

# Christopher Xie

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## CONTACT INFORMATION

*E-mail:* [chrisxie@cs.washington.edu](mailto:chrisxie@cs.washington.edu)  
*Website:* <https://chrisdxie.github.io/>

## RESEARCH INTERESTS

My interests span the intersection of machine learning, computer vision, and robotics. In particular, I am interested in investigating visual representations that enable robots to perform physical tasks such as object manipulation in unstructured and cluttered scenes.

## EDUCATION

<b>Ph.D.</b> , University of Washington Computer Science and Engineering	September 2015 - Present
<b>Master of Science</b> , University of Washington Computer Science and Engineering	June 2017
<b>Bachelor of Science</b> , University of California, Berkeley Electrical Engineering and Computer Science	May 2015

## PUBLICATIONS

[RICE: Refining Instance Masks in Cluttered Environments with Graph Neural Networks.](#)  
Christopher Xie, Yu Xiang, Arsalan Mousavian, Dieter Fox.  
*arXiv:2106.15711, 2021.*

[FiG-NeRF: Figure-Ground Neural Radiance Fields for 3D Object Category Modelling.](#)  
Christopher Xie, Keunhong Park, Ricardo Martin Brualla, Matthew Brown.  
*arXiv:2104.08418, 2021.*

[Unseen Object Instance Segmentation for Robotic Environments.](#)  
Christopher Xie, Yu Xiang, Arsalan Mousavian, Dieter Fox.  
*To appear in IEEE Transactions on Robotics (T-RO), 2021.*

[Learning RGB-D Feature Embeddings for Unseen Object Instance Segmentation.](#)  
Yu Xiang, [Christopher Xie](#), Arsalan Mousavian, Dieter Fox.  
*Conference on Robot Learning - CoRL, 2020.*

[Amodal 3D Reconstruction for Robotic Manipulation via Stability and Connectivity.](#)  
William Agnew, [Christopher Xie](#), Aaron Walsman, Octavian Murad, Caelen Wang, Pedro Domingos, Siddhartha Srinivasa.  
*Conference on Robot Learning - CoRL, 2020. Oral Presentation.*  
*ICML Workshop on Object-Oriented Learning, 2020. Spotlight.*

[The Best of Both Modes: Separately Leveraging RGB and Depth for Unseen Object Instance Segmentation.](#)  
[Christopher Xie](#), Yu Xiang, Arsalan Mousavian, Dieter Fox.  
*Conference on Robot Learning - CoRL, 2019.*

[Object Discovery in Videos as Foreground Motion Clustering.](#)  
[Christopher Xie](#), Yu Xiang, Zaid Harchaoui, Dieter Fox.  
*IEEE Conference on Computer Vision and Pattern Recognition - CVPR, 2019.*

[A Simple Adaptive Tracker with Reminiscences.](#)

Christopher Xie, Emily Fox, Zaid Harchaoui.  
*IEEE Int. Conf. on Robotics and Automation - ICRA, 2019.*

NonSTOP: A NonStationary Online Prediction Method for Time Series.  
Christopher Xie, Avleen Bijral, Juan Lavista Ferres.  
*IEEE Signal Processing Letters, 2018.*

A Unified Framework for Long Range and Cold Start Forecasting of Seasonal Profiles in Time Series.  
Christopher Xie, Alex Tank, Alec Greaves-Tunnell, Emily Fox.  
*arXiv:1710.08473, 2017.*  
*NeurIPS Time Series Workshop, 2016. Best Oral Presentation.*

Model-based Reinforcement Learning with Parametrized Physical Models and Optimism-Driven Exploration.  
Christopher Xie, Teodor Moldovan, Sergey Levine, Sachin Patil, Pieter Abbeel.  
*IEEE Int. Conf. on Robotics and Automation - ICRA, 2016.*

Toward Asymptotically Optimal Motion Planning for Kinodynamic Systems using a Two-Point Boundary Value Problem Solver.  
Christopher Xie, Jur van den Berg, Sachin Patil, Pieter Abbeel.  
*IEEE Int. Conf. on Robotics and Automation - ICRA, 2015.*

RESEARCH  
EXPERIENCE

**University of Washington** – Seattle, WA September 2015 - Present  
*Graduate Research Assistant.*

Developed novel deep architectures for unseen object instance segmentation.  
Investigated 3D representations for robot manipulation.  
Explored prediction methods for online and cold start time series.

