

LOW, BRYAN KIAN HSIANG [✉](#) [🌐](#) [🐦](#) [in](#)

CURRICULUM VITAE

Associate Professor of Computer Science (with tenure)
School of Computing, National University of Singapore (NUS)

Director of AI Research, [AI Singapore](#)

AI Advisor, Smart Nation and Digital Government Office, Prime Minister's Office

Faculty Member, [Integrative Sciences & Engineering Programme, NUS Graduate School](#)

Faculty Affiliate, [Institute of Data Science](#)



RESEARCH INTERESTS

- Probabilistic machine learning (e.g., Bayesian deep learning, Bayesian non-parametric models)
- Data-efficient machine learning (e.g., Bayesian optimization, active learning, and adaptive sampling)
- Parallel/distributed/collective machine learning and online learning for big data
- Planning under uncertainty and reinforcement learning
- Multi-agent/robot systems (i.e., multi-agent/robot coordination, planning, and learning)

EDUCATIONAL BACKGROUND

Sep 2004 - Aug 2009 Carnegie Mellon University

PH.D. IN ELECTRICAL AND COMPUTER ENGINEERING

- Thesis Title: Multi-Robot Adaptive Exploration and Mapping for Environmental Sensing Applications
- Advisors: Prof. [Pradeep K. Khosla](#) and Dr. [John M. Dolan](#)

Jul 2001 - Jul 2002 National University of Singapore

MASTER OF SCIENCE IN COMPUTER SCIENCE (ACCELERATED M.SC. BY RESEARCH)

- Thesis Title: Integrated Robot Planning and Control with Extended Kohonen Maps
- Advisors: Assoc. Prof. Leow, Wee Kheng and Assoc. Prof. Marcelo H. Ang, Jr.
- Award: Winner of [Singapore Computer Society Prize](#) for Best M.Sc. Thesis in School of Computing

Jul 2000 - May 2001 National University of Singapore

BACHELOR OF SCIENCE IN COMPUTER SCIENCE (HONOURS 2ND CLASS UPPER)

Jul 1997 - Jul 2000 National University of Singapore

BACHELOR OF SCIENCE IN COMPUTER SCIENCE (PASS WITH MERIT)

- Cumulative Grade-Point Average: 3.78 / 4 or 4.65 / 5

HONORS AND AWARDS

- Sep 2020 Top 33% Reviewer for International Conference on Machine Learning (ICML) 2020
- Jun 2019 Top 5% Reviewer for International Conference on Machine Learning (ICML) 2019
- Mar 2019 - Feb 2022 IEEE Robotics & Automation Society (RAS) [Distinguished Lecturer for the IEEE RAS Technical Committee on Multi-Robot Systems](#)
- Sep 2016 - Jun 2018 Invited to serve as a World Economic Forum's Global Future Councils Fellow for the Council on the Future of Artificial Intelligence and Robotics
- Aug 2017 - Jul 2018 [Faculty Teaching Excellence Award](#) in School of Computing, National University of Singapore
- Aug 2015 - Jul 2018 Nominated for Faculty Teaching Excellence Award in School of Computing, National University of Singapore for three consecutive years
- Nov 2012 Best PhD Forum Paper Award in 6th ACM/IEEE International Conference on Distributed Smart Cameras (ICDSC'12) won by my PhD student, Prabhu Natarajan
- 2006 [Andrew P. Sage Best Transactions Paper Award](#) for the [best paper](#) published in all 3 of the IEEE Transactions on Systems, Man, and Cybernetics - Parts A, B, and C in 2006
- Jun 2010 Featured in AUVSI Unmanned Systems Magazine "Ones to Watch" June 2010 issue
- Sep 2004 - Aug 2009 National University of Singapore Overseas Graduate Scholarship for Ph.D. studies in Department of Electrical and Computer Engineering, Carnegie Mellon University
- Mar 2004 Gold Medalist in 8th National IT Awareness Project Competition (Postgraduate Category) for Overall Best Project "[Task Allocation via Self-Organizing Swarm Coalitions in Distributed Mobile Sensor Network](#)", held by National University of Singapore in conjunction with Ministry of Education
- Jul 2002 - Jul 2003 Winner of [Singapore Computer Society Prize](#) for Best M.Sc. Thesis (among 81 graduates of M.Sc. by research) in School of Computing, National University of Singapore
- Jun 2003 1st Runner-up Team in Cooperative Robotic Search Competition held by Defense Science Organization National Laboratories during Singapore Robotic Games 2003
- Jul 2001 - Jul 2002 Research Scholarship for Accelerated M.Sc. (Comp. Sci.) by Research in National University of Singapore with Top-up Supplement from National Science and Technology Board Award
- Jul 1997 - Jun 2000 Invitation to [Talent Development Programme](#) (Top 5% in National University of Singapore)
- Jul 1998 - Dec 1998 Dean's List
- Jul 1997 - Dec 1997 Dean's List
- Jul 1997 - Jun 1998 National University of Singapore Undergraduate Scholarship awarded by Microcomputer Trade Association of Singapore
- 1994 Invitation to participate in American Invitational Mathematics Examination
- 1994 Honor Roll Pin Winner in American High School Mathematics Examination
- 1993 Certificate of Distinction in Australian Mathematics Competition

RESEARCH EXPERIENCE AND GRANTS

Jul 2021 - Feb 2024 Defence Science and Technology Agency (DSTA)
PRINCIPAL INVESTIGATOR, **Tactics Discovery and Recommendation** Project
Project Agreement No. 9021200987, S\$1,143,120

Apr 2021 - Mar 2024 Institute for Infocomm Research (I2R), A*STAR
PRINCIPAL INVESTIGATOR, **Learning with Less Data** Project
RIE2020 Advanced Manufacturing and Engineering (AME) Programmatic Fund, S\$1,218,600
Lead PI: Dr. Chuan-Sheng Foo (I2R, A*STAR)

Mar 2021 - Mar 2024 Department of Computer Science, National University of Singapore
PRINCIPAL INVESTIGATOR, **Scalable AI Phenome Platform towards Fast-Forward Plant Breeding (Machine Learning)** Project
Ministry of Education (MOE) Academic Research Fund (AcRF) Tier 1, Reimagine Research Scheme (RRS) Fund (Type 2), S\$348,600

Mar 2020 - Feb 2024 Temasek Life Sciences Laboratory (TLL), National University of Singapore
PRINCIPAL INVESTIGATOR, **High Performance Precision Agriculture (HiPPA) System** Project
RIE2020 Advanced Manufacturing and Engineering (AME) Industry Alignment Fund – Pre Positioning (IAF-PP), S\$1,197,960
Lead PI: Prof. Nam Hai Chua (TLL)

Apr 2021 - Mar 2025 Institute of Data Science (IDS), National University of Singapore
COLLABORATOR, **Toward Trustable Model-centric Sharing for Collaborative Machine Learning** Project
AI Singapore Research Programme, S\$8,401,002.40
Lead PI: Prof. See-Kiong Ng

Oct 2020 - Oct 2021 Info-Communications Media Development Authority (IMDA)
PRINCIPAL INVESTIGATOR, **Robust and Scalable Computer Vision for Scene Understanding** Project
Research Collaboration Agreement, S\$260,000

Jul 2017 - Jul 2020 Department of Computer Science, National University of Singapore
PRINCIPAL INVESTIGATOR, **Scaling up Gaussian Process Predictive Models for Big Data** Project
Academic Research Council (ARC), Ministry of Education (MOE) Academic Research Fund (AcRF) Tier 2, S\$737,461

Jul 2019 - Dec 2019 Temasek Laboratories, National University of Singapore
PRINCIPAL INVESTIGATOR, **Near-Optimal Distributed Task Allocation for Swarm Applications** Project
Research Collaboration Agreement, S\$30,000
Co-PI: Dr. Rodney Swee Huat Teo (Temasek Laboratories)

Apr 2017 - May 2021 Singapore-MIT Alliance for Research & Technology (SMART)
PRINCIPAL INVESTIGATOR, **Automatic Probabilistic Machine Learning for Traffic Modeling and Prediction** Project
SMART Subaward Agreement – Future Urban Mobility (FM) IRG, S\$184,999.20

Jan 2017 - Jun 2021 NUS-Singtel Cyber Security R&D Lab, National University of Singapore

PRINCIPAL INVESTIGATOR, **Predictive Security Analytics based on Traffic Data** Project
Research Collaboration Agreement, S\$1,373,746
Other PI: Assoc. Prof. Mun Choon Chan (NUS)

May 2019 - Apr 2021 AI in Health Grand Challenge, AI Singapore
PRINCIPAL INVESTIGATOR, **Explainable AI as a Service for Community Healthcare** Project
AI Singapore Grand Challenge Funding Scheme, Grant Award No. AISG-GC-2019-002, S\$5,024,000
Lead PI: Prof. Beng Chin Ooi (NUS)

