

Sreejith Balakrishnan

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SUMMARY

PhD candidate specializing in AI-driven decision-making algorithms grounded in value alignment and fairness with applications in robotics. Research interests include Inverse Reinforcement Learning, Reinforcement Learning, Causal Inference, Bayesian optimization and Deep Learning. Proficient with deep learning frameworks, including TensorFlow and PyTorch. Seeking a data/research scientist position in a challenging and fast-paced environment in the technology sector.

EDUCATION

PhD, National University of Singapore (NUS), Singapore Aug 2016 - Present

- Expected date of thesis submission: December 2022.
- 4.88/5.00 GPA.
- Relevant coursework: Uncertainty Modelling in AI, Advanced Topics in Artificial Intelligence.

M.Sc, National University of Singapore, Singapore Aug 2010 - Jul 2013

- Master of Science in Electrical Engineering with a specialization in Computer Engineering.
- 4.6/5.0 GPA.
- Relevant coursework: Neural Networks, Pattern Recognition, Real-time Systems, Linear Systems.

B.Eng, Nanyang Technological University (NTU), Singapore Aug 2004 - Jul 2008

- B.Eng in Electrical and Electronics Engineering with a Minor in Computing.
- First Class Honors.
- Relevant coursework: Computer Vision, Control Engineering Design, Robotics & Automation.

WORK EXPERIENCE

Research Assistant, NUS Aug 2020 - Present

- Provide Inverse Reinforcement Learning and Causal Inference expertise to research projects under CLeAR Lab at NUS, focusing on Human-Computer Interactions and Humans-in-the-loop learning.
- Manage the server environments required for various projects.
- Assist with procurement of hardware and software components necessary for projects.

Research Engineer, Singapore Management University (SMU) Mar 2015 - Jul 2016

- Part of a Singapore urban planning project undertaken by Fujitsu-SMU Urban Computing & Engineering Corporate Lab (UNiCEN).
- Modelled passenger flow at Singapore taxi stands to address the supply-demand mismatch.

Section Manager, ABB Private Limited, Singapore Jun 2008 - Feb 2015

- Spearheaded the Regional After Sales Support team to provide engineering solutions to customers in Asia, Australia, and New Zealand.
- Invited to conduct advanced-level product training globally.

PROJECTS

Decentralized Task Allocation, NUS

Jun 2019 - Dec 2019

- Led a team of PhD students to design task allocation algorithms for a decentralized multi-robot environment with limited communication.
- Skills: Python, Convex optimization, Tensorflow, Microsoft Powerpoint.

Field test - Taxi sharing system, SMU

March 2016 - March 2016

- Led a team of engineers to conduct a field trial of UNiCEN lab's novel taxi-sharing framework.
- Liaised with the taxi drivers to ensure the smooth execution of the trial.
- Analyzed and visualized the data from the trial to design models of taxi supply & demand.
- Skills: R programming, .NET, Linux server administration.

Control System for Humanoid Robot, Nanyang Technological University

Aug 2007 - Jul 2008

- Integrated sensors to a humanoid robot using communication protocols like Bluetooth and I2C.
- Skills: Visual Basic, C/C++.

Humanoid Robot Exhibition, Singapore Discovery Center

Jul 2007 - Dec 2007

- Led a team of 12 students to create a public exhibition where the movements of 4 humanoid robots were synchronized against background music.
- Skills: C/C++, Dashboard creation using HTML and Javascript.

PUBLICATIONS

Balakrishnan, Sreejith, Quoc Phong Nguyen, et al. (2020). "Efficient exploration of reward functions in inverse reinforcement learning via bayesian optimization". In: *Advances in Neural Information Processing Systems* 33, pp. 4187–4198. URL: <https://bit.ly/boirl>.

Balakrishnan, Sreejith et al. (2022). "SCALES: From Fairness Principles to Constrained Decision-Making". In: *Proceedings of the 2022 AAAI/ACM Conference on AI, Ethics, and Society*, pp. 46–55. URL: <https://bit.ly/scales-fairness>.

AWARDS

Research Achievement Award, National University of Singapore

Jun 2021

- Awarded for the NeurIPS 2020 accepted paper.

Honor List of Student Tutors, National University of Singapore

Jan 2019

- Awarded for outstanding tutoring for the module "AI Decision Making and Planning".

NUS Research Scholarship, National University of Singapore

Aug 2016

- Awarded to pursue Ph.D. program in School of Computing at National University of Singapore.

SIA-NOL Undergraduate Scholarship, Nanyang Technological University

Aug 2004

- Awarded to pursue Undergraduate program at Nanyang Technological University, Singapore.

SIA Youth Scholarship, Hwa Chong Junior College, Singapore

Jan 2002

- Awarded to pursue A-Levels in Singapore.

PROGRAMMING LANGUAGES

- Python for machine learning (Tensorflow, PyTorch)
- R for data analytics and visualisation
- Java for desktop and Android development
- C/C++/C# for robotics