

Boyuan Chen

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EDUCATION

Massachusetts Institute of Technology (MIT), PhD student in EECS, MIT CSAIL	2021 - 2025
UC Berkeley, BA Computer Science (EECS Honor Class), Applied Math, Class of 2021, GPA 3.96	2017-2021
Research Interest: Generative world model, Model-based reinforcement learning, Foundation models for decision making	
Selected Coursework: Deep Unsupervised Learning(A+), Deep Reinforcement Learning(A+), Advanced Robotics(A+), Natural Language Processing(A), Machine Learning(A), Computer Vision(A), AI System(A+), Hardware for Deep Learning(A), Robotics(A+), Real Analysis(A+), Complex Analysis(A+), Algorithms(A), Data Structure(A), Programming(A+), Computer Architecture(A), Stochastic Process & Probability(A)	

EXPERIENCE

OpenAI

<i>Member of Technical Staff (Research)</i>	<i>Jun 2025 – present</i>
<ul style="list-style-type: none">Member of the 5-people core research team of GPT image generationReinforcement learning and world models	

Google DeepMind

<i>Research Intern</i>	<i>May 2023 – Aug 2023</i>
<ul style="list-style-type: none">Lead the training of a multi-modal Large Language Model (MLLM) with large scale synthetic data.Implemented the entire data synthesis pipeline, instruction tuning that was later adopted into Gemini 2.0.	

Google X (or X, the Moonshot Factory)

<i>AI resident (with return offer at Google's L4 level but declined)</i>	<i>May 2022 – Aug 2022</i>
<ul style="list-style-type: none">Develop machine learning algorithms for sequential decision making in roboticsVisual grounding for Large Language Model	

MIT Computer Science and Artificial Intelligence Laboratory (CSAIL)

<i>Researcher</i>	<i>Sep 2021 – present</i>
<ul style="list-style-type: none">Machine learning research advised by Prof. Vincent Sitzmann and Prof. Russ TedrakeResearch focus: Generative world model, Model-based RL, Foundation models for decision making, Robotics.	

Berkeley Artificial Intelligence Research Lab

<i>Researcher</i>	<i>Jan 2019 – Aug 2021</i>
<ul style="list-style-type: none">Reinforcement learning research with Prof. Pieter Abbeel; Computer vision research Prof. Trevor DarrellStudent researcher on unsupervised learning, 3d vision, visual reinforcement learning and generalizable manipulation.	

Robomooc.com, Chongqing Muke Robotics Inc.

<i>Startup Founder</i>	<i>Nov 2017 – Mar 2020</i>
<ul style="list-style-type: none">Company providing robotics education solution to K12 educationLead the software and hardware development of robot kits that we sell to student participants in robotics competitions	

SKILLSET

Language & Tools: Python, C++/C, Java, PyTorch, Tensorflow, Jax, Pax, Flume, OpenCV, MongoDB, TensorRT, ZeroMQ, Qt5

Machine Learning: Deep Reinforcement Learning, Generative Models (Diffusion, Flow, GAN, VAE), Variational Inference, Time Series Prediction, Planning Imitation Learning, World Model, Large Language Model, Multimodal Model, Data Synthesis.

PUBLICATION

Diffusion Forcing: Next-token Prediction Meets Full-Sequence Diffusion	NeurIPS 2024
<u>B. Chen</u> , D. Monso, Y. Du, M. Simchowitz, R. Tedrake, V. Sitzmann.	(Used by Adobe Firefly)
Spatial VLM: Endowing Vision-Language Models with Spatial Reasoning Capabilities	CVPR 2024
<u>B. Chen</u> , Z. Xu, S. Kirmani, B. Ichter, D. Driess, P. Florence, D. Sadigh, L. Guibas, F. Xia	(Used by Gemini 2.0)
Self-Supervised Reinforcement Learning that Transfers using Random Features	NeurIPS 2023
<u>B. Chen</u> , C. Zhu, P. Agrawal, K. Zhang, A. Gupta	
History Guided Video Diffusion	ICML 2025
K. Song*, <u>B. Chen</u> *, M. Simchowitz, Y. Du, R. Tedrake, V. Sitzmann. (*Equal Contribution)	
Open-vocabulary Queryable Scene Representations for Real World Planning	ICRA 2023
<u>B. Chen</u> , F. Xia, B. Ichter, K. Rao, K. Gopalakrishnan, M. Ryoo, A. Stone, D. Kappler	(Patented w/ Google)
Unsupervised 3d Keypoint Learning for control	ICML 2021

