

Srikrishna Iyer

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EDUCATION

Master of Science in Computer control and automation

Aug 2019 - Aug 2020

Nanyang Technological University, Singapore

- Research Assistant at Singtel Cognitive and AI lab for enterprises (SCALE@NTU) under the supervision of Dr. Muhammad Fayez Karim
- Related courses : Robotics and Sensors, Control Systems, Process Control, Machine Learning and Genetic Algorithms, Computer Vision

Bachelor of Technology in Electronics and Communications

July 2015 - July 2019

Vellore Institute of Technology

- Related courses : Problem solving and Object oriented programming ,Probability and Random Processes, Statistics, Linear Algebra, Neural Networks and Fuzzy Control, Digital Image & Signal Processing, Information theory & coding, VLSI Design

EXPERIENCE

Asst. Principal AI Engineer

AI.DA STC, ST Engineering IHQ, Singapore

Sep 2025 - Present

- **Robust Test-Time Recovery for Vision–Language–Action (VLA) Models in Robotic Manipulation**
 - Collaborating with Prof Guillaume Sortoretti, co-developed a VLA-agnostic test-time scaling framework that improves robustness in robotic manipulation through failure-aware policy composition. Leveraging latent-space conformal failure prediction, the system detects imminent task failures and triggers an offline reinforcement learning policy trained on the same latent representations to generate diverse recovery actions. The framework addresses a key limitation of existing test-time scaling methods, where action samples originate from a single policy and share common failure modes. Evaluated on SIMPLER and Polaris benchmarks, achieving **17.5% average improvement in task success rates** across manipulation tasks in real-robot experiments.
- **Autonomous navigation on DeepRobotics M20 quadraped**
 - Validated the M20 Lynx Pro's single-robot autonomy pipeline end-to-end: LiDAR-inertial SLAM (LIO + GTSAM PGO with Fast-GICP loop closure), Fast-ICP localization with ISAM2 fixed-lag smoothing on prebuilt maps, A* global planner, DWA-based local planner, and a forward-simulation safety handler feeding the RL locomotion controller.
 - Achieved waypoint navigation **~0.1m mean position and ~2.6degrees yaw errors** across no-obstacle, static, and dynamic obstacle indoor tests.
- **Agentic AI, Generative AI and Predictive Maintenance**
 - **AutoRestore: An agentic framework for image restoration** [[code](#)] : Developed an agentic framework for multi-degradation image restoration using an RL-based planning agent, VLM-driven execution, and verification, achieving competitive restoration quality with a 33s inference-time reduction and strong generalization to out-of-distribution degradations.
 - **Agent-based conversational chatbot for therapy** [[code](#)] [[docs](#)] [[SWITCH](#)] : Designed and implemented a hierarchical state-machine-based multi-agent conversational chatbot that empathizes, delivers CBT-aligned counseling via RAG, and administers mental-health

surveys for young adults in a civic duty program.

- **AI assistant RAG for Call Center agents** [\[docs\]](#) [\[code\]](#) : Built a real-time LLM-based RAG chat assistant for government call-center agents, along with a sample- and compute-efficient knowledge distillation framework (DWML) to distill the self-hosted LLM.

R&D Engineer I

Wirebond R&D, ASMPT pvt. Ltd., Singapore

Sep 2020 - Aug 2022

- **Multi-sensor fusion architecture for quality prediction**

- Implemented a hybrid fusion architecture for wire bonding quality prediction, leveraging a multi-stage feature fusion approach. The system extracts statistical and temporal features from multiple process signals across six distinct bonding stages, with each stage's features processed through a dedicated neural network for dimensional reduction and representation learning. These learned stage-wise representations are then aggregated and fed into an XGBoost model for final quality prediction.

- **Domain Adaptation**

- Designed an efficient domain adaptation model that uses a causal inference based algorithm to select a subset of features from unseen data for model retraining. Using Bayesian Optimisation, the algorithm selects a feature set from the target domain (unseen data) to maximize model performance while preserving the underlying causal structure. The average measurement error reduced by 19% and a 2X minimisation of model re-training time.

Research Intern

NCS, Singapore

Jun 2020 - July 2020

- **People Counting and Tracking using mmWave Radar** [\[code\]](#)

- Implemented a complete mmWave signal processing pipeline on TI's IWR1642BOOST EVM with the C674x DSP and ARM Cortex-R4F cores. Designed range processing via 1D FFT and static clutter removal, followed by Capon beamforming to compute range-azimuth heatmaps. Employed a two-pass CASO-CFAR algorithm for target detection and elevation estimation. Integrated Doppler FFT and Extended Kalman Filter-based multi-target tracking on the ARM core for robust trajectory estimation.
- Achieved accurate detection of up to 7 individuals within a 14 m range and 120° horizontal field of view at 20 Hz update rate. The system demonstrated stable operation with <12 cm range resolution and <0.3 km/h velocity resolution. Configurable sub-zones in the GUI enabled localized counting, reducing false detections by over 40% compared to default firmware.

