

# Nikhil Mishra

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## Education

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- PhD, Computer Science** *UC Berkeley* *Aug 2018 - May 2024*  
*Advisor: Pieter Abbeel*  
*Dissertation: Object-Centric Perception for Real-World Robotics*
- MS, Electrical Engineering and Computer Science** *UC Berkeley* *Aug 2017 - May 2018*  
*Advisor: Pieter Abbeel*
- BS, Electrical Engineering and Computer Science** *UC Berkeley* *Aug 2014 - May 2017*  
*Graduated with Highest Honors (top 3% of class)* GPA: 3.953

## Experience

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- Covariant** *Research Scientist* *Jan 2018 - present*
  - Covariant develops AI for robotic applications in manufacturing and logistics. I was a founding research scientist and helped the company grow from 5 to 200+ employees and 0 to 20+ customer deployments.
  - Conducted and productionized AI research at the intersection of vision, robotics, and reinforcement learning. Led the Perception team as Tech Lead Manager (TLM) with 5 direct reports.  
Research areas: object detection, 3D reconstruction, grasping, motion planning, video prediction.
- OpenAI** *Research Intern* *Sept 2017 - Dec 2017*
  - Advisor: John Schulman. Research areas: reinforcement learning, meta-learning, scaling Transformers
- Google Brain** *Research Intern* *May 2017 - Aug 2017*
  - Worked with the Google Brain Robotics team. Research areas: reinforcement learning, imitation learning.
- Berkeley AI Research** *Undergraduate Researcher* *Sept 2014 - May 2018*
  - Advisor: Pieter Abbeel. Research areas: reinforcement learning, generative models, meta-learning.
- UC Berkeley** *Undergraduate Student Instructor* *Jan 2016 - Dec 2017*
  - Taught weekly lab and discussion sections for introductory EECS classes.
- Trooly** *Software Engineering Intern* *May 2016 - Aug 2016*
  - Trooly performed automated screening and verification for financial institutions and peer-to-peer marketplaces, before it was acquired by AirBnB in 2017.
  - Worked on feature extraction from web crawl data and trained models predicting user trustworthiness.

## Publications

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- Closing the Visual Sim-to-Real Gap with Object-Composable NeRFs.** Nikhil Mishra, Maximilian Sieb, Pieter Abbeel, Xi Chen. International Conference on Robotics and Automation (ICRA), 2024.
- Convolutional Occupancy Models for Dense Packing of Complex, Novel Objects.** Nikhil Mishra, Pieter Abbeel, Xi Chen, Maximilian Sieb. International Conference on Intelligent Robots and Systems (IROS), 2023.
- Distributional Instance Segmentation: Modeling Uncertainty and High Confidence Predictions with Latent-MaskRCNN.** YuXuan Liu, Nikhil Mishra, Pieter Abbeel, Xi Chen. International Conference on Robotics and Automation (ICRA), 2023.
- Autoregressive Uncertainty Modeling for 3D Bounding Box Prediction.** YuXuan Liu, Nikhil Mishra, Maximilian Sieb, Yide Shentu, Pieter Abbeel, Xi Chen. European Conference on Computer Vision (ECCV), 2022.
- PixelSNAIL: An Improved Autoregressive Generative Model.** Xi Chen, Nikhil Mishra, Mostafa Rohaninejad, Pieter Abbeel. International Conference on Machine Learning (ICML), 2018.

**A Simple Neural Attentive Meta-Learner.** Nikhil Mishra\*, Mostafa Rohaninejad\*, Xi Chen, Pieter Abbeel. International Conference on Learning Representations (ICLR), 2018.

**Prediction and Control with Temporal Segment Models.** Nikhil Mishra, Pieter Abbeel, Igor Mordatch. International Conference on Machine Learning (ICML), 2017.

**Combining Model-Based Policy Search with Online Model Learning for Control of Physical Humanoids.** Igor Mordatch, Nikhil Mishra, Clemens Eppner, Pieter Abbeel. International Conference on Robotics and Automation (ICRA), 2016.

## Patents

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**Systems and methods for robotic picking.** Yan Duan, Xi Chen, Mostafa Rohaninejad, Nikhil Mishra, YuXuan Liu, Andrew Vaziri, Haoran Tang. US Patent App 17/014,545, 2021.

**Trajectory optimization using neural networks.** Haoran Tang, Xi Chen, Yan Duan, Nikhil Mishra, Philipp Wu, Maximilian Sieb, Yide Shentu. US Patent App 17/193,820, 2021.

**Training artificial networks for robotic picking.** Yan Duan, Haoran Tang, Yide Shentu, Nikhil Mishra, Xi Chen. US Patent App 17/014,558, 2021..

**Identifying scene correspondences with neural networks.** Maximilian Sieb, Nikhil Mishra, Yan Duan. US Patent App 17/161,399, 2021..

**Confidence-based segmentation of multiple units.** YuXuan Liu, Xi Chen, Nikhil Mishra. US Patent App 17/161,344, 2021..

**Confidence-Based Bounding Boxes For Three Dimensional Objects.** YuXuan Liu, Xi Chen, Nikhil Mishra. US Patent App 17/161,297, 2021..

**Three-dimensional computer vision system for robotic devices.** Mostafa Rohaninejad, Nikhil Mishra, YuXuan Liu, Yan Duan, Andrew Vaziri, Xi Chen. US Patent App 17/014,321, 2021..