Oct 2018 - Sep 2023 NUS Centre for Research in Privacy Tech. (N-CRiPT), National University of Singapore
PRINCIPAL INVESTIGATOR, **Privacy-Aware Data Sensing & Gathering Platform** Project
Centre Director and Collaborator: Prof. Mohan Kankanhalli (NUS)

Feb 2014 - Sep 2018 Sensor-Enhanced Social Media (SeSaMe) Centre, National University of Singapore
PRINCIPAL INVESTIGATOR, **Foundations of Sentient Multimedia Systems** Project
Centre Director and Collaborator: Prof. Mohan Kankanhalli (NUS)

- Advance the state-of-the-art theoretical foundations of multimedia data fusion

Feb 2016 - Jul 2016, Dec 2016 - Jul 2017 Panasonic R&D Center Singapore
PRINCIPAL INVESTIGATOR, **Sonar Data Fusion Algorithm for Object Distance Estimation** Project
Research Collaboration Agreements, S\$84,230.40

- Develop sensor data fusion algorithm for object distance estimation using sonar sensors

Oct 2011 - Mar 2017 Singapore-MIT Alliance for Research & Technology (SMART)
PRINCIPAL INVESTIGATOR, **Spatiotemporal Modeling and Prediction of Traffic Patterns** Project
SMART Subaward Agreements – Future Urban Mobility (FM) IRG, S\$361,456.17

Mar 2016 - Mar 2017 Panasonic R&D Center Singapore
PRINCIPAL INVESTIGATOR, **Hyperparameters Tuning using Bayesian Optimization** Project
Research Collaboration Agreement, S\$69,336

- Develop Bayesian optimization algorithm for tuning the hyperparameters of deep learning neural networks

Aug 2010 - Dec 2015 Singapore-MIT Alliance for Research & Technology (SMART)
PRINCIPAL INVESTIGATOR, **Autonomy in Mobility-On-Demand Systems** Project
SMART Subaward Agreements – Future Urban Mobility (FM) IRG, S\$1,348,638.22
Other PIs: Prof. David Hsu (NUS) and Assoc. Prof. Marcelo H. Ang, Jr. (NUS)

Sep 2013 - Nov 2014 Sumitomo Electric Industries, Ltd.
PRINCIPAL INVESTIGATOR, **Estimation/Prediction Algorithm for Traffic Volume without Rich Installation of Detectors** Project
Research Collaboration Agreement, JPY\$3,000,000

- Develop spatiotemporal traffic prediction algorithm for predicting the traffic volume on road networks

Apr 2010 - Mar 2013 Department of Computer Science, National University of Singapore
PRINCIPAL INVESTIGATOR, **Active Robotic Exploration and Mapping for Environmental Sensing Applications** Project
Ministry of Education (MOE) Academic Research Fund (AcRF) Tier 1, S\$165,377

Sep 2006 - Sep 2009 The Robotics Institute, Carnegie Mellon University
GRADUATE STUDENT, **Telesupervised Adaptive Ocean Sensor Fleet (TAOSF)** Project
NASA Science Mission Directorate: Advanced Information Systems Technology (AIST) Program

- Devise multi-robot adaptive sampling algorithms for monitoring of ocean phenomena (e.g., algal bloom)
- Perform map inference of ocean and freshwater sensing data collected by robotic sensor boats

Jul 2005 - Sep 2006

The Robotics Institute, Carnegie Mellon University

GRADUATE STUDENT, **Wide Area Prospecting Using Supervised Autonomous Robots** Project

NASA Exploration Systems Mission Directorate: Research and Technology Development Program - Human and Robotic Technology Formulation Plan Control No. 4120

- Develop adaptive sampling techniques for multi-robot wide-area mineral prospecting

Jul 2002 - Jul 2003

Institute of Engineering Science, National University of Singapore

RESEARCH ENGINEER, **Trainable Computer Vision Systems for Surveillance and Mobile Robot Control**

National University of Singapore Research Project No. 960684

- Develop multi-robot task allocation mechanisms based on swarm intelligence principles
- Improve performance and convergence of an ensemble of self-organizing neural networks with second-order learning method
- Enhance the action selection capabilities of robots in single- and multi-robot tasks by cooperation and competition of self-organizing neural networks

May 2001 - Jul 2001

Department of Computer Science, National University of Singapore

RESEARCH ASSISTANT, **Trainable Computer Vision Systems for Surveillance and Mobile Robot Control**

National University of Singapore Research Project No. 960684

- Evaluate quantitatively the performance of self-organizing neural networks in learning robot motion control

TEACHING EXPERIENCE AND GRANTS

- 3-7 Aug 2020 AI Singapore
ORGANIZING CO-CHAIR, [AI Summer School \(Virtual\)](#)
Financially supported by National Supercomputing Centre Singapore, Salesforce, S\$2,000, and Sea Limited, S\$20,000
- 22-26 Jul 2019 School of Computing, National University of Singapore
AI Singapore, Singapore Data Science Consortium
ORGANIZING CO-CHAIR, [AI Summer School](#)
Financially supported by Artificial Intelligence Journal, EUR\$2,000, and Sea Limited, S\$20,000
- 6-10 Jun 2016 School of Computing, National University of Singapore
ORGANIZING CHAIR, [2016 IEEE RAS Summer School on Multi-Robot Systems](#)
Proposal accepted and financially supported by IEEE Robotics and Automation Society - Technical Education Program (RAS-TEP), US\$40,000
- Spring 2023 Department of Computer Science, National University of Singapore
LECTURER, **CS3264 Foundations of Machine Learning** module
- Spring 2018-22 Department of Computer Science, National University of Singapore
LECTURER, **CS3244 Machine Learning** module
- [Faculty Teaching Excellence Award](#) during Aug 2017 - Jul 2018
- Fall 2010-11, 2015-17 Department of Computer Science, National University of Singapore
LECTURER, **CS4246 AI Planning and Decision Making** module
- [Faculty Teaching Excellence Award](#) during Aug 2017 - Jul 2018
 - Nominated for Faculty Teaching Excellence Award during Aug 2015 - Jul 2017
- Spring 2011, 2013-17 Department of Computer Science, National University of Singapore
LECTURER, **CS3243 Introduction to Artificial Intelligence** module
- Nominated for Faculty Teaching Excellence Award during Aug 2015 - Jul 2017
- Fall 2009-14 Department of Computer Science, National University of Singapore
LECTURER, **CS1231 Discrete Structures** module
- Summer 2016 Temasek Defence Systems Institute, National University of Singapore
LECTURER, **DTS5728 Robotic Technologies for Unmanned Systems** module
- Fall 2007 Department of Electrical and Computer Engineering, Carnegie Mellon University
TEACHING ASSISTANT, [18-100 Introduction to Electrical and Computer Engineering](#) course
- Conduct recitations and lab sessions
- Fall, Spring 2003-4 Department of Computer Science, National University of Singapore
TEACHING ASSISTANT, **CS1101C Programming Methodology in C** module
- Assume dual roles of course tutor and lab coordinator (conduct practical exam, set weekly lab assignments)

CO-AUTHORS : My students §, former thesis advisors †, collaborators ¶

REFEREED JOURNAL ARTICLES

1. Mohit Rajpal[§], Yehong Zhang[§], and Bryan Kian Hsiang Low (2023). **Pruning during Training by Network Efficacy Modeling**. *Machine Learning* (Special Issue on ECML-PKDD 2022 Journal Track), volume 112, issue 7, pages 2653-2684.
2. Yizhou Chen[§], Zhongxiang Dai[§], Haibin Yu[§], Bryan Kian Hsiang Low, and Teck-Hua Ho[¶] (2023). **Recursive Reasoning-Based Training-Time Adversarial Machine Learning**. *Artificial Intelligence* (Special Issue on Risk-Aware Autonomous Systems: Theory and Practice), volume 315, pages 103837.
3. Ruofei Ouyang[§] and Bryan Kian Hsiang Low (2020). **Gaussian Process Decentralized Data Fusion Meets Transfer Learning in Large-Scale Distributed Cooperative Perception**. *Autonomous Robots* (Special Issue on Multi-Robot and Multi-Agent Systems), volume 44, issue 3, pages 359-376.
4. Pradeep Varakantham, Bo An, Bryan Low and Jie Zhang (2017). **Artificial Intelligence Research in Singapore: Assisting the Development of a Smart Nation**. *AI Magazine*, volume 38, issue 3, pages 102-105.
5. Jie Chen[§], Bryan Kian Hsiang Low, Patrick Jaillet[¶], and Yujian Yao[§] (2015). **Gaussian Process Decentralized Data Fusion and Active Sensing for Spatiotemporal Traffic Modeling and Prediction in Mobility-on-Demand Systems**. *IEEE Transactions on Automation Science and Engineering* (Special Issue on Networked Cooperative Autonomous Systems), volume 12, issue 3, pages 901-921.
6. Bryan Kian Hsiang Low, Wee Kheng Leow[†], and Marcelo H. Ang, Jr.[†] (2006). **Autonomic Mobile Sensor Network with Self-Coordinated Task Allocation and Execution**. *IEEE Transactions on Systems, Man, and Cybernetics - Part C: Applications and Reviews* (Special Issue on Engineering Autonomic Systems), volume 36, issue 3, pages 315-327 [Andrew P. Sage Best Transactions Paper Award for the best paper published in all 3 of the IEEE Transactions on Systems, Man, and Cybernetics - Parts A, B, and C in 2006].
7. Bryan Kian Hsiang Low, Wee Kheng Leow[†], and Marcelo H. Ang, Jr.[†] (2005). **An Ensemble of Cooperative Extended Kohonen Maps for Complex Robot Motion Tasks**. *Neural Computation*, volume 17, issue 6, pages 1411-1445.

