Yash Chandak

+1-413-345-3192
ychandak@stanford.edu
yashchandak.github.io/

Education

2022–2024 **Postdoctoral Researcher**, *Stanford University, USA*
Advised by Prof. Emma Brunskill

2017–2022 **PhD, Computer Science**, *University of Massachusetts Amherst, USA*
Advised by Prof. Philip S. Thomas, Autonomous Learning Lab.

2017–2020 **MS in Computer Science**, *University of Massachusetts Amherst, USA* **4.0/4.0**
Advised by Prof. Philip S. Thomas, Autonomous Learning Lab.

2013–2017 **B.Tech, Computer Science & Engineering**, *VIT University, Chennai, India* **9.11/10**
Advised by Prof. Nithya Darisini P.S.

Awards & Honors

2022 Google Ph.D. Fellowship. (Declined)
2022 *RLDM:* Best Paper.
2021 Outstanding Reviewer for NeurIPS (8%) and Top Reviewer for ICML (10%).
2020 *AAAI: Outstanding student paper honorable mention.*
2020 Graduated with Distinction, MS in Computer Science.
2013 Played at the national level for the Basketball Federation of India (BFI).

Internships

May-Sept '22 **Google DeepMind, London**, *under Diana Borsa, Mohammad Azar, and Prof. Remi Munos*
Jun-Aug '19 **Adobe Research, San Jose**, *under Georgios Theocharous and Prof. Sridhar Mahadevan*
Jun-Aug '18 **Adobe Research, San Jose**, *under Georgios Theocharous*
Jan–Jun '17 **Indian Institute of Technology Madras, India**, *under Prof. Balaraman Ravindran*
Jun–Jul '16 **University of Technology Troyes, France**, *under Prof. Babiga Birregah*
Feb–Mar '16 **Defence Research & Development Organisation (IRDE, DRDO)**, *under Sh. Jai Prakash Singh*
Feb–May '15 **The Aspiring Researcher Challenge**, *under Prof. James Davis, UCSC and Rajan Vaish, Stanford*

Teaching

Fall '20 Teaching Assistant for CS 687: Reinforcement Learning, UMass.
Fall '19 Guest Lecture *On Designing Reward Signals*, CS 687: Reinforcement Learning, UMass.
Spring '18 Teaching Assistant for CS 240: Reasoning Under Uncertainty, UMass.
Fall '17 Teaching Assistant for CS 383: Artificial Intelligence, UMass.

Service

Reviewer Journals: JMLR (2021-24), MLJ (2022-23), AIJ(2023).
Conferences: ICML (2019-23), NeurIPS (2019-2023), ICLR (2022), TMLR (2022-23), CoLLAs (2022-23).

Outreach and Mentorship

Fall '20 - Spring '21 PhD mentor, in collaboration with Microsoft New England, for CS696DS.
Guided 3 Master's students for the project on optimizing interventions in shared autonomy.

Spring '20 PhD mentor, in collaboration with Microsoft New England, for CS696DS.

Guided 4 Master's students towards developing human-agent cooperative RL systems.

Spring '19 PhD mentor, in collaboration with Microsoft Research Montreal, for CS696DS.
Guided 4 Master's students towards developing RL algorithms for text-based games.

Invited Talks

2022 Safe Reinforcement Learning workshop at IJCAI.
Topic: Going Beyond Expected Cost/Return Metrics and Stationarity Assumptions

2022 University of New Hampshire
Topic: Reinforcement Learning for Non-stationary Environments

Journal Publications

Under review **Data-Efficient Policy Evaluation Through Behavior Policy Search**
Josiah P. Hanna, **Yash Chandak**, Philip S. Thomas, Martha White, Peter Stone, Scott Niekum

Frontiers 2022 **Scaling Graph Propagation Kernels for Predictive Learning**
Priyesh Vijayan, **Yash Chandak**, Mitesh M Khapra, Srinivasan Parthasarathy, Balaraman Ravindran
Frontiers in Big Data, section Data Mining and Management.

