

Samson Yu Bai Jian

Portfolio: samsonyubaijian.github.io

Github: github.com/samsonyubaijian

Email: samyubj@gmail.com

Mobile: +65 8163 1836

LinkedIn: [samsonyubaijian](#)

RESEARCH STATEMENT

My research interest is in **human-robot interaction**. Specifically, I am interested in the intersection between **embodied AI / robot learning** and **interactive machine learning** for better human-robot interaction.

EDUCATION

- Singapore University of Technology and Design** Singapore
• *Bachelor of Engineering - Information Systems Technology and Design* 2017.05 - 2020.09
GPA: 4.00/5.00 (Honours with Distinction)
Focus Tracks: Artificial Intelligence, Data Analytics

PUBLICATIONS AND MANUSCRIPTS

*** see [my Google Scholar](#) for an always up-to-date list.

- [1] Jiahui Huang, Yew Ken Chia, **Samson Yu**, Kevin Yee, Dennis Küster, Eva G Krumhuber, Dorien Herremans, Gemma Roig. [Single Image Video Prediction with Auto-Regressive GANs](#). *Sensors* 2022.
- [2] Jiafei Duan, **Samson Yu**, Hui Li Tan, Hongyuan Zhu, Cheston Tan. [A Survey Of Embodied AI: From Simulators To Research Tasks](#). *IEEE Transactions on Emerging Topics in Computational Intelligence (TETCI)* 2022.
- [3] **Samson Yu**, Tapas Nayak, Navonil Majumder, Soujanya Poria. [Aspect Sentiment Triplet Extraction Using Reinforcement Learning](#). *ACM International Conference on Information and Knowledge Management (CIKM)* 2021.
- [4] Jiafei Duan, **Samson Yu**, Cheston Tan. [SPACE: A Simulator for Physical Interactions and Causal Learning in 3D Environments](#). *IEEE International Conference on Computer Vision (ICCV) 2021, Simulation Technology for Embodied AI (SEAI) Workshop (Spotlight)*.
- [5] Soujanya Poria, Navonil Majumder, Devamanyu Hazarika, Deepanway Ghosal, Rishabh Bhardwaj, **Samson Yu**, Romila Ghosh, Niyati Chhaya, Alexander Gelbukh, Rada Mihalcea. [Recognizing Emotion Cause in Conversations](#). *Cognitive Computation* 2021.
- [6] Jiafei Duan, **Samson Yu**, Hui Li Tan, Cheston Tan. [Actionet: An Interactive End-To-End Platform For Task-Based Data Collection And Augmentation In 3D Environment](#). *IEEE International Conference for Image Processing (ICIP)* 2020.
- [7] Jiafei Duan*, **Samson Yu***, Soujanya Poria, Bihan Wen, Cheston Tan. [PIP: Physical Interaction Prediction via Mental Simulation with Span Selection](#). *European Conference on Computer Vision (ECCV) 2022 (under review)*.
(* indicates equal contributions, same for the rest)
- [8] Jieyi Ye, Jiafei Duan, **Samson Yu**, Bihan Wen, Cheston Tan. [ABCDE: An Agent-Based Cognitive Development Environment](#). *IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR) 2022, Embodied AI Workshop (under review)*.

RESEARCH EXPERIENCES

- Agency for Science, Technology and Research** Singapore
• *Centre for Frontier AI Research* 2021.12 - Present
Research Engineer, Manager: **Dr. Cheston Tan**
 - **Project 1:** GTA: Good Time to Ask in Embodied Object Navigation
 - * Added an ask action to the action space in embodied object navigation that allows the navigation agent to get useful signals from an oracle.
 - * Ran experiments for multiple oracle signals, such as progress and instance segmentation.
 - **Project 2:** Machine Theory of Mind
 - * Built a dataset that helps machine learning models predict human beliefs in the form of objects during nonverbal communication.
 - * Built a hierarchical reinforcement learning model inspired by the default mode network and the sparse distributed memory.
 - **Project 3:** ABCDE: An Agent-Based Cognitive Development Environment
 - * ABCDE [8] has been submitted to the the CVPR 2022 Embodied AI Workshop.
 - * Contributed ideas to a simulator with a teacher and student agent setup for lifelong curriculum learning that mimicks cognitive development in children.

