Boyuan Chen

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EDUCATION

Massachusetts Institute of Technology (MIT), PhD student in EECS — *2021 - Present*

UC Berkeley, BA Computer Science (EECS Honor Class), Applied Math, Class of 2021, GPA 3.96 — *2017-2021*

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), Computer Program(A+), Computer Architecture(A), Stochastic Process & Probability(A)

EXPERIENCE

Google Deepmind
Machine Learning Researcher — *May 2023 – Aug 2023*
- Lead the training of a multi-modal Large Language Model (MLLM)
- Self-improvement with synthetic data, Instruction tuning, Visual grounding

Google X (or X, the Moonshot Factory)
AI resident, machine learning for robotics (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 for robotics advised by Prof. Russ Tedrake and Prof. Vincent Sitzmann

Berkeley Artificial Intelligence Research Lab
Researcher — *Jan 2019 – Aug 2021*
- Computer vision research Prof. Trevor Darrell; Robotics learning research with Prof. Pieter Abbeel,
- 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

Robomaster at Berkeley (Robotics Team & Club)
Founder, Captain — *Oct 2018 – 2021*
- Lead 20-member robotics team building autonomous shooting robots for ICRA RoboMaster AI Challenge
- Designed and implemented novel methods for data collection, object detection and inference acceleration

Open Source Project Contributor
- Contributor of DL Framework Pytorch, Torchvision; Physics Engine Bullet3; Robotics framework — *2018 – 2021*

MIT Chess club
- President at MIT Chess Club — *2023 - present*
- Team member of MIT in collegiate chess league

SKILLSET

Language & Tools: Python, C++/C, Java, Cmake, PyTorch, Tensorflow, Jax, Pax, OpenVino, TensorRT, ZeroMQ, Qt5, AWS
Machine Learning: Reinforcement Learning, Large Language Model, Generative Models (Diffusion, Flow, GAN, VAE), 3D Computer Vision, Foundation Models for Decision Making, Variational Inference, Time Series Prediction, Imitation Learning

PUBLICATION

Self-Supervised Reinforcement Learning that Transfers using Random Features	**NeurIPS 2023**
B. Chen, C. Zhu, P. Agrawal, K. Zhang, A. Gupta.	
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.	
Reasoning or Reciting? Exploring the Capabilities and Limitations of LLM Through Counterfactual Tasks	(submission) **ACL**
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, <u>B. Chen</u>, H. Xu.

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.

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.

ACADEMIC SERVICE

Reviewer of CVPR, IROS, Neurips, ICRA, RAL, AAAI	*Feb 2021*
Teaching Assistant, MIT 6.4210/6.4212 Robotic Manipulation	*Sep 2022 – Dec 2022*
EECS GAAP	*2021-2022*

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	*Jul 2022*
Honor degree in EECS, High honor in general scholarship, Dean's List, UC Berkeley	*2017-2021*