UMass 2022 **Reinforcement Learning for Non-Stationary Problems**
Yash Chandak
Ph.D. Thesis, University of Massachusetts Amherst

Conference Publications

ICML 2023 **Representations and Exploration for Deep Reinforcement Learning using Singular Value Decomposition**
Yash Chandak, Shantanu Thakoor, Zhaohan Daniel Guo, Yunhao Tang, Remi Munos, Will Dabney, Diana Borsa
International Conference on Machine Learning

ICML 2023 **Understanding Self-Predictive Learning for Reinforcement Learning**
Yunhao Tang, Zhaohan Daniel Guo, Pierre Harvey Richemond , Bernardo Avila Pires, **Yash Chandak**, Remi Munos, Mark Rowland, Mohammad Gheshlaghi Azar, Charline Le Lan, Clare Lyle, Andras Gyorgy, Shantanu Thakoor, Will Dabney, Bilal Piot, Daniele Calandriello, Michal Valko
International Conference on Machine Learning

AISTATS 2023 **SSOPE: Asymptotically Unbiased Off-Policy Policy Evaluation when Reusing Old Data in Nonstationary Environments**
Vincent Liu, **Yash Chandak**, Philip S. Thomas, Martha White
International Conference on Artificial Intelligence and Statistics

NeurIPS 2022 **(Off) Policy Evaluation for Action-Dependent Non-stationary Environments**
Yash Chandak, Shiv Shankar, Nate Bastian, Bruno Castro da Silva,
Emma Brunskill, Philip S. Thomas
Neural Information Processing Systems.

NeurIPS 2022 **Factored DRO: Factored Distributionally Robust Policies for Contextual Bandits**
Tong Mu, **Yash Chandak**, Tatsunori Hashimoto, Emma Brunskill
Neural Information Processing Systems.

AAAI 2022 **On Optimizing Interventions in Shared Autonomy**
Weihao Tan*, David Koleczek*, Siddhant Pradhan*, Nicholas Perello, Vivek Chettiar, Nan Ma, Aaslesha Rajaram, Vishal Rohra, Soundararajan Srinivasan, H M Sajjad Hossain†, **Yash Chandak**†
Association for the Advancement of Artificial Intelligence. *Equal contribution, †Equal advising.

NeurIPS 2021 **Universal Off-Policy Evaluation**
Yash Chandak, Scott Niekum, Bruno Castro da Silva, Erik Learned-Miller,

Emma Brunskill, Philip S. Thomas
Neural Information Processing Systems.

NeurIPS 2021 **SOPE: Spectrum of Off-Policy Estimators**
Christina Yuan, **Yash Chandak**, Stephen Giguere, Philip S. Thomas, Scott Niekum
Neural Information Processing Systems.

ICML 2021 **High Confidence Generalization for Reinforcement Learning**
James Kostas, **Yash Chandak**, Scott Jordan, Philip S. Thomas
International Conference on Machine Learning.

AAAI 2021 **High-Confidence Off-Policy (or Counterfactual) Variance Estimation**
Yash Chandak, Shiv Shankar, Philip S. Thomas
Association for the Advancement of Artificial Intelligence.

NeurIPS 2020 **Towards Safe Policy Improvement for Non-Stationary MDPs**
Yash Chandak, Scott Jordan, Georgios Theocharous, Martha White, Philip S. Thomas
Neural Information Processing Systems.

ICML 2020 **Optimizing for the Future in Non-Stationary MDPs**
Yash Chandak, Georgios Theocharous, Shiv Shankar, Martha White,
Sridhar Mahadevan, Philip S. Thomas
International Conference on Machine Learning.

ICML 2020 **Evaluating the Performance of Reinforcement Learning Algorithms**
Scott Jordan, **Yash Chandak**, Daniel Cohen, Mengxue Zhang, Philip S. Thomas
International Conference on Machine Learning.

AAAI 2020 **Lifelong Learning with a Changing Action Set**
Yash Chandak, Georgios Theocharous, Chris Nota, Philip S. Thomas
Association for the Advancement of Artificial Intelligence.

AAAI 2020 **Reinforcement Learning When All Actions are Not Always Available**
Yash Chandak, Georgios Theocharous, Blossom Metevier, Philip S. Thomas
Association for the Advancement of Artificial Intelligence.

ICML 2019 **Learning Action Representations for Reinforcement Learning**
Yash Chandak, Georgios Theocharous, James Kostas, Scott Jordan, Philip S. Thomas
International Conference on Machine Learning.