REFEREED CONFERENCE AND WORKSHOP PROCEEDINGS

(Rigorously refereed: 20 ICML, 19 NeurIPS/NIPS, 17 AAAI, 11 ICLR, 7 AAMAS full papers, 7 UAI, 6 IJCAI, 4 AISTATS, 1 RSS, 1 WWW, 1 ICAPS, among others)

1. Gregory Kang Ruey Lau[§], Apivich Hemachandra[§], See-Kiong Ng[¶], and Bryan Kian Hsiang Low (2024). **PIN-NACLE: PINN Adaptive ColLocation and Experimental points selection**. In *Proceedings of the 12th International Conference on Learning Representations (ICLR-24)* [5% Acceptance Rate (Spotlight Presentation)].
2. Zhenfeng He[§], Yao Shu[§], Zhongxiang Dai[§], Bryan Kian Hsiang Low, and Patrick Jaillet[¶] (2024). **Robustifying and Boosting Training-Free Neural Architecture Search**. In *Proceedings of the 12th International Conference on Learning Representations (ICLR-24)* [31% Acceptance Rate].
3. Zhaoxuan Wu[§], Mohammad Mohammadi Amiri, Ramesh Raskar, and Bryan Kian Hsiang Low (2024). **Incentive-Aware Federated Learning with Training-Time Model Rewards**. In *Proceedings of the 12th International Conference on Learning Representations (ICLR-24)* [31% Acceptance Rate].
4. Rui Qiao[§], and Bryan Kian Hsiang Low (2024). **Understanding Domain Generalization: A Noise Robustness Perspective**. In *Proceedings of the 12th International Conference on Learning Representations (ICLR-24)* [31% Acceptance Rate].

5. Sebastian Shenghong Tay[§], Chuan-Sheng Foo[¶], Urano Daisuke[¶], Richalynn Leong[¶], and Bryan Kian Hsiang Low (2024). **A Unified Framework for Bayesian Optimization under Contextual Uncertainty**. In *Proceedings of the 12th International Conference on Learning Representations (ICLR-24)* [31% Acceptance Rate].
6. Quoc Phong Nguyen[§], Wan Theng Ruth Chew[§], Le Song[§], Bryan Kian Hsiang Low, and Patrick Jaillet[¶] (2024). **Optimistic Bayesian Optimization with Unknown Constraints**. In *Proceedings of the 12th International Conference on Learning Representations (ICLR-24)* [31% Acceptance Rate].
7. Quoc Phong Nguyen[§], Bryan Kian Hsiang Low, and Patrick Jaillet[¶] (2024). **Leveraging Previous Tasks in Optimizing Risk Measures with Gaussian Processes**. In *Proceedings of the 12th International Conference on Learning Representations (ICLR-24)* [31% Acceptance Rate].
8. Xiao Tian[§], Rachael Hwee Ling Sim[§], Jue Fan[§] and Bryan Kian Hsiang Low (2024). **DeRDaVa: Deletion-Robust Data Valuation for Machine Learning**. In *Proceedings of the 38th AAAI Conference on Artificial Intelligence (AAAI-24)* [23.75% Acceptance Rate].
9. Zhuanghua Liu[§] and Bryan Kian Hsiang Low (2024). **Decentralized Sum-of-Nonconvex Optimization**. In *Proceedings of the 38th AAAI Conference on Artificial Intelligence (AAAI-24)* [23.75% Acceptance Rate].
10. Zhuanghua Liu[§], Luo Luo, and Bryan Kian Hsiang Low (2024). **Incremental Quasi-Newton Methods with Faster Superlinear Convergence Rates**. In *Proceedings of the 38th AAAI Conference on Artificial Intelligence (AAAI-24)* [23.75% Acceptance Rate].
11. Zhongxiang Dai[§], Gregory Kang Ruey Lau[§], Arun Verma[§], Yao Shu[§], Bryan Kian Hsiang Low, and Patrick Jaillet[¶] (2023). **Quantum Bayesian Optimization**. In *Advances in Neural Information Processing Systems 36: 37th Annual Conference on Neural Information Processing Systems (NeurIPS'23)* [26.1% Acceptance Rate].
12. Rachael Hwee Ling Sim[§], Yehong Zhang[§], Trong Nghia Hoang[§], Xinyi Xu[§], Bryan Kian Hsiang Low, and Patrick Jaillet[¶] (2023). **Incentives in Private Collaborative Machine Learning**. In *Advances in Neural Information Processing Systems 36: 37th Annual Conference on Neural Information Processing Systems (NeurIPS'23)* [26.1% Acceptance Rate].
13. Xinyi Xu[§], Chi Thanh Lam[§], Chuan-Sheng Foo[¶], and Bryan Kian Hsiang Low (2023). **Model Shapley: Equitable Model Valuation with Black-box Access**. In *Advances in Neural Information Processing Systems 36: 37th Annual Conference on Neural Information Processing Systems (NeurIPS'23)* [26.1% Acceptance Rate].
14. Sebastian Shenghong Tay[§], Chuan-Sheng Foo[¶], Urano Daisuke[¶], Richalynn Leong[¶], and Bryan Kian Hsiang Low (2023). **Bayesian Optimization with Cost-varying Variable Subsets**. In *Advances in Neural Information Processing Systems 36: 37th Annual Conference on Neural Information Processing Systems (NeurIPS'23)* [26.1% Acceptance Rate].
15. Arun Verma[§], Zhongxiang Dai[§], Yao Shu[§], and Bryan Kian Hsiang Low (2023). **Exploiting Correlated Auxiliary Feedback in Parameterized Bandits**. In *Advances in Neural Information Processing Systems 36: 37th Annual Conference on Neural Information Processing Systems (NeurIPS'23)* [26.1% Acceptance Rate].
16. Zhongxiang Dai[§], Quoc Phong Nguyen[§], Sebastian Shenghong Tay[§], Urano Daisuke[¶], Richalynn Leong[¶], Bryan Kian Hsiang Low, and Patrick Jaillet[¶] (2023). **Batch Bayesian Optimization For Replicable Experimental Design**. In *Advances in Neural Information Processing Systems 36: 37th Annual Conference on Neural Information Processing Systems (NeurIPS'23)* [26.1% Acceptance Rate].
17. Apivich Hemachandra[§], Zhongxiang Dai[§], Jasraj Singh[§], See-Kiong Ng[¶], and Bryan Kian Hsiang Low (2023). **Training-Free Neural Active Learning with Initialization-Robustness Guarantees**. In *Proceedings of the 40th International Conference on Machine Learning (ICML-23)*, pages 12931-12971 [27.9% Acceptance Rate].

