

Sreejith Balakrishnan, Ph.D. Candidate, National University of Singapore

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LINKS

[Homepage](#), [Google Scholar](#), [LinkedIn](#)

PROFILE

I am a PhD candidate interested in developing Artificial Intelligence driven decision-making algorithms that have applications in robotics with a focus on value alignment and fairness. My current research topics include value alignment through Inverse Reinforcement Learning and fairness in Reinforcement Learning. In addition to my experience as a researcher, I also have an industry career of 8 years. I have held many positions, including Research Engineer at the Singapore Management University and Section Manager at ABB Private Limited.

RESEARCH INTERESTS

Inverse Reinforcement Learning
Deep Learning
Robotics
Fairness in algorithmic-decision making
Causal inference

PUBLICATIONS

- Dec 2020 **Sreejith Balakrishnan**, Quoc Phong Nguyen, Bryan Kian Hsiang Low, and Harold Soh. Efficient Exploration of Reward Functions in Inverse Reinforcement Learning via Bayesian Optimization. Neural Information Processing Systems (NeurIPS) 2020.
- Aug 2022 **Sreejith Balakrishnan**, Jianxin Bi, and Harold Soh. SCALES: From Fairness Principles to Constrained Decision-Making. Artificial Intelligence, Ethics, and Society (AIES) 2022.

AWARDS

- Jan 2021 **Research Achievement Award, National University of Singapore**
• Awarded for the NeurIPS 2020 accepted paper.
- Jan 2019 **Honor List of Student Tutors, National University of Singapore**
• Awarded for outstanding tutoring for the module "AI Decision Making and Planning"
- Aug 2016 — Jul 2020 **NUS Research Scholarship, National University of Singapore**
• Awarded to pursue Ph.D. program in School of Computing at National University of singapore.

EDUCATION

- Aug 2016 — Present **Ph.D., National University of Singapore** Singapore
• Working on Inverse Reinforcement Learning and Value Alignment for robotics as well as Fairness in Decision Making.
• Relevant coursework: Uncertainty Modelling in AI, Advanced Topics in Artificial Intelligence
- Aug 2010 — Jul 2013 **Master of Science, National University of Singapore** Singapore
• M.Sc in Electrical Engineering with a specialization in Computer Engineering
• 4.6 GPA
• Relevant coursework: Real-time Systems, Linear Systems, Pattern Recognition, Evolutionary Computing
- Aug 2004 — Jul 2008 **Bachelor of Engineering, Nanyang Technological University** Singapore
• B.Eng in Electrical and Electronics Engineering with a Minor in Computing
• First Class Honors
• Relevant coursework: Robotics & Automation, Control Engineering Design, Modelling & control, Computer Vision

MACHINE LEARNING SKILLS	Inverse Reinforcement Learning	Expert	Deep Learning	Expert
	Algorithmic Decision-making	Expert	Reinforcement Learning	Expert
	Gaussian Process Regression	Expert	Active Learning	Experienced
	Bayesian Optimization	Expert	Evolutionary Algorithms	Skillful

EMPLOYMENT HISTORY

Aug 2020 — Present	Research Assistant, National University of Singapore <div> <ul style="list-style-type: none"> Assist with research projects under the CLeAR Lab in NUS. Manage the server environments required for the various projects. Assist with procurement of hardware and software components necessary for upcoming projects. </div>	Singapore
Aug 2017 — Dec 2017	Teaching Assistant, AI Planning and Decision Making, School of Computing, NUS, Singapore <div> <ul style="list-style-type: none"> Conducted tutorials for the undergraduate (4th year) module Awarded Honor List of Student Tutors Received a high rating of 4.4 out of 5 based on student feedback. </div>	Singapore
Mar 2015 — Jul 2016	Research Engineer and Project Lead, School of Information Systems, SMU, Singapore <div> <ul style="list-style-type: none"> Technical lead for a Singapore urban planning project undertaken by Fujitsu-SMU Urban Computing & Engineering Corporate Lab (UNiCEN). Modeled the passenger flow at various taxi stands in Singapore to address the mismatch in taxi supply and demand. </div>	Singapore
Jun 2008 — Feb 2015	Section Manager, Regional After Sales Support, ABB Private Limited, Singapore <div> <ul style="list-style-type: none"> Spearheaded a team of 5 engineers to provide engineering solutions to customers in Asia, Australia, and New Zealand. Invited to conduct advanced-level product training for engineers and customers in various countries around the globe. </div>	Singapore

PROJECTS

Jun 2019 — Dec 2019	Decentralized Task Allocation for Multi-robot Systems, National University of Singapore <div> <ul style="list-style-type: none"> Designed a task allocation algorithm for a decentralized multi-robot environment with limited communication. </div>
Aug 2007 — Jul 2008	Control System for Humanoid Robot, Final Year Project, Nanyang Technological University, Singapore <div> <ul style="list-style-type: none"> Interfaced a humanoid robot with sensors using various communication protocols like Bluetooth and I2C. </div>
Jul 2007 — Dec 2007	Humanoid Robot Exhibition, Discovery Center, Singapore <div> <ul style="list-style-type: none"> Led a team of 12 students to create a public exhibition where the movements of 4 humanoid robots were synchronized against background music. </div>

PROGRAMMING LANGUAGES

Python for machine learning (Highly Proficient)
R for data analytics and visualisation (Proficient)
Java for desktop development (Working Knowledge)
Javascript for web development (Working Knowledge)
C/C++/C# for robotics (Working Knowledge)