YUNZHI LIN

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ACADEMIC EXPERIENCE

- **Georgia Institute of Technology** *Atlanta, USA 08/2018 - 07/2024*
  Ph.D. & M.S. in ECE
- **University of Alberta** *Edmonton, Canada 09/2017 - 12/2017*
  Research Intern in Applied Nonlinear Control Lab
- **Southeast University** *Nanjing, China 09/2014 - 06/2018*
  B.E. in Automation, Overall GPA: 3.86/4.0 (Rank: 3/104)

INDUSTRY EXPERIENCE

- **TikTok** *Bellevue, USA 08/2024 - Present*
  Machine Learning Engineer
  E-Commerce
  ◇ **E-commerce Live Recommendation**
  - Developed a global e-commerce live recommendation system, serving over one billion users and generating millions in daily GMV, positioning TikTok Shop Live as a leading player in the global market
- **Meta AI** *Menlo Park, USA 05/2023 - 11/2023*
  Research Intern, Advisor: Kevin Liang, Yipu Zhao, Fu-Jen Chu, Matt Feiszli
  Ego-HowTo Team, FAIR Accel
  ◇ **Generalized Object Pose Tracking**
  - Developed a streamlined pipeline combining video segmentation, uncertainty-aware keypoint refinement, and structure from motion, effectively tracking 6-DoF poses from short-term monocular RGB video
  - Generated a large-scale photo-realistic synthetic dataset of 40K clips (4M frames) using BlenderProc2, including RGB/depth/mask/normal/pose annotations, facilitating object pose tracking in dynamic settings
- **NVIDIA Research** *Atlanta, USA 05/2022 - 12/2022 & 05/2020 - 05/2021*
  Research Intern, Advisor: Jonathan Tremblay, Stephen Tyree, Thomas Müller, Bowen Wen, Stan Birchfield
  Learning and Perception Research Group
  ◇ **Neural Radiance Fields for Robust Pose Estimation (ICRA 2023)**
  - Developed a parallelized, momentum-based optimization method using NeRF models to estimate 6-DoF poses from monocular RGB input
  - Achieved improved generalization and robustness on both synthetic and real-world benchmarks, improving the percentage of pose error less than 5 degrees or 0.05 units threshold over 40%

  ◇ **Category-level Object Pose Estimation (ICRA 2022 & Patent US20220277472A1)**
  - Developed a keypoint-based RGB-only 6-DoF and size pose estimator for category-level objects
  - Integrated into [NVIDIA Isaac Robot Operating System (ROS)]

  ◇ **Category-level Object Pose Tracking (ICRA 2022 & Patent US20240005547A1)**
  - Extended to support robust object pose tracking with uncertainty estimation
  - SOTA results on the Objectron benchmark, improving average precision at 0.5 3D IoU from 72% to 80%

  ◇ **Multi-level Scene Understanding (IROS 2021 & Patent US20220068024A1)**

- Proposed a multi-level robotic scene understanding system, including dense 3D reconstruction, shape estimation and fitting of objects with primitive shapes, and full 6-DoF pose estimation of known object instances

RESEARCH EXPERIENCE

- **Georgia Institute of Technology** *Atlanta, USA 06/2021 - 12/2022 & 02/2019 - 05/2020*
  Research Assistant, Advisor: Patricio A. Vela
  Intelligent Vision and Automation Laboratory
  ◇ **Human-Robot Interaction: Playing Jigsaw Puzzles with A Robot (NSF Funding [#2026611])**
  - Developed a human-robot system that allows a robot to interact and play jigsaw puzzles with human players
  - Created a cost-effective robot platform ($1K) with RealSense D415 and Dynamixel servomotor

  ◇ **Object Grasping via Primitive Shapes (ICRA 2020)**
  - Developed an automated strategy to generate primitive shape data in the V-REP simulation
  - Designed a grasping pipeline that segments objects from depth input, identifies optimal shape parameters through shape fitting, and selects and executes the most feasible grasp
  - Achieved over 93% success rate on static grasping task using a 7-DoF robotic arm

ACADEMIC SERVICE

- **Conference Reviewer:** CoRL, ICRA, IROS, ECCV
- **Journal Reviewer:** IEEE Robotics and Automation Letters, IEEE/ASME Transactions on Mechatronics, Neurocomputing, IEEE/CAA Journal of Automatica Sinica, IEEE Transactions on Circuits and Systems for Video Technology, IEEE Transactions on Automation Science and Engineering, Sensors

HONORS AND AWARDS

- NVIDIA Patent Award (3x), NIVIDA Corp. *04/2021-03/2022*
- Outstanding Graduates (top 5%), Southeast University *06/2018*
- National Undergraduate Exchange Scholarship, China Scholarship Council *06/2017*
- National Scholarship (top 3%), Southeast University *09/2015*

SKILLS

- **Programming Languages:** C/C++, Python, Matlab
- **Softwares & Tools:** OpenCV, V-REP, ROS, Caffe, TensorFlow, PyTorch