18. Rui Qiao[§], Xinyi Xu[§], and Bryan Kian Hsiang Low (2023). **Collaborative Causal Inference with Fair Incentives**. In *Proceedings of the 40th International Conference on Machine Learning (ICML-23)*, pages 28300-28320 [27.9% Acceptance Rate].
19. Xiaoqiang Lin[§], Xinyi Xu[§], See-Kiong Ng[¶], Chuan-Sheng Foo[¶], and Bryan Kian Hsiang Low (2023). **Fair yet Asymptotically Equal Collaborative Learning**. In *Proceedings of the 40th International Conference on Machine Learning (ICML-23)*, pages 21223-21259 [27.9% Acceptance Rate].
20. Chi Thanh Lam[§], Arun Verma[§], Bryan Kian Hsiang Low, and Patrick Jaillet[¶] (2023). **Risk-Aware Reinforcement Learning with Coherent Risk Measures and Non-Linear Function Approximation**. In *Proceedings of the 11th International Conference on Learning Representations (ICLR-23)* [31.8% Acceptance Rate].
21. Zhongxiang Dai[§], Yao Shu[§], Arun Verma[§], Flint Xiaofeng Fan[§], Bryan Kian Hsiang Low, and Patrick Jaillet[¶] (2023). **Federated Neural Bandits**. In *Proceedings of the 11th International Conference on Learning Representations (ICLR-23)* [31.8% Acceptance Rate].
22. Yao Shu[§], Zhongxiang Dai[§], Weicong Sng[§], Arun Verma[§], Patrick Jaillet[¶], and Bryan Kian Hsiang Low (2023). **Zeroth-Order Optimization with Trajectory-Informed Derivative Estimation**. In *Proceedings of the 11th International Conference on Learning Representations (ICLR-23)* [31.8% Acceptance Rate].
23. Xinyi Xu[§], Zhaoxuan Wu[§], Arun Verma[§], Chuan-Sheng Foo[¶], and Bryan Kian Hsiang Low (2023). **FAIR: Fair Collaborative Active Learning with Individual Rationality for Scientific Discovery**. In *Proceedings of the 26th International Conference on Artificial Intelligence and Statistics (AISTATS-23)*, pages 4033-4057 [29% Acceptance Rate].
24. Sebastian Tay[§], Quoc Phong Nguyen[§], Chuan-Sheng Foo[¶], and Bryan Kian Hsiang Low (2023). **No-Regret Sample-Efficient Bayesian Optimization for Finding Nash Equilibria with Unknown Utilities**. In *Proceedings of the 26th International Conference on Artificial Intelligence and Statistics (AISTATS-23)*, pages 3591-3619 [29% Acceptance Rate].
25. Zijian Zhou[§], Xinyi Xu[§], Rachael Hwee Ling Sim[§], Chuan-Sheng Foo[¶], and Bryan Kian Hsiang Low (2023). **Probably Approximate Shapley Fairness with Applications in Machine Learning**. In *Proceedings of the 37th AAAI Conference on Artificial Intelligence (AAAI-23)*, pages 5910-5918 [19.6% Acceptance Rate].
26. Quoc Phong Nguyen[§], Bryan Kian Hsiang Low, and Patrick Jaillet[¶] (2022). **Trade-off between Payoff and Model Rewards in Shapley-Fair Collaborative Machine Learning**. In *Advances in Neural Information Processing Systems 35: 36th Annual Conference on Neural Information Processing Systems (NeurIPS'22)*, pages 30542-30553 [25.6% Acceptance Rate].
27. Yao Shu[§], Zhongxiang Dai[§], Zhaoxuan Wu[§], and Bryan Kian Hsiang Low (2022). **Unifying and Boosting Gradient-Based Training-Free Neural Architecture Search**. In *Advances in Neural Information Processing Systems 35: 36th Annual Conference on Neural Information Processing Systems (NeurIPS'22)*, pages 33001-33015 [25.6% Acceptance Rate].
28. Zhongxiang Dai[§], Yao Shu[§], Bryan Kian Hsiang Low, and Patrick Jaillet[¶] (2022). **Sample-Then-Optimize Batch Neural Thompson Sampling**. In *Advances in Neural Information Processing Systems 35: 36th Annual Conference on Neural Information Processing Systems (NeurIPS'22)*, pages 23331-23344 [25.6% Acceptance Rate].
29. Lucas Agussurja[§], Xinyi Xu[§], and Bryan Kian Hsiang Low (2022). **On the Convergence of the Shapley Value in Parametric Bayesian Learning Games**. In *Proceedings of the 39th International Conference on Machine Learning (ICML-22)*, pages 180-196 [21.9% Acceptance Rate].

30. Zhaoxuan Wu[§], Yao Shu[§], and Bryan Kian Hsiang Low (2022). **DAVINZ: Data Valuation using Deep Neural Networks at Initialization**. In *Proceedings of the 39th International Conference on Machine Learning (ICML-22)*, pages 24150-24176 [21.9% Acceptance Rate].
31. Sebastian Tay[§], Chuan-Sheng Foo[¶], Urano Daisuke[¶], Richalynn Leong[¶], and Bryan Kian Hsiang Low (2022). **Efficient Distributionally Robust Bayesian Optimization with Worst-case Sensitivity**. In *Proceedings of the 39th International Conference on Machine Learning (ICML-22)*, pages 21180-21204 [21.9% Acceptance Rate].
32. Arun Verma[§], Zhongxiang Dai[§], and Bryan Kian Hsiang Low (2022). **Bayesian Optimization under Stochastic Delayed Feedback**. In *Proceedings of the 39th International Conference on Machine Learning (ICML-22)*, pages 22145-22167 [21.9% Acceptance Rate].
33. Zhongxiang Dai[§], Yizhou Chen[§], Haibin Yu[§], Bryan Kian Hsiang Low, and Patrick Jaillet[¶] (2022). **On Provably Robust Meta-Bayesian Optimization**. In *Proceedings of the 38th Conference on Uncertainty in Artificial Intelligence (UAI-22)*, pages 475-485 [32.3% Acceptance Rate].
34. Yao Shu[§], Yizhou Chen[§], Zhongxiang Dai[§], and Bryan Kian Hsiang Low (2022). **Neural Ensemble Search via Bayesian Sampling**. In *Proceedings of the 38th Conference on Uncertainty in Artificial Intelligence (UAI-22)*, pages 1803-1812 [32.3% Acceptance Rate].
35. Rachael Hwee Ling Sim[§], Xinyi Xu[§], and Bryan Kian Hsiang Low (2022). **Data Valuation in Machine Learning: “Ingredients”, Strategies, and Open Challenges**. In *Proceedings of the 31st International Joint Conference on Artificial Intelligence (IJCAI-22)*, pages 5607-5614 [18.2% Acceptance Rate].
36. Quoc Phong Nguyen[§], Ryutaro Oikawa[§], Dinil Mon Divakaran[¶], Mun Choon Chan[¶], and Bryan Kian Hsiang Low (2022). **Markov Chain Monte Carlo-Based Machine Unlearning: Unlearning What Needs to be Forgotten**. In *Proceedings of the 17th ACM ASIA Conference on Computer and Communications Security (ACM ASIACCS’22)*, pages 351-363 [18.4% Acceptance Rate].
37. Yao Shu[§], Shaofeng Cai, Zhongxiang Dai[§], Beng Chin Ooi[¶], and Bryan Kian Hsiang Low (2022). **NASI: Label- and Data-agnostic Neural Architecture Search at Initialization**. In *Proceedings of the 10th International Conference on Learning Representations (ICLR-22)* [32.29% Acceptance Rate].
38. Yizhou Chen[§], Shizhuo Zhang[§], and Bryan Kian Hsiang Low (2022). **Near-Optimal Task Selection for Meta-Learning with Mutual Information and Online Variational Bayesian Unlearning**. In *Proceedings of the 25th International Conference on Artificial Intelligence and Statistics (AISTATS-22)*, pages 9091-9113 [29.2% Acceptance Rate].
39. Sebastian Tay[§], Xinyi Xu[§], Chuan-Sheng Foo[¶], and Bryan Kian Hsiang Low (2022). **Incentivizing Collaboration in Machine Learning via Synthetic Data Rewards**. In *Proceedings of the 36th AAAI Conference on Artificial Intelligence (AAAI-22)*, pages 9448-9456 [4.26% Acceptance Rate (Oral Presentation)].
40. Xinyi Xu[§], Zhaoxuan Wu[§], Chuan-Sheng Foo[¶], and Bryan Kian Hsiang Low (2021). **Validation Free and Replication Robust Volume-based Data Valuation**. In *Advances in Neural Information Processing Systems 34: 35th Annual Conference on Neural Information Processing Systems (NeurIPS’21)*, pages 10837-10848 [25.6% Acceptance Rate].
41. Xinyi Xu[§], Lingjuan Lyu, Xingjun Ma, Chenglin Miao, Chuan-Sheng Foo[¶], and Bryan Kian Hsiang Low (2021). **Gradient Driven Rewards to Guarantee Fairness in Collaborative Machine Learning**. In *Advances in Neural Information Processing Systems 34: 35th Annual Conference on Neural Information Processing Systems (NeurIPS’21)*, pages 16104-16117 [25.6% Acceptance Rate].
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TECHNICAL REPORTS AND THESES

1. Bryan Kian Hsiang Low (2009). **Multi-Robot Adaptive Exploration and Mapping for Environmental Sensing Applications**. *Ph.D. Thesis, Technical Report CMU-ECE-2009-024*, Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA.
2. Bryan Kian Hsiang Low, Geoffrey J. Gordon, John M. Dolan[†], and Pradeep K. Khosla[†] (2005). **Adaptive Sampling for Multi-Robot Wide Area Prospecting**. In *Technical Report CMU-RI-TR-05-51*, Robotics Institute, Carnegie Mellon University, Pittsburgh, PA.
3. Bryan Kian Hsiang Low (2002). **Integrated Robot Planning and Control with Extended Kohonen Maps**. *M.Sc. Thesis*, Department of Computer Science, National University of Singapore [Singapore Computer Society Prize for best M.Sc. Thesis 2002-2003].
4. Bryan Kian Hsiang Low (2001). **Mobile Robots That Learn to Navigate**. *Honors Thesis*, Department of Computer Science, National University of Singapore.