<u>B. Chen</u> , D. Pathak, P. Abbeel.		
Discovering Diverse Multi-Agent Strategic Behavior via Reward Randomization		ICLR 2021
Z. Tang, C. Yu, <u>B. Chen</u> , H. Xu, X Wang, F. Fang, S. Du, Y. Wang, Y. Wu		
DittoGym: Learning to Control Soft Shape-Shifting Robots		ICLR 2024
S. Huang, <u>B. Chen</u> , H. Xu, V. Sitzmann		
Reasoning or Reciting? Exploring the Capabilities and Limitations of LLM Through Counterfactual Task		NAACL 2024
Z. Wu, L. Qiu, A. Ross, E. Akyürek, <u>B. Chen</u> , B. Wang, N. Kim, J. Andreas, Y. Kim		
Extraneousness-Aware Imitation Learning		ICRA 2023
R. Zheng, K. Hu, <u>B. Chen</u> , H. Xu.		
Zero-shot Policy Learning with Spatial Temporal Reward Decomposition on Contingency-aware Observation		ICRA 2020
<u>B. Chen</u> *, H. Xu*, Y. Gao, T. Darrell.		
Unifying 3D Representation and Control of Diverse Robots with a Single Camera		Nature
S. Lester Li, A. Zhang, <u>B. Chen</u> , H. Matusik, C. Liu, D. Rus, V. Sitzmann		

ACADEMIC SERVICE

Reviewer of NeurIPS, ICLR, ICML, CVPR, RSS, ICRA, IROS, RAL, AAAI	<i>2021-present</i>
Teaching Assistant, MIT 6.S183 Diffusion Models, 6.4210/6.4212 Robotic Manipulation	<i>Sep 2022 – Dec 2022</i>

PERSONAL PROJECTS

Autonomous multi-floor food delivery robot (Control, Planning, Sensing, Vision, ROS)	<i>Sep 2019 - Dec 2019</i>
ICRA Robomaster AI Challenge Autonomous Combat Robot (Vision, Planning, ROS, Control, AI)	<i>Jan 2019 - May 2019</i>
Personal drivable RC robot (CAD, Manufacture, Electronics, Control, Embedded System)	<i>May 2019 - Aug 2019</i>
Autonomous Multi-Terrain Rover (CAD, Manufacture, Electronics, Computer Vision, Planning)	<i>Oct 2017 - Aug 2018</i>
Autonomous Tracking Drone (Computer Vision, Embedded System)	<i>Sep 2016 - Aug 2017</i>

HONOR

Seneff-Zue CS Fellowship	<i>Feb 2021</i>
Winner, Facebook Pytorch Summer Hackathon	<i>Aug 2019</i>
Finalist, ICRA 2019 Robomaster AI Challenge	<i>May 2019</i>
Winner, Record Keeper, UC Berkeley CS 61C Neural Network Inference Optimization Contest	<i>Aug 2018</i>
Winner, CS170 Efficient Algorithms Contest	<i>Oct 2018</i>
2 nd place, Google Puzzlehunt, second fastest prize eligible team out of 800+ teams of Google employees	<i>Aug 2022</i>
Honor degree in EECS, High honor in general scholarship, Dean's List, UC Berkeley	<i>2017-2021</i>