Yiming Bao

Third-year Undergraduate, Department of Computer Science and Technology
Tsinghua University, Beijing, China
Phone: +86-19805420316 | bao-ym23@mails.tsinghua.edu.cn

EDUCATION

- **Undergraduate**
  Department of Computer Science and Technology, Tsinghua University — 2023 - Present
  (advisor: Huazhe Xu) — Beijing, China
  GPA: 3.8/4.0

- **Selected Major Courses**
  CS: Programming and Training (4.0), Data Structure (4.0), Software Engineering (4.0), High Performance Computing (4.0), Digital Logic Circuit (4.0), Media Computing (4.0), Computer Network (4.0)
  AI/ML: Introduction to Artificial Intelligence , Artificial Neural Network (4.0)
  Math/Physics: Probability and Statistics (4.0), Linear Algebra (4.0), Calculus (4.0), Complex Analysis (4.0), Physics(I)(III) (4.0)

PUBLICATIONS & PREPRINTS

- **DexImit: Learning Bimanual Dexterous Manipulation from Monocular Human Videos**
  RSS 2026 (In Submission) [Project] [Paper]
  Juncheng Mu, Sizhe Yang*, **Yiming Bao**, Hojin Bae, Tianming Wei, Linning Xu, Boyi Li†, Huazhe Xu†, Jiangmiao Pang†*

- **UniDex: A Robot Foundation Suite for Universal Dexterous Hand Control from Egocentric Human Videos**
  CVPR 2026 [Project][Paper] [Code] [Model]
  Gu Zhang, Qicheng Xu*, [...], **Yiming Bao***, [...], Yang Gao†, Hao Zhao†, Hang Zhao†, Huazhe Xu† (19 authors)*

RESEARCH

- **Research Interest**
  My long-term research goal is to develop robots with human-level versatility in perception and reasoning, ultimately enhancing everyday life at scale.
  My current focus lies at the intersection of robotics and machine learning, particularly in building general-purpose manipulation systems that can robustly operate in unstructured real-world environments.

- **Experience**
  - **DexImit: Learning Bimanual Dexterous Manipulation from Monocular Human Videos** — Nov 2025 - Jan 2026
    * Try to deal with **data scarcity** that limits the generalizations of bimanual dexterous manipulation using **generated or in-the-wild human videos**
    * A simple and effective framework automatically converts **monocular human videos** into **physically plausible robot demonstrations** via 4D reconstruction, action-centric scheduling, force-closure grasp synthesis, and large-scale augmentation
    * enabling zero-shot real-world deployment **without any robot data**
  - **UniDex: A Robot Foundation Suite for Universal Dexterous Hand Control from Egocentric Human Videos** — Jun 2025 – Nov 2025
    * Try to address **data scarcity and embodiment heterogeneity** in dexterous manipulation by leveraging large-scale **egocentric human videos** to build a robot-centric foundation dataset
    * Construct **UniDex-Dataset** (10M frames, 50K trajectories, 8 hands) and propose a unified **Function–Actuator–Aligned Space (FAAS)** with a pretrained **3D VLA policy** for cross-hand dexterous control
    * Enabling strong **zero-shot spatial, object, and cross-hand generalization**, significantly outperforming prior VLA baselines in real-world tool-use tasks

SKILLS

- **Language**: TOEFL (110/120, 5.5/6.0), CET-4, CET-6
- **Programming and Scripting Languages**: Python, C/C+, Rust, Java, JavaScript/TypeScript, CUDA, SystemVerilog
- **Professional Software**: Pytorch, ROS, Sapien, IsaacGym, Polymetis
- **Hardware and Robots**: Franka Panda, Inspire Hand, Wuji Hand, X Hand, Robotiq Gripper, Apple Vision Pro, Oculus Quest, Realsense Camera, NUC