PROFESSIONAL SERVICE

- Panelist in the Panel Discussion for NeurIPS 2023 Workshop on Federated Learning in the Age of Foundation Models
- Organizing Co-Chair for *NeurIPS 2021 Workshop on New Frontiers in Federated Learning: Privacy, Fairness, Robustness, Personalization and Data Ownership*
- Panelist in the Panel Discussion: AI Research Development in South East Asia, AI Day, VinAI, 27 August 2021
- Panelist for *IFRR Global Colloquium on Robotics and Agriculture*, 20 Nov 2020
- Assessor for the National Competitive Grants Program (NCGP), Australian Research Council (ARC), May 2019 - Present
- Organizing Co-Chair for *AI Summer School* 2019-2020 (co-organized by School of Computing, NUS, Singapore Data Science Consortium, and AI Singapore)
- Organizing Chair for *2016 IEEE RAS Summer School on Multi-Robot Systems*, 2016
- Sponsorship Chair for *15th International Conference on Autonomous Agents and Multiagent Systems (AAMAS-16)*, 2016
- Workshop Chair for *2015 IEEE/WIC/ACM International Joint Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT'15)*, 2015
- Co-chair for *Defense, Science & Research Conference (DSR'11) Workshop on Multi-UAV Coordination and Path Planning*, 2011
- Invited to participate in U.S. Data Science Leadership Summit, Westgate Resort & Spa, Park City, Utah, 12-13 October, 2018
- Invited to participate in Global AI Dialogue Series in Seoul, South Korea hosted by Berkman Klein Center for Internet and Society at Harvard University in collaboration with MIT Media Lab and K Governance and Media Lab, 23 June 2017
- Associate editor for
 1. *IEEE International Conference on Robotics and Automation (ICRA)*, 2011, 2020-2023
 2. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2012, 2020-2023
 3. *International Symposium on Experimental Robotics (ISER)*, 2023
 4. *IEEE Robotics and Automation Letters (RA-L)*, 2021-2023
- Area chair for
 1. *International Conference on Machine Learning (ICML)*, 2024
 2. *AAAI Conference on Artificial Intelligence (AAAI)*, 2022, 2024
 3. *International Conference on Learning Representations (ICLR)*, 2023-2024
 4. *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2023-2024
 5. *European Conference on Artificial Intelligence (ECAI)*, 2023
 6. *Robotics: Science and Systems Conference (RSS)*, 2022
 7. *Conference on Robot Learning (CoRL)*, 2020
 8. *International Symposium on Multi-Robot and Multi-Agent Systems (MRS)*, 2019, 2021
 9. *Asian Conference on Machine Learning (ACML)*, 2022-2023
- Best/outstanding paper award committee member for
 1. *AAAI Conference on Artificial Intelligence (AAAI)*, 2022
 2. *International Symposium on Multi-Robot and Multi-Agent Systems (MRS)*, 2019

- Senior program committee member for
 1. *International Joint Conference on Artificial Intelligence (IJCAI)*, 2015, 2020-2022, 2024
 2. *IEEE International Conference on Robotics and Automation (ICRA)*, 2022
 3. *European Conference on Artificial Intelligence (ECAI)*, 2020
 4. *AAAI Conference on Artificial Intelligence (AAAI)*, 2019
 5. *International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2018-2019, 2023 (Outstanding SPC member)
- Program committee board member for *International Joint Conference on Artificial Intelligence (IJCAI)*, 2022-2024
- Program committee member for
 1. *AAAI Conference on Artificial Intelligence, Main Technical Track*, 2010, 2016-2018, 2020, 2021 (Top 25% PC member), 2023
 2. *AAAI Conference on Artificial Intelligence, Demonstrations Track*, 2019-2022
 3. *International Joint Conference on Artificial Intelligence (IJCAI)*, 2011, 2017, 2019, 2023 (Distinguished PC)
 4. *24th International Joint Conference on Artificial Intelligence (IJCAI-15)*, Computational Sustainability Track, 2015
 5. *Conference on Uncertainty in Artificial Intelligence (UAI)*, 2021-2023
 6. *International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2011-2014, 2016, 2021-2022
 7. *International Conference on Automated Planning and Scheduling (ICAPS)*, Planning and Learning Track, 2018-2019, 2021-2022
 8. *International Conference on Automated Planning and Scheduling (ICAPS)*, 2010-2012
 9. *Robotics: Science and Systems Conference (RSS)*, 2014, 2018, 2020-2021
 10. *Conference on Robot Learning (CoRL)*, 2019
 11. *Asian Conference on Machine Learning (ACML)*, 2018-2019
 12. *2016 IEEE International Conference on Simulation, Modeling, and Programming for Autonomous Robots (SIMPAN'16)*, 2016
 13. *IEEE International Conference on Agents (ICA)*, 2016-2018
 14. *RSS Workshop on Informative Path Planning and Adaptive Sampling*, 2019
 15. *AAAI/AAMAS Workshop on Multiagent Interaction without Prior Coordination*, 2014-2017
 16. *11th International Conference on Intelligent Autonomous Systems (IAS-11)*, 2010
- Workshop proposal reviewer for
 1. *Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2022-2023

- Journal reviewer for
 1. *IEEE Transactions on Pattern Recognition and Machine Intelligence (TPAMI)*, 2023
 2. *Pattern Recognition*, 2023
 3. *Journal of the American Statistical Association (JASA)*, 2022
 4. *Journal of Artificial Intelligence Research (JAIR)*, 2019
 5. *Journal of Machine Learning Research (JMLR)* Editorial Board since 2020
 6. *Transactions of Machine Learning Research (TMLR)*
 7. *Machine Learning Journal (MLJ)*, Special Issue on Asian Conference on Machine Learning, 2017, 2019
 8. *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, 2016, 2018
 9. *IEEE Transactions on Automation Science and Engineering (T-ASE)*, 2019
 10. *International Journal of Robotics Research (IJRR)*, Special Issue on Robotics: Science and Systems Conference 2015, 2016, Special Issue on International Symposium on Experimental Robotics, 2017
 11. *IEEE Transactions on Robotics (T-RO)*, 2004, 2011, 2014-2015
 12. *Journal of Field Robotics (JFR)*, 2017-2018
 13. *Autonomous Robots (AURO)*, Special Issue on Towards Long-Term Autonomy in Marine Robotics, 2015, Special Issue on Online Decision Making in Multi-Robot Coordination, 2016, Special Issue on Distributed Robots: From Fundamentals to Applications, 2017, Special Issue on Multi-Robot and Multi-Agent Systems, 2018
 14. *IEEE Robotics and Automation Letters (RA-L)*, 2016
 15. *Knowledge and Information Systems (KAIS)*, 2018
 16. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 2016
 17. *Journal of Autonomous Agents and Multi-agent Systems (JAAMAS)*, Special Issue on Multiagent Interaction without Prior Coordination, 2016
 18. *Journal of Aerospace Information Systems (JAIS)*, 2015
 19. *ACM Transactions on Sensor Networks (TOSN)*, 2012-2013
 20. *International Journal of Sensor Networks (IJSNet)*, Special Issue on Interdisciplinary Design of Algorithms and Protocols in Wireless Sensor Networks, 2007, 2011
 21. *International Journal of Vehicle Autonomous Systems (IJVAS)*, Special Issue on Modelling and Simulation of Complex Mechatronic Systems, 2007
 22. *Control and Intelligent Systems*, 2006
- Conference reviewer for
 1. *Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2013-2016, 2018-2023
 2. *International Conference on Machine Learning (ICML)*, 2019 (Top 5% Reviewer), 2020 (Top 33% Reviewer), 2021 (Expert Reviewer), 2022
 3. *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2019-2022
 4. *International Conference on Learning Representations (ICLR)*, 2019-2021
 5. *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021
 6. *IEEE International Conference on Robotics and Automation (ICRA)*, 2013-2015, 2017
 7. *International Symposium on Multi-Robot and Multi-Agent Systems (MRS)*, 2017
 8. *International Symposium on Robotics Research (ISRR)*, 2017
 9. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2011, 2013-2014, 2019
 10. *9th International Conference on Control, Automation, Robotics and Vision (ICARCV'06)*, 2006
 11. *IEEE International Conference on Networking, Sensing and Control (ICNSC'06)*, 2006