Workshop Publications and Others

OPT (NeurIPS) 2022 **Optimization using Parallel Gradient Evaluations on Multiple Parameters**
Yash Chandak, Shiv Shankar, Venkata Gandikota, Philip S. Thomas, Arya Mazumdar
OPT workshop at Neural Information Processing Systems.

RLDM 2022 **A Generalized Learning Rule for Asynchronous Coagent Networks**
James Kostas, Scott Jordan, **Yash Chandak**, Georgios Theocharous, Dhawal Gupta, Philip S. Thomas
Multidisciplinary Conference on Reinforcement Learning and Decision Making.

SafeRL (NeurIPS) 2021 **Behavior Policy Search for Risk Estimators in Reinforcement Learning**
Elita Lobo, **Yash Chandak**, Dharmashankar Subramanian, Josiah Hanna, Marek Petrik
Workshop on Safe and Robust Control of Uncertain Systems at NeurIPS.

HumanAI (ICML) 2021 **Intervention Aware Shared Autonomy**
Weihao Tan*, David Koleczek*, Siddhant Pradhan*, Nicholas Perello, Vivek Chettiar, Nan Ma, Aaslesha Rajaram, Vishal Rohra, Soundararajan Srinivasan, H M Sajjad Hossain†, **Yash Chandak**†
Human-AI Collaboration in Sequential Decision-Making, ICML. *Equal contribution, †Equal advising.

arXiv 2020 **Reinforcement Learning for Strategic Recommendations**
Georgios Theocharous, **Yash Chandak**, Philip S. Thomas, Frits de Nijs

Arxiv 2009.07346.

RLDM 2019 **Improving Generalization over Large Action Sets**
Yash Chandak, Georgios Theocharous, James Kostas, Scott Jordan, Philip S. Thomas
Multidisciplinary Conference on Reinforcement Learning and Decision Making.

RLDM 2019 **Evaluating RL Algorithms Using Cumulative Distributions of Performance**
Scott Jordan, **Yash Chandak**, Mengxue Zhang, Daniel Cohen, Philip S. Thomas
Multidisciplinary Conference on Reinforcement Learning and Decision Making.

CL (NeurIPs) 2018 **Reinforcement Learning with a Dynamic Action Set**
Yash Chandak, Georgios Theocharous, James Kostas, Philip Thomas
Continual Learning workshop at Neural Information Processing Systems.

arXiv 2018 **Classical Policy Gradient: Preserving Bellman's Principle of Optimality**
Philip S. Thomas, Scott Jordan, **Yash Chandak**, Chris Nota, James Kostas
Arxiv 1906.03063.

STAR-AI (IJCAI) 2018 **HOPF: Higher Order Propagation Framework for Deep Collective Classification**
Priyesh Vijayan, **Yash Chandak**, Mitesh M Khapra, Srinivasan Parthasarathy, Balaraman Ravindran
International Workshop on Statistical Relational AI, IJCAI.

MLG (KDD) 2018 **Fusion Graph Convolutional Networks**
Priyesh Vijayan, **Yash Chandak**, Mitesh M Khapra, Srinivasan Parthasarathy, Balaraman Ravindran
International Workshop on Machine Learning with Graphs, KDD.

HCOMP (AAAI) 2015 **On Optimizing Human-Machine Task Assignments**
Andreas Veit, Michael Wilber, Rajan Vaish, Serge Belongie,James Davis and **others**
AAAI Conference on Human Computation and Crowdsourcing, work-in-progress.

Patents

2023 **Reinforcement learning with a stochastic action set**
Yash Chandak, Georgios Theocharous
US Patent 11615293.

2022 **Forecasting and learning accurate and efficient target policy parameters for dynamic processes in non-stationary environments**
Yash Chandak, Georgios Theocharous, Sridhar Mahadevan
US Patent 17072868.

2022 **Lifelong learning with a changing action set**
Yash Chandak, Georgios Theocharous
US Patent 11501207.

2020 **Generating and providing proposed digital actions in high-dimensional action spaces using reinforcement learning models**
Yash Chandak, Georgios Theocharous
US Patent 16261092.