of Words in Image Generation through Region-specific Loss Minimization
- Enhancement of Contrastive-based Self-supervised Learning Methods by Pretraining on Large 3D Dataset
- Use of Fourier Features in Conditional Diffusion for Time Series Prediction
- Multi-agent Reinforcement Learning-based Trajectory Optimization for Traffic Planning