- Service to Department/Faculty/University
 1. Chair of the Publication Ranking Committee, Department of Computer Science, National University of Singapore, 1 October 2023 - Present
 2. Resident Member of the University Research Committee's Informatics and Mathematics Expert Panel, National University of Singapore, September 2019 - August 2022, October 2022 - September 2025
 3. Member (Associate Professor Representative) of the CS Executive Committee (EXCO), Department of Computer Science, National University of Singapore, 16 August 2020 - 30 September 2023
 4. Member (Assistant Professor Representative) of the CS Executive Committee (EXCO), Department of Computer Science, National University of Singapore, 1 July 2014 - 30 June 2017
 5. Member of the Graduate Studies Committee, Department of Computer Science, National University of Singapore, November 2014 - November 2016, February 2022 - Present
 6. Member (AI Representative) of the CS Curriculum Committee, Department of Computer Science, National University of Singapore, January 2016 - September 2023
 7. Member (AI Representative) of the Publication Ranking Committee, Department of Computer Science, National University of Singapore, June 2020 - September 2023
 8. AI Advisor, Smart Nation and Digital Government Office (SNDGO), January 2023 - December 2023
 9. Member of the NRF Foundational Research Capabilities Study Project Team (General Artificial Intelligence), December 2021 - November 2022
 10. Member of the Aviation Transformation Programme (Funded by NRF) Mid-Term Review Panel, Civil Aviation Authority of Singapore, October 2021 - January 2022
 11. Represented AI Singapore to participate in 2nd NRF UK-SG Strategic Dialogue, 27-29 March, 2018

- M.Sc. and M.Comp. thesis committee member for
 1. Ma, Wenchang (CS NUS) Thesis Title: Boosting Causal Discovery via Adaptive Sample Reweighting, 2022
 2. Lu, Xingquan (CS NUS) Thesis Title: Hierarchical Model for Blood Cell Classification, 2022
 3. Han, Yu Xuan (CS NUS) Thesis Title: FedTree: A Framework For Tree-based Federated Learning, 2021
 4. Deng, Ailin (CS NUS) Thesis Title: Anomaly detection based on graph neural networks, 2020
 5. Pochet Etienne, Jean-Marie (CS NUS) Thesis Title: Deep learning for goal-directed autonomous navigation, 2020
 6. Soufiane Eddamani (CS NUS) Thesis Title: Hierarchical planning Using dual decomposition network applied to Starcraft II, 2018
 7. Divya Sivasankaran (CS NUS) Thesis Title: Context-aware fusion for multi-modal biometrics, 2017
 8. Sebastien Alexandre Marie Iooss (CS NUS) Thesis Title: Playing Atari with value iteration networks, 2017
 9. Philip Beh (CS NUS) Thesis Title: Dialog management using active learning algorithms, 2016
 10. Ankit Goyal (CS NUS) Thesis Title: Online learning and planning of dynamical systems using Gaussian processes, 2015
 11. Cai, Shaojun (CS NUS) Thesis Title: Online POMDP planning for vehicle navigation in densely populated area, 2014

- Ph.D. thesis committee member for
 1. Dixant Mittal (CS NUS) Thesis Title: Combining Planning and Learning to improve Decision Making, 2024
 2. Han, Liang Wee Eric (CS NUS) Thesis Title: Bayesian Optimisation Techniques for High-Dimensional and Adversarial Settings, 2023
 3. Xie, Yaqi (CS NUS) Thesis Title: Enhancing Deep Learning with Symbolic Domain Knowledge, 2022
 4. Wang, Yiwei (CS NUS) Thesis Title: Toward Effective Neural Networks on Graph Data, 2022
 5. Li, Qinbin (CS NUS) Thesis Title: Effective and Efficient Federated Learning on Non-IID Data, 2022
 6. Peter Karkus (ISEP NUS) Thesis Title: Differentiable Robotics: Compositional Deep Learning with Differentiable Algorithm Networks, 2021
 7. Jay Nandy (CS NUS) Thesis Title: Robustness and uncertainty estimation for deep neural networks, 2020
 8. Luo, Yuanfu (CS NUS) Thesis Title: Autonomous driving in mixed traffic: models and algorithm, 2020
 9. Wang, Erli (University of Queensland) Thesis Title: Decision making in an uncertain world, 2019
 10. Li, Jue Kun (CS NUS) Thesis Title: Act to see and see to act: a robotic system for object retrieval in clutter, 2019
 11. Chen, Min (CS NUS) Thesis Title: Planning for human-robot interaction: A POMDP approach with trust and intention models, 2018
 12. Anthony Tompkins (University of Sydney) Thesis Title: Bayesian spatio-temporal modelling with Fourier features, 2018
 13. Goh, Chong Yang (OR MIT) Thesis Title: Learning with structured decision spaces, 2018
 14. Kaveh Taghipour (CS NUS) Thesis Title: Robust trait-specific essay scoring using neural networks and density estimators, 2017
 15. Li, Zhuoru (CS NUS) Thesis Title: Efficient hierarchical reinforcement learning through core task abstraction and context reasoning, 2016
 16. Lim, Zhan Wei (CS NUS) Thesis Title: Planning under uncertainty: From informative path planning to partially observable semi-MDPs, 2015
 17. Nguyen Viet Cuong (CS NUS) Thesis Title: Near-optimality and robustness of greedy algorithms for Bayesian pool-based active learning, 2015
 18. Bai, Haoyu (CS NUS) Thesis Title: Continuous POMDPs for robotic tasks, 2014
 19. Liu, Shilin (CS NUS) Thesis Title: Temporally varying weight regression for speech recognition, 2014
 20. Ye, Nan (CS NUS) Thesis Title: Probabilistic learning: Sparsity and non-decomposable losses, 2013
 21. Nguyen Dinh Truong Huy (CS NUS) Thesis Title: Towards smart assistants in two-party collaboration, 2013
 22. Lau, Qiangfeng Peter (CS NUS) Thesis Title: Effective reinforcement learning for collaborative multi-agent domains, 2013
 23. Wang, Xiangyu (CS NUS) Thesis Title: Multimedia decision fusion, 2012
 24. Ehsan Rehman (CS NUS) Thesis Title: Bounded uncertainty roadmaps, 2012
 25. Achudhan Sivakumar (CS NUS) Thesis Title: UAV swarm coordination and control under realistic weather and network conditions for establishing a wireless communications backbone, 2012

INVITED TALKS

- “Learning with Less Data: Automated Machine Learning and Bayesian Optimization”. KAUST Research Conference on Robotics and Autonomy, Melbourne, Australia, KAUST, Saudi Arabia, Feb 28 - Mar 2, 2022
- Invited Keynote Speaker, “Trusted Data Sharing: Incentivizing Collaboration and Rights to be Forgotten (aka Unlearning) in Machine Learning”. 20th IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology, Melbourne, Australia, Dec 14 - 17, 2021
- Invited Keynote Speaker, “Collective Online Learning and Model Fusion in Large Multiagent Systems”. 2nd International Symposium on Multi-Robot and Multi-Agent Systems, Rutgers University, New Brunswick, NJ, USA, Aug 22 - 23, 2019
- “Informative Gaussian Process Planning with Lipschitz Continuous Reward Functions: Towards Unifying Adaptive Sampling, Bayesian Optimization, Active Learning, and Beyond”. International Conference on Robotics and Automation (ICRA) 2018 Workshop on Informative Path Planning and Adaptive Sampling, Brisbane, Australia, May 21, 2018. Symposium on Oceanographic Data Analytics, Norwegian University of Science and Technology, Trondheim, Norway, Nov 27 - 30, 2018
- “AI 101 for Non-Specialists”. Science, Technology and Policy 2018 (The Future of Work) Workshop, Campus for Research Excellence and Technological Enterprise (CREATE), Jul 18, 2018
- “AI Singapore”. MK-GIST Forum, Gwangju Institute of Technology (GIST), Gwangju, Korea, Jul 11, 2018
- “Probabilistic machine learning in robotics”. Intelligent Robotics International Symposium, Japan Advanced Institute of Science and Technology (JAIST), Shiinoki Cultural Complex, Kanazawa, Ishikawa, Feb 24 - 25, 2016
- “Gaussian process-based decentralized data fusion and active sensing agents for large-scale modeling and prediction of spatiotemporal environmental phenomena”. Robotics: Science & Systems (RSS) 2013 Workshop on Robotic Exploration, Monitoring, and Information Collection: Nonparametric Modeling, Information-based Control, and Planning under Uncertainty, Berlin, Germany, Jun 27 - 28, 2013
- “Machine learning seminars”. University of Information Technology (UIT), Vietnam National University (VNU), Ho Chi Minh City, Vietnam, Jun 29 - Jul 2, 2011

