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
Member of Technical Staff (Research)   *Jun 2025 – present*
- Member of the 5-people core research team of GPT image generation.
- Post-train GPT-4o image generation and world models.
- Reinforcement learning for image and video world models.

Google DeepMind
Research Intern   *May 2023 – Aug 2023*
- 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)
AI resident (with return offer at Google's L4 level but declined)   *May 2022 – Aug 2022*
- Develop machine learning algorithms for sequential decision making in robotics
- Visual grounding for Large Language Model

MIT Computer Science and Artificial Intelligence Laboratory (CSAIL)
Researcher   *Sep 2021 – present*
- Machine learning research advised by Prof. Vincent Sitzmann and Prof. Russ Tedrake
- Research focus: Generative world model, Model-based RL, Foundation models for decision making, Robotics.

Berkeley Artificial Intelligence Research Lab
Researcher   *Jan 2019 – Aug 2021*
- Reinforcement learning research with Prof. Pieter Abbeel; Computer vision research Prof. Trevor Darrell
- Student researcher on unsupervised learning, 3d vision, visual reinforcement learning and generalizable manipulation.

Robomooc.com, Chongqing Muke Robotics Inc.
Startup Founder   *Nov 2017 – Mar 2020*
- Company providing robotics education solution to K12 education
- Lead 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**
B. Chen, 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**
B. Chen, 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**
B. Chen, C. Zhu, P. Agrawal, K. Zhang, A. Gupta	
History Guided Video Diffusion	**ICML 2025**
K. Song*, B. Chen*, M. Simchowitz, Y. Du, R. Tedrake, V. Sitzmann. (*Equal Contribution)	
Open-vocabulary Queryable Scene Representations for Real World Planning	**ICRA 2023**
B. Chen, 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**

B. Chen, D. Pathak, P. Abbeel.

Discovering Diverse Multi-Agent Strategic Behavior via Reward Randomization — **ICLR 2021**

Z. Tang, C. Yu, B. Chen, H. Xu, X Wang, F. Fang, S. Du, Y. Wang, Y. Wu

DittoGym: Learning to Control Soft Shape-Shifting Robots — **ICLR 2024**

S. Huang, B. Chen, 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, B. Chen, B. Wang, N. Kim, J. Andreas, Y. Kim

Extraneousness-Aware Imitation Learning — **ICRA 2023**

R. Zheng, K. Hu, B. Chen, H. Xu.

Zero-shot Policy Learning with Spatial Temporal Reward Decomposition on Contingency-aware Observation — **ICRA 2020**

B. Chen*, H. Xu*, Y. Gao, T. Darrell.

Unifying 3D Representation and Control of Diverse Robots with a Single Camera — **Nature**

S. Lester Li, A. Zhang, B. Chen, H. Matusik, C. Liu, D. Rus, V. Sitzmann

ACADEMIC SERVICE

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

PERSONAL PROJECTS

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

HONOR

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