

# Thanard Kurutach

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## RESEARCH INTERESTS

My mission is to bring AI to improve human lives and environments. At Cruise, I am developing ML models for electric autonomous vehicles to improve safety on the road, free up precious human time and efforts, and reduce our carbon footprints.

## EDUCATION

<b>University of California, Berkeley</b> , Berkeley, CA	2016 – 2021
Candidate for Ph.D. in Computer Science	4.0/4.0
Research Advisors: Pieter Abbeel, Stuart Russell	
<b>Massachusetts Institute of Technology</b> , Cambridge, MA	2012 – 2016
Candidate for B.S. in Electrical Engineering and Computer Science	4.9/5.0
Candidate for B.S. in Mathematics	5.0/5.0

## RESEARCH AND INDUSTRY EXPERIENCE

<b>Cruise LLC</b> , Senior Applied Research Scientist	2021 – present
<b>Berkeley Artificial Intelligence Research (BAIR)</b> , Research Assistant	2016 – 2021
<b>Google, Inc.</b> , Brain Team, Student Researcher	2019 - 2020
<b>Google, Inc.</b> , Speech Team, Research Intern	2016
<b>EnergySage, Inc.</b> , Data Scientist Intern	2016
<b>Learning and Intelligent Systems Group</b> , with Kaelbling, Lozano-Peréz	2014 – 2016
<b>MIT CSAIL Machine Learning Group</b> , with Stefanie Jegelka	2015 – 2015
<b>National ICT Australia</b> , Research Intern	2014
<b>Harvard Microrobotics Laboratory</b> , with Robert J. Wood	2013
<b>Nanostructures and Computation Group</b> , with Steven G. Johnson	2012 – 2013

## PUBLICATIONS

Weirui Ye, Shaohuai Liu, **Thanard Kurutach**, Pieter Abbeel, Yang Gao. “Mastering Atari Games with Limited Data” *Proceedings of Neural Information Processing Systems (NeurIPS)*, 2021.

Michael Laskin\*, Scott Emmons\*, Ajay Jain\*, **Thanard Kurutach**, Pieter Abbeel, Deepak Pathak. “Sparse Graphical Memory for Robust Planning” *Proceedings of Neural Information Processing Systems (NeurIPS)*, 2020.

Younggyo Seo\*, Kimin Lee\*, Ignasi Clavera, **Thanard Kurutach**, Jinwoo Shin, Pieter Abbeel. “Trajectory-wise Multiple Choice Learning for Dynamics Generalization in Reinforcement Learning.” *Proceedings of Neural Information Processing Systems (NeurIPS)*, 2020.

**Thanard Kurutach**\*, Kara Liu\*, Pieter Abbeel, Aviv Tamar. “Hallucinative Topological Memory for Zero-Shot Visual Planning.” *Proceedings of the International Conference on Machine Learning (ICML)*, 2020.

Yilin Wu\*, Wilson Yan\*, **Thanard Kurutach**, Lerrel Pinto, Pieter Abbeel. “Learning to Manipulate Deformable Objects without Demonstrations.” *Proceedings of the Robotics: Science and Systems (RSS)*, 2020.

Angelina Wang, **Thanard Kurutach**, Kara Liu, Pieter Abbeel, Aviv Tamar. “Learning Robotic Manipulation through Visual Planning and Acting.” *Proceedings of the Robotics: Science and Systems (RSS)*, 2019.

**Thanard Kurutach\***, Aviv Tamar\*, Ge Yang, Stuart Russell, Pieter Abbeel. “Learning Plannable Representation with Causal InfoGAN.” *Proceedings of Neural Information Processing Systems (NeurIPS)*, 2018.

**Thanard Kurutach**, Ignasi Clavera, Yan Duan, Aviv Tamar, Pieter Abbeel. “Model Ensemble Trust Region Policy Optimization.” *Proceedings of the International Conference on Learning Representations (ICLR)*, 2018.

Lawson Wong, **Thanard Kurutach**, Leslie Kaelbling, Tomás Lozano-Peréz. “Object-based World Modeling in Semi-Static Environments with Dependent Dirichlet-Process Mixtures.” *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI)*, 2016.

