

# YIXIN LIN

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## PROFILE

Research engineer in robot learning at Meta AI, interested in sample-efficient reinforcement learning for embodied AI.

## EDUCATION

**Duke University** Graduated May 2018  
B.S. in Computer Science – Overall GPA: 3.944/4.000, Major GPA: 4.000/4.000

**Relevant coursework** *Artificial Intelligence — Algorithms — Bayesian statistics — Advanced linear algebra — Computer vision — Advanced machine learning — Complexity theory — Computational microeconomics — DNA computation*

## PROFESSIONAL EXPERIENCE

**Meta AI (formerly Facebook AI Research)** September 2018 - September 2021; September 2021 - Present  
*Research engineer* Menlo Park, CA; New York, NY

Published research in model-based reinforcement learning for robotic control accepted to top robotics conferences. Leads real-time capable C++ controller stack built upon PyTorch/Torchscript.

- Jain, V., Lin, Y., Undersander, E., Bisk, Y., & Rai, A. (2022). Transformers are Adaptable Task Planners. arXiv preprint arXiv:2207.02442.
- Shankar, T., Lin, Y., Rajeswaran, A., Kumar, V., Anderson, S., & Oh, J. (2022). Translating Robot Skills: Learning Unsupervised Skill Correspondences Across Robots. In International Conference on Machine Learning (ICML).
- Lin, Y., Wang, A. S., & Rai, A. (2021). Efficient and Interpretable Robot Manipulation with Graph Neural Networks. arXiv preprint arXiv:2102.13177. In IEEE Robotics and Automation Letters, International Conference on Robotics and Automation 2022.
- Bechtle, S., Lin, Y., Rai, A., Righetti, L., & Meier, F. (2020, May). Curious ilqr: Resolving uncertainty in model-based rl. In Conference on Robot Learning (pp. 162-171). PMLR.
- Sutanto, G., Wang, A., Lin, Y., Mukadam, M., Sukhatme, G., Rai, A., & Meier, F. (2020). Encoding physical constraints in differentiable newton-euler algorithm. In Learning For Dynamics & Control 2020.
- Meier, F., Wang, A. S., Sutanto, G., Lin, Y., Shah, P. (2022), Differentiable and Learnable Robot Models. In Journal of Machine Learning Research (JLMR).
- Dasari, S. et al. RB2: Robotic Manipulation Benchmarking with a Twist. In Neural Information Processing Systems 2021, Datasets and Benchmarks Track.
- Morse, K., Das, N., Lin, Y., Wang, A., Rai, A., & Meier, F. (2020). Learning State-Dependent Losses for Inverse Dynamics Learning. In International Conference on Intelligent Robots and Systems 2020.

**Google Brain Robotics** October - December 2017  
*Software engineering/machine learning intern* Mountain View, CA

- Worked on characterizing the optimization landscape of deep reinforcement learning and implications for learning and convergence
- Supervised by Eric Jang (**Google Brain**), Oriol Vinyals (**Google DeepMind**)

**Facebook Applied Machine Learning (AML)** May - August 2017  
*Software engineering/machine learning intern* Menlo Park, CA

- Improved **world's largest deep learning facial recognition system** through Gaussian augmentation strategy (reduced recall error by **10%**), increased model training rate by **10x**, implemented frontalizing **GAN**; used **Lua/Torch, Python/PyTorch, Java, C++, SQL**
- Supervised by Dr. Fernando de la Torre (professor at **Carnegie Mellon**, research scientist manager at **Facebook**)

**Contrary Capital** May 2016 - Present  
*Founding student partner & Contrary Talent Fellow*

- Source deals, complete due diligence, and make investment recommendations for **decentralized, university-focused venture fund**
- Member of **select, diverse community** of the top early-career engineers, designers, and product minds working in technology.

**Gusto (formerly ZenPayroll)** May - August 2015  
*Software engineering intern, KPCB Engineering Fellow* San Francisco, CA

- Part of **KPCB Fellows** program (see [kpcbfellows.com/about](http://kpcbfellows.com/about)), **3%** acceptance rate
- Contributed to **React/Flux/AngularJS/Rails** stack, built fraud-ring detection tool used by Risk Team, **prevented \$10k+ in losses**
- Integrated **Neo4J** with real-time relational database synchronization, built graph visualization with **React** and **vis.js**

## ACADEMIC EXPERIENCE

### Reviewer

- Reviewer for International Conference on Robotics and Automation (ICRA), IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), & NeurIPS (workshop on Physical Reasoning and Inductive Biases for the Real World).

**Duke University - AI Policy research** January-May 2018  
*Independent researcher* Durham, NC

- Co-authored white paper on US policy on AI leadership and provides policy recommendations: [aipolicy.us/whitepaper.pdf](http://aipolicy.us/whitepaper.pdf)
- Presented white paper in Washington, D.C. to offices of **Senator Maria Cantwell, Congressman John Delaney**

**Duke University – Carin lab, Information Initiative at Duke (iiD)** August 2016 - August 2017  
*Machine learning researcher* Durham, NC

- Applied matrix factorization methods to optimization in **deep learning** to improve gradient descent, investigated multi-agent language acquisition through **deep reinforcement learning**, advised by Dr. Lawrence Carin and Dr. Xuejun Liao