STUDENTS AND POSTDOCS ADVISED

CURRENT STUDENTS AND POSTDOCS

1. **He, Zhenfeng** (Ph.D. CS NUS)
2. **Apivich Hemachandra** (Ph.D. CS NUS, co-advised with See-Kiong Ng)
3. **Lin, Xiaoqiang** (Ph.D. CS NUS, co-advised with See-Kiong Ng)
4. **Sng, Weicong** (Ph.D. CS NUS)
Award. Recipient of Graduate Tutorship
5. **Qiao, Rui** (Ph.D. CS NUS)
Awards. Recipient of AI Singapore Ph.D. Fellowship and Keppel Award of Excellence for the Top 2 students in B.Eng. in Information Systems Technology and Design (ISTD) pillar in Singapore University of Technology and Design
6. **Zhang, Zeyu** (Ph.D. CS NUS, co-advised with Bolin Ding, Alibaba Group)
Awards. Recipient of Economic Development Board Industrial Postgraduate Programme (EDB IPP)

7. **Wu, Zhaoxuan** (Ph.D. Data Science NUS)
Awards. Recipient of Singapore Data Science Consortium (SDSC) Dissertation Research Fellowship, NUS Graduate School for Integrative Sciences and Engineering Scholarship (NGSS), Lijen Industrial Development Medal for the best student in the Honours Year term project in B.Sc. (Honours) - Data Science and Analytics programme
8. **Tay, Sebastian Shenghong** (Ph.D. CS NUS, co-advised with Chuan-Sheng Foo, A*STAR)
Awards. Recipient of NUS research achievement award \times 2, A*STAR Computing and Information Science Scholarship (ACIS)
9. **Xu, Xinyi** (Ph.D. CS NUS, co-advised with Chuan-Sheng Foo, A*STAR)
Awards. Recipient of NUS research achievement award \times 2, A*STAR Computing and Information Science Scholarship (ACIS), honor list of student tutors for excellence in teaching
10. **Sim, Rachael Hwee Ling** (Ph.D. CS NUS, co-advised with Patrick Jaillet, MIT)
Awards. Recipient of NUS research achievement award \times 2, SMART graduate fellowship, Lee Kuan Yew Gold Medal for best performing graduate in B.Comp. (Computer Science) programme, Tata Consultancy Services Asia Pacific Prize for Best Year 2 B.Comp. (Computer Science) student
11. **Mohit Rajpal** (Ph.D. CS NUS)
Awards. Recipient of NUS President's graduate fellowship
12. **Lucas Agussurja** (Ph.D. CS NUS)
Awards. Recipient of NUS research achievement award
13. **Tran, Gia Lac** (Ph.D. CS Sorbonne Université)
Thesis title. Advances of deep Gaussian processes: calibration and sparsification
Current employment. Postdoctoral fellow, Department of Computer Science, NUS
14. **Arun Verma** (Ph.D. Industrial Engineering and Operations Research, IIT Bombay)
Awards. Recipient of Naik and Rastogi Excellence in Ph.D. Thesis Award in IIT Bombay, COMSNETS 2022 Best Ph.D. Thesis Award, and Academic Excellence Award (Gold Medal) for highest CGPA in B.Tech. in CS & Eng., Shobhit University
Thesis title. Sequential decision problems with weak feedback
Current employment. Postdoctoral fellow, Department of Computer Science, NUS

GRADUATED STUDENTS AND POSTDOCS

1. **Dai, Zhongxiang** (Ph.D. CS NUS, co-advised with Patrick Jaillet, MIT)
Awards. Recipient of NUS Dean's graduate research excellence award and research achievement award \times 2, SMART graduate fellowship, and ST Electronics Prizes for being the top Year 1 and Year 2 student in Electrical Engineering
Thesis title. Sample-efficient automated machine learning with Bayesian optimization
Current employment. Postdoctoral Associate, MIT, Jan 2024
2. **Lam, Chi Thanh** (Ph.D. CS NUS, 2023, co-advised with Patrick Jaillet, MIT)
Awards. Recipient of NUS research achievement award \times 2, SMART graduate fellowship, honor list of student tutors for excellence in teaching
Thesis title. Algorithms for collaborative machine learning: data sharing and model sharing perspectives
First employment. Quantitative Researcher, Citadel Securities, Jun 2023
3. **Shu, Yao** (Ph.D. CS NUS, 2022)
Award. Recipient of IMDA Excellence in Computing Prize (Best Ph.D. Thesis in NUS School of Computing)

2023 and NUS Dean's graduate research excellence award, Valedictorian for the class of NUS School of Computing Ph.D. graduates 2023

Thesis title. Understanding and improving neural architecture search

First employment. Senior Researcher, Tencent AI Lab, Jun 2023

4. **Nguyen, Quoc Phong** (Ph.D. CS NUS, 2018, co-advised with Patrick Jaillet, MIT)
Awards. Recipient of NUS research achievement award, SMART SMA3 graduate fellowship, Lee Kuan Yew Gold Medal for best performing graduate in B.Eng. (Computing Engineering) programme, IES Gold Medal for top graduating student in B.Eng. in Computing Engineering, Plenary session speaker at National UROP Congress 2013 for the best UROP project in School of Computing, Top Year 1 Computer Engineering Student trophy
Thesis title. An alternative information-theoretic criterion for active learning
Current employment. Postdoctoral Associate, MIT, Apr 2023
5. **Sreejith Balakrishnan** (Ph.D. CS NUS 2023, co-advised with Harold Soh)
Awards. Recipient of NUS research achievement award and honor list of student tutors for excellence in teaching
Thesis title. Towards human-centric AI: inverse reinforcement learning meets algorithmic fairness
First employment. Senior Responsible AI Scientist, Aicadium, Apr 2023
6. **Chen, Yizhou** (Ph.D. CS NUS 2022)
Thesis title. Exploiting Gradient Information for Modern Machine Learning Problems
First employment. Machine Learning Engineer, Shopee, May 2022
7. **Teng, Tong** (Ph.D. CS NUS 2021)
Awards. Recipient of NUS research achievement award
Thesis title. Automated kernel selection for Gaussian process on large datasets
First employment. Research Engineer, Huawei Technologies, Dec 2021
8. **Yu, Haibin** (Ph.D. CS NUS 2020, co-advised with Patrick Jaillet, MIT)
Awards. Recipient of NUS research achievement award and SMART graduate fellowship
Thesis title. New advances in Bayesian inference for Gaussian process and deep Gaussian process models
Current employment. Senior research engineer, Tencent, Shenzhen, Jan 2021
9. **Dmitrii Kharkovskii** (Ph.D. CS NUS 2020)
Awards. Recipient of NUS research achievement award
Thesis title. Automated machine learning: New advances on Bayesian optimization
Current employment. Data scientist, OCBC AI Lab, Aug 2020
10. **Zhang, Yehong** (Ph.D. CS NUS, 2017, co-advised with Mohan Kankanhalli)
Awards. Recipient of AAAI 2016 scholarship and NUS research achievement award
Thesis title. [Data-efficient machine learning with multiple output types and high input dimensions](#)
Current employment. Research scientist, Peng Cheng Laboratory, Shenzhen, Aug 2020
11. **Hoang, Trong Nghia** (Ph.D. CS NUS, 2015)
Awards. Recipient of NUS Dean's graduate research excellence award, President's graduate fellowship, and research achievement award $\times 2$, AAMAS 2012 scholarship, IJCAI 2013 travel grant award
Thesis title. [New advances on Bayesian and decision-theoretic approaches for interactive machine learning](#)
Current employment. Assistant Professor, Washington State University, Jan 2023
Previous employments. Senior research scientist, Amazon AWS AI Labs, Nov 2020; Research staff member, MIT-IBM Watson AI Lab, Aug 2018; Postdoctoral fellow, MIT, Apr 2017
12. **Chen, Jie** (Ph.D. CS NUS, 2013, co-advised with Patrick Jaillet, MIT as a postdoctoral associate, SMART FM)
Awards. Recipient of NUS Dean's graduate research excellence award and research achievement award, UAI