## PRE-PRINTS

Tal Daniel, **Thanard Kurutach**, Aviv Tamar. “Deep Variational Semi-Supervised Novelty Detection.” *NeurIPS Workshop on Deep Generative Models and Downstream Applications*, 2021

**Thanard Kurutach**, Mohammad Babaeizadeh, Dumitru Erhan, Sergey Levine, Chelsea Finn. “Hierarchical Visual Model-based Reinforcement Learning” *ICLR Workshop on Beyond Tabula Rasa in Reinforcement Learning*, 2020.

**Thanard Kurutach\***, Julia Peng\*, Yang Gao, Stuart Russell, Pieter Abbeel. “Discrete Predictive Representation for Long-horizon Planning” *NeurIPS Workshop on Object Representations for Learning and Reasoning*, 2020.

Michael Laskin, **Thanard Kurutach**, Pieter Abbeel. “Discrete Representation Learning for Goal-Conditioned Visual Reinforcement Learning” *NeurIPS Workshop on Deep Reinforcement Learning*, 2019.

## ORAL PRESENTATIONS

**Learning Representation for Planning and Acting.** *BayLearn, Facebook*. October 2018.

**Learning Plannable Representation with Causal InfoGAN.** *ICML/IJCAI/AAMAS Workshop on Planning and Learning*. July 2018.

## AWARDS AND HONOURS

<b>UC Berkeley EECS Department Fellowship</b>	2016
<b>Provost’s Graduate Excellence Fellowship</b> ( <i>decline</i> )	2016 – 2020
<b>Lincoln Laboratory Undergraduate Research and Innovation Scholar</b>	2015
<b>Royal Thai Scholar</b>	2011 – 2016
<b>Round 2 Qualifier</b> , Google Code Jam	2013
<b>Gold Medal</b> , 52nd International Mathematical Olympiad (IMO)	2011
<b>Gold Medal</b> , Asian Pacific Mathematics Olympiad (APMO)	2011
<b>Silver Medal</b> , 51st International Mathematical Olympiad (IMO)	2010
<b>Silver Medal</b> , 50th International Mathematical Olympiad (IMO)	2009

## TEACHING EXPERIENCE

### Invited Lectures

*Lecture AI and Neural Network Design* Spring 2019  
in Leading Trends in Humanities, the Sciences and Technology program, UC Berkeley Extension.

### Teaching Assistant

Berkeley CS188: Introduction to Artificial Intelligence Fall 2018  
MIT 6.036: Introduction to Machine Learning Spring 2016  
MIT 6.008: Introduction to Inference Fall 2015  
MIT 18.310: Principles of Applied Mathematics Fall 2014  
MIT 6.001: Introduction to EECS Spring 2013

## MENTORING AND ADVISING

### Undergraduate students:

Julia Peng, UC Berkeley Now at Facebook  
Fenglu Hong, UC Berkeley Now MS student at Stanford  
Yilin Wu, Shanghai Jiao Tong University Becoming MS student at Stanford  
Wilson Yan, UC Berkeley Now PhD student at UC Berkeley  
Angelina Wang, UC Berkeley Now PhD student at Princeton  
Kara Liu, UC Berkeley Becoming PhD student at Stanford  
Christine Tung, UC Berkeley Now at Google

### Visiting Scholars:

Ge Yang, PhD student, University of Chicago  
Misha Laskin, PhD graduate, University of Chicago  
Yuto Fujii, Engineer, Komatsu Ltd

## PROFESSIONAL SERVICES

### Paper Reviewing:

Neural Information Processing Systems (NeurIPS) 2019, 2020  
International Conference on Machine Learning (ICML) 2019, 2021  
International Conference on Learning Representations (ICLR) 2021  
Conference on Robot Learning (CoRL) 2021  
American Association for Artificial Intelligence (AAAI) 2020  
IEEE International Conference on Robotics and Automation (ICRA) 2019, 2020, 2021  
International Conference on Intelligent Robots and Systems (IROS) 2021  
Robotics: Science and Systems (RSS) 2021

## VOLUNTEERING EXPERIENCE

### Youth Leader

2018 – present

*Soka Gakkai International*

I foster youth in my local community to engage in peace activities that focus on one-on-one encouragements and dialogue as a lasting foundation for creating a culture of peace.