- Singapore University of Technology and Design** Singapore
• *DeCLaRe Lab* 2020.10 - 2021.10
Research Officer, Manager: **Prof. Soujanya Poria**

- **Project 1:** Aspect Sentiment Triplet Extraction (ASTE) Using Reinforcement Learning (ASTE-RL)
 - * ASTE-RL [3] was published in CIKM 2021.
 - * Proposed a novel hierarchical reinforcement learning approach for ASTE, achieving state-of-the-art (SOTA) results.
- **Project 2:** Recognizing Emotion Cause in Conversations (RECCON)
 - * RECCON [5] was published in Cognitive Computation 2021.
 - * Helped to create a dataset containing emotion causation at the utterance level through annotations and discussions.
- **Project 3:** A Survey of Embodied AI: From Simulators to Research Tasks
 - * This work [2] was published in TETCI.
 - * Researched and analyzed the field of embodied AI.
 - * Comprehensively organized the various embodied AI simulators and research tasks, and proposed future directions for the field.
- **Project 4:** K-EMERGE
 - * Built two models and set up the data processing pipeline for question answering involving knowledge graphs to assist aerospace engineers with jet engine information.
 - * Collaborated with five other teams comprising over 20 people.
 - * Implemented the PullNet model successfully for 1-hop questions.
 - * Edited the KinGDOM model to incorporate knowledge graphs and allow for machine reading comprehension.

Singapore University of Technology and Design

Singapore

• Information Systems Technology and Design

2019.09 - 2020.08

Final Year Student, Advisors: **Prof. Ioannis Panageas, Dr. Hongyuan Zhu**

- **Project 1:** Autonomous robot for shelf management
 - * Built an autonomous shelf management robot that uses computer vision to identify important scenarios like out-of-stock items for my final year project.
 - * Customized the YOLOv5 model for robust object detection.
 - * Created a custom dataset for the supermarket use case.
- **Project 2:** Single Image Video Prediction with Auto-Regressive GANs
 - * This work [1] was published in Sensors.
 - * Ran models that generated future frame predictions of facial expressions of multiple emotions.

Agency for Science, Technology and Research

Singapore

• Artificial Intelligence Initiative

2019.05 - 2019.12

Research Intern, Managers: **Dr. Cheston Tan, Dr. Hongyuan Zhu**

- **Project 1:** Actionet: An Interactive End-To-End Platform For Task-Based Data Collection And Augmentation In 3D Environment
 - * Actionet [6] was published in ICIP 2020.
 - * Created Actionet, a 3D household task dataset that can be automatically augmented with randomized positions and different image sizes.
 - * Customized Allen Institute for AI's iTHOR simulator by changing initial scene configurations.

HONORS AND AWARDS

- **2019.12:** SUTD ISTD Machine Learning Course Design Challenge, Winner (1/58)
- **2019.09:** Singapore-India Hackathon 2019, 1st Runner-Up (2/20)
- **2019.04:** DBS X GovTech X SUTD Smart City Challenge 2019, 2nd Runner-Up (3/17)
- **2017.05:** SUTD Undergraduate Scholarship

CERTIFICATIONS

- **2019:** AI for Industry - Practical Foundations in AI with Python
- **2019:** Data Scientist with Python (DataCamp)

TECHNICAL SKILLS

- **Deep Learning Frameworks:** PyTorch, TensorFlow, Keras
- **Programming Languages:** Python, SQL, C#, JavaScript, Solidity
- **Additional Skills:** Linux, Git, Scikit-learn, NLTK, SpaCy, CUDA, Docker, MySQL, SQLite, Flask

VOLUNTEER EXPERIENCE

- **The Conference on Computer Vision and Pattern Recognition (CVPR) 2022**
Reviewer

Singapore

2022.01 - 2022.01