Research Assistant

SingTel Cognitive and AI lab for enterprises (SCALE@NTU)
Singapore

Oct 2019 - May2020,

- **Contactless vital signs monitoring system using mm-wave radars** [\[paper\]](#)[\[code\]](#)

- Formulated a contactless vital signs monitoring system to measure the heart and breathing rate of individuals using a milli-meter wave (mm-wave) radar at 77 GHz. Utilized range-bin tracking, phase extraction, motion denoising and adaptive band-pass filtering to estimate quasi-periodic vibrations of the chest correlating 70% of the time with ECG readings.

TOOLS

- Programming languages : Python, MATLAB, C++
- Robotics : ROS2, OpenCV, Simulink, MuJoCo, Gazebo, Isaacsim, IsaacLab
- Robots : SO-100 6DOF, Franka Emica Panda 7DOF, Mobile Aloha (AgileX) bimanual, DeepRobotics M20 quadruped, Unitree G1 humanoid
- Version control : Git
- MLOps : MLFlow, DVC
- Database : PostgreSQL, MinIO
- LLMops : Scrapy Selenium, Langgraph, Langchain, LangSmith, LlamaIndex, RAGAS
- Deep learning : PyTorch, TorchVision, Scikitlearn, Transformers

PUBLICATIONS

1. Derek Ming Siang Tan, Shailesh, S. Iyer, William Wei Jie Teo, Yuanliang Ju, Qiao Gu, Guillaume Sartoretti **“RL2-VLA: Adaptive Test-Time Scaling with RL Latent Compositional Steering for Vision-Language-Action Models”**, IEEE Robotics and Automation Letters 2026 (*Under review*)
2. George Jagadeesh, **S. Iyer**, Michal Polanowski, Kai Xin Thia **“Application and Evaluation of Large Language Models for Forecasting the Impact of Traffic Incidents”**, IEEE International Conference on Intelligent Transportation Systems (ITSC) 2025 [[paper](#)]
3. **S. Iyer**, **“When Babies Teach Babies: Can student knowledge sharing outperform Teacher-Guided Distillation on small datasets”**, Proceedings of the BabyLM Challenge, CoNLL, EMNLP 2024 [[paper](#)][[code](#)]
4. **S. Iyer**, Teng Teck Hou **“GAT-GAN: A Graph-Attention-based Time-Series Generative Adversarial Network”**, arXiv preprint arXiv:2306.01999 2023 [[paper](#)][[code](#)]
5. **S. Iyer**, Velmurugan T, Prakasam P and Suresh Kumar T R, **“Support Vector Machine based Spectrum Handoff Scheme for Seamless Handover in Cognitive Radio Networks”** [[paper](#)], Concurrency and computation: Practice and Experience 2023
6. **S. Iyer**, L. Zhao, M. P. Mohan, F. Zhong, M. Y. Siyal, A. Alphones and M. F. Karim, **“mmWave Radar based Vital Signs Monitoring and Arrhythmia Detection using Machine Learning”** [[paper](#)][[code](#)], Sensors MDPI 2022
7. **S. Iyer**, Velmurugan, T., Gandomi, **“Structural health monitoring of railway tracks using IoT-based multi-robot systems”** [[paper](#)][[code](#)], Neural Computing & Applications 2020
8. **S. Iyer**, A. P. Nadkarni and Padmini T. N, **Antlion optimization and Whale optimization Algorithm for multilevel thresholding segmentation** [[paper](#)][[code](#)], (i-PACT) 2019, IEEE

TALKS/EXHIBITIONS

1. **Exhibitor at Singapore Airshow**
Title : **“Robust Physical AI”**
Venue : Singapore air show, Changi exhibition Center
Date : 3rd - 8th February, 2026
Description : Showcasing our team’s applied research on Robust Physical AI

2. Invited Speaker at IMDA, Singapore

Title : "Agentic Apps: Lessons learnt from creating Agentic applications"[[presentation](#)]

Venue : Infocomm Media Development Authority, Singapore (IMDA) [[details](#)]

Date : 30th September, 2024

Description : Presented a novel approach to improving the reliability of Agentic Large Language Models (LLMs) using Hierarchical Finite State Machines (HFSMs).

3. Exhibitor at SWITCH, Singapore

Title : "AGIL AI Assistant"[[demo](#)]

Venue : Singapore week of innovation and technology, Singapore (SWITCH) [[details](#)]

Date : 28th-30th October, 2024

Description : Showcased the above Multi-agent conversational chatbot as part of ST Engineering's AGIL product suite.

REFERENCES

1. Dr. Muhammad Faeyz Karim

Instructional Associate Professor

Department of Engineering Technology & Industrial Distribution

Texas A&M University, US

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2. Dr. Velmurugan T

Associate Professor

School of Electronics Engineering (SENSE)

Vellore Institute of Technology, India

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3. Dr. Michal Polanowsky

Head of Agentic AI

Artificial Intelligence - Data Analytics Strategic Technology center (AI.DA STC)

ST Engineering, Singapore

email : michal.polanowski@stengg.com