- 2012 scholarship
Thesis title. [Gaussian process-based decentralized data fusion and active sensing agents: Towards large-scale modeling and prediction of spatiotemporal traffic phenomena](#)
Current employment. Associate research professor, College of Computer Science and Software Engineering, Shenzhen University, Apr 2018
13. **Prabhu Natarajan** (Ph.D. CS NUS, 2013, co-advised with Mohan Kankanhalli)
Awards. Recipient of ICDSC 2012 best PhD forum paper award, NUS research achievement award, AAMAS 2012 scholarship
Thesis title. [Decision-theoretic approach for controlling and coordinating multiple active cameras in surveillance](#)
Current employment. Assistant professor, DigiPen Institute of Technology Singapore, Jun 2016
 14. **Lim, Kar Wai** (Ph.D. CS ANU, 2016, co-advised with Mun Choon Chan as a research fellow, NUS-Singtel Cyber Security Research and Development Laboratory)
Awards. Recipient of ACML 2016 best student paper award and AMP prize for honours thesis in actuarial studies (best thesis award)
Thesis title. Nonparametric Bayesian topic modelling with auxiliary data
First employment. Research staff member, IBM Research, Singapore
 15. **Li, Cheng** (Ph.D. CS Deakin University, 2015, co-advised with Mun Choon Chan as a research fellow, NUS-Singtel Cyber Security Research and Development Laboratory)
Awards. Recipient of ACML 2016 best paper runner-up award
Thesis title. Exploiting side information in Bayesian nonparametric models and their applications
Current employment. Postdoctoral fellow, Duke-NUS Medical School
 16. **Xu, Nuo** (Ph.D. CS NUS, 2017)
Awards. Recipient of AAAI 2014 scholarship and NUS research achievement award
Thesis title. Online Gaussian process filtering for persistent robot localization with arbitrary sensor modalities
Current employment. Backend engineer, Grab
 17. **Ouyang, Ruofei** (Ph.D. CS NUS, 2016)
Awards. Recipient of AAMAS 2014 scholarship
Thesis title. [Exploiting decentralized multiagent coordination for large-scale machine learning problems](#)
Current employment. Senior data scientist, Shopee
 18. **Chen, Ziyue** (M.Comp. CS NUS, 2020)
Thesis title. Multi-party machine learning: attack and defense
 19. **Julien Habis** (M.Comp. CS École Polytechnique, NUS, 2018)
Thesis title. Active learning of Bayesian recurrent neural networks
 20. **Wesley Tan** (M.Comp. CS NUS, 2017)
Awards. Recipient of President's Graduate Fellowship in Nanyang Technological University
Thesis title. Variational Bayesian Actor-Critic
Current status. Ph.D. in Computer Science, Nanyang Technological University, Aug 2017
 21. **Son, Jaemin** (M.Sc. CS NUS, 2016, co-advised with Gary Tan)
Thesis title. High-Dimensional Bayesian Optimization with Application to Traffic Simulation
 22. **Etkin Baris Ozgul** (M.Sc. CS NUS, 2017)
Thesis title. Shuttle-line Routing for Mobility-on-Demand Systems with Ridesharing
 23. **Cao, Nannan** (M.Sc. CS NUS, 2012)
Thesis title. [Information-Theoretic Multi-Robot Path Planning](#)

24. **Ling, Chun Kai** (B.Eng. in Computer Engineering, NUS, 2015)
Awards. Recipient of Lee Kuan Yew Gold Medal for best performing graduate in B.Eng. (Computing Engineering) programme, IES Gold Medal for top graduating student in B.Eng. in Computing Engineering, Defence Science Technology Agency Gold Medal for best local final year student for the degree of B.Eng. (Computer Engineering), Micron Prize for being one of the top two local Year 2 Computer Engineering students, and Alcatel-Lucent Telecommunications Prize for best performance in a module in the area of Communications and Networks in BEng (EE) or BEng (CEG) examinations
FYP dissertation title. Planning and learning in spatiotemporal environmental phenomena
Current status. Ph.D. in Computer Science, CMU, Aug 2017
25. **Hoang, Quang Minh** (B.Comp. in Computational Biology, NUS, 2016)
Awards. Recipient of Lee Kuan Yew Gold Medal for best performing graduate in B.Comp. (Computational Biology) programme, Outstanding Undergraduate Researcher Prize in NUS, and ICML 2015 scholarship
UROP dissertation title. Scaling up Gaussian process inference for high velocity in big data
Current status. Ph.D. in Computer Science, CMU, Aug 2018
26. **Erik Alexander Daxberger** (B.Sc. in Media Informatics, Ludwig-Maximilians-Universität München, 2017)
Awards. Recipient of Cambridge – Tübingen Ph.D. fellowship in machine learning, LMU research award for excellent students for the Bachelor’s thesis, LMUexchange and PROSA scholarships for a student exchange program at NUS, ICML 2017 travel award
Bachelor’s thesis title. Distributed batch Bayesian optimization
Current status. Ph.D., Department of Engineering, University of Cambridge, Jan 2019
27. **Chew, Wan Theng Ruth** (B.Eng. in Computer Engineering, NUS, 2019)
Awards. Recipient of Lee Kuan Yew Gold Medal for best performing graduate in B.Eng. (Computing Engineering) programme, IES Gold Medal for top graduating student in B.Eng. in Computing Engineering, MAS Academic Excellence Prize for best local Year 2 Computer Engineering student
FYP dissertation title. Active learning for inverse reinforcement learning
28. **Advay Bhaskar Pal** (B.Comp. (Honours) CS NUS (Highest Distinction), 2019)
Awards. Recipient of NUSS Medal for Outstanding Achievement awarded to a graduating student from each faculty for outstanding all-round achievements (academic excellence and significant extra-curricular contributions), PwC Prize for Whole Leadership for the most outstanding Year 2 Computer Science student
FYP dissertation title. Adversarial federated learning
Current status. M.S. in Computer Science, Stanford University, Aug 2019
29. **Ho, Yi Hang** (B.Comp. (Honours) CS NUS (Highest Distinction), 2019)
Awards. Recipient of Accenture Gold Medal and Prize for a top student in B.Comp. (Hons) - Computer Science programme
FYP dissertation title. Multi-party machine learning - fair data sharing
First employment. Software engineer, Facebook HQ
30. **Tan, Melvin Jun Keong** (B.Comp. (Honours) CS NUS (Highest Distinction) and B.Sc. (Honours) Statistics NUS, 2019)
Awards. Recipient of Sugar Industry of Singapore Book Prize for best Year 1 Science student
FYP dissertation title. Bayesian optimization with missing data
31. **Hio, Leonard Man Loong** (B.Comp. (Honours) CS NUS (Highest Distinction), 2018)
Awards. Recipient of Lijen Industrial Development Medal for second top student in B.Comp. (Honours) - Computer Science Programme and IEEE Singapore Computer Society Book Prize for the best student in the Honours Year term project
FYP dissertation title. Kernel selection for Gaussian processes
First employment. Software engineer, Facebook HQ

32. **Huang, Feixue** (B.Comp. (Honours) CS NUS (Highest Distinction), 2018)
FYP dissertation title. Bayesian optimization for smart devices
First employment. Software engineer, Facebook HQ
33. **Ang, Karen Mei Yi** (B.Comp. (Honours) CS NUS (Highest Distinction), 2017)
Awards. Recipient of Tata Consultancy Services Asia Pacific Prize
FYP dissertation title. Bayesian optimization with high-dimensional inputs
34. **Nguyen, Quoc Dat** (B.Comp. CS NUS, 2017)
FYP dissertation title. Kernel selection for Gaussian processes
First employment. iOS developer, Sea
35. **Choo, Boon Yong Martin** (B.Comp. CS NUS, 2017)
FYP dissertation title. Playing an interactive game with humanoid robots
36. **Nguyen, Hoang Vu** (B.Comp. CS NUS, 2017)
FYP dissertation title. Bayesian optimization for hyperparameter tuning in deep learning
37. **Chng, Yong Xien** (B.Comp. CS NUS, 2017)
FYP dissertation title. Bayesian optimization for reinforcement learning
38. **Khor, Shi-Jie** (B.Comp. (Honours) CS NUS (Highest Distinction), 2016)
Awards. Recipient of Lee Kuan Yew Gold Medal for best performing graduate in B.Comp. (Computer Science) programme, IEEE Singapore Computer Society Book Prize for the best student in the Honours Year term project, and Tata Consultancy Services Asia Pacific Prize
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FYP dissertation title. Stochastic variational inference on multi-output Gaussian process
First employment. Software engineer, Facebook London
40. **Lim, Keng Kiat** (B.Comp. CS NUS, 2016)
FYP dissertation title. Learning with high-dimensional data
First employment. Software engineer, Facebook HQ
41. **Nguyen, Hien Linh** (B.Comp. CS NUS, 2015)
FYP dissertation title. Traffic surveillance with a network of cameras
First employment. Data engineer, Facebook SG
42. **Akshay Viswanathan** (B.Eng. in Computer Engineering (Honours 1st Class), NUS, 2015)
FYP dissertation title. Scaling up machine learning techniques via parallelization for large data
First employment. Senior software engineer, Visa Inc.
43. **Shailendra Khemka** (University Scholars Programme, von Neumann Programme for B.Comp. CS NUS, 2013)
Awards. Recipient of Tata Consultancy Services Asia Pacific Medal and Prize for 2nd best graduate throughout the course of study for B.Comp, Defence Science & Technology Agency Prize for top UROP student in B.Comp, Sung Kah Kay Memorial Prize Winner in NUS University Scholars Programme (USP)
FYP dissertation title. Autonomous search for victims in a disaster situation
First employment. Business solutions: software engineer, Deutsche bank AG - Singapore branch

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