**Google** – Seattle, WA July 2020 - June 2021  
*Research Intern/Student Researcher, Google Research*  
Working on 3D category-level object modeling.

**NVIDIA** – Seattle, WA March 2018 - September 2018  
*Robotics Research Intern, NVIDIA Robotics Research Lab*  
Worked on discovering unseen objects in novel environments.

**Microsoft** – Redmond, WA June 2016 - September 2016  
*Research Intern, Consumer Data and Analytics*  
Worked on Online Learning methods for Forecasting Nonstationary Time Series.

**Google** – Mountain View, CA May 2015 - August 2015  
*Software Engineering Intern, Project Aura*  
Worked on Google Glass (now known as Project Aura).

**University of California, Berkeley** – Berkeley, CA September 2013 - August 2015  
*Undergraduate Research Assistant*  
Developed novel motion planning and model-based reinforcement learning algorithms by exploiting recent tools such as sequential convex programming and optimism-driven exploration.

**eBay, Inc.** – San Jose, CA May 2013 - August 2013  
*Applied Research Intern, Trust Science*  
Trained neural network and decision tree models to classify fraudulent activity using features ex-

tracted from clickstream data only. Optimized them to prevent loss from fraud.

**International Computer Science Institute** – Berkeley, CA April 2012 - April 2013

*Student Researcher, Artificial Intelligence Group*

FrameNet: Developed software to collect crowdsourced data from Amazon Mechanical Turk.

MetaNet: Collaborated with linguists to create a Russian metaphor search using parsed Russian sentences to extract verb-noun relations and clustering algorithms to search for potential new metaphors.

INVITED TALKS	Discovering and Segmenting Unseen Objects in the Absence of Manual Supervision	
	<i>Facebook AI Research</i>	April 2021
	<i>Facebook Reality Labs Research</i>	April 2021
	<i>Qualcomm</i>	April 2021
	<i>Amazon</i>	April 2021
	<i>DeepMind</i>	May 2021

Invited Panelist

*Object Representations for Learning and Reasoning Workshop @ NeurIPS.* December 2020

Teaching Robots to be as Smart as Infants.

*Honda Research Institute Curious Minded Machines Workshop* October 2019

A Unified Framework for Missing Data and Cold Start Prediction for Time Series Data.

*NeurIPS Time Series Workshop, 2016.* December 2016

TEACHING  
EXPERIENCE

**University of Washington** – Seattle, WA

*Teaching Assistant, CSE571: Robotics* Spring 2020

*Teaching Assistant, Machine Learning Coursera Specialization* Winter 2016

**University of California, Berkeley** – Berkeley, CA

*Teaching Assistant, CS189: Introduction to Machine Learning* Spring 2014, Spring 2015

HONORS AND  
AWARDS

RSS Pioneers 2021 Cohort 2021

ICRA 2019 RAS Travel Award 2019

Best Oral Presentation at NIPS 2016 Time Series Workshop 2016

National Defense Science and Engineering Graduate (NDSEG) Fellowship 2016

CSE Educators Endowed Fellowship in Computer Science & Engineering (UW) 2015

Draper Laboratory Fellowship (declined) 2015

Eta Kappa Nu Membership

Student Member of IEEE

ADVISING

Yang Wang (UW undergrad, Sept 2018 - June 2019)

Jason Xie (UW undergrad, Sept 2019 - June 2020)

Mino Nakura (UW undergrad, Sept 2020 - Present)

PROFESSIONAL  
ACTIVITIES

**Paper Reviewing:**

IEEE Conference on Computer Vision and Pattern Recognition (CVPR)

IEEE International Conference on Computer Vision (ICCV)

International Journal of Computer Vision (IJCV)  
IEEE International Conference on Robotics and Automation (ICRA)  
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)  
Neural Information Processing Systems (NeurIPS)  
International Conference on Machine Learning (ICML)  
International Conference on Learning Representations (ICLR)

#### HOBBIES

**Taekwondo:** Received medals from many national and international tournaments. Member of the Alternate Junior National Team in 2010.

**Music:** Played keyboard in multiple bands, performed all over the Bay Area.