

# Hien Bui

[xuanhien@seas.upenn.edu](mailto:xuanhien@seas.upenn.edu) | [linkedin.com/in/buixuanhien](https://www.linkedin.com/in/buixuanhien) | [github.com/xuanhien070594](https://github.com/xuanhien070594) | [scholar.google.com/hienbui](https://scholar.google.com/hienbui)

**Research Focus:** Model-based control and learning for contact-rich robotic manipulation, with an emphasis on real-time contact-implicit MPC and data-efficient learning of task-relevant reduced-order models.

## TECHNICAL SKILLS

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**Programming Languages:** Python, C/C++  
**Robotics Software:** Drake, Mujoco, ROS  
**Robots:** Denso, Franka Panda, Universal Robots, TriFinger  
**Developer Tools:** Bazel, Git, Linux, Docker  
**Libraries:** Pytorch, JAX, CasADi

## EXPERIENCE

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**Graduate Researcher** Philadelphia, PA  
GRASP Lab (General Robotics, Automation, Sensing & Perception Lab) August 2021 – Present

- Developed real-time model predictive control with multi-contact reasoning for non-prehensile manipulation
- Developed data-efficient methods to improve task performance of learned reduced-order models via reinforcement learning for dexterous manipulation and legged locomotion
- Built, integrated, and maintained the TriFinger platform, an open-source multi-fingered robotic system for dexterous manipulation

**Robotics Engineer (Founding Engineer)** Singapore  
Eureka Robotics July 2018 – June 2021

- Designed, integrated, and deployed multiple award-winning high-accuracy and high-agility robotics systems, including Archimedes Robot and Pythagoras Robot, the first industrially-deployed robots to achieve 80-micron accuracy in an unstructured environment
- Implemented various high-performance motion planning and control algorithms for robot manipulation tasks

## EDUCATION

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**University of Pennsylvania** Philadelphia, PA  
Ph.D. Student in Robotics at GRASP Lab Aug. 2021 – Present  
Advisor: Michael Posa

**University of Pennsylvania** Philadelphia, PA  
Master's Degree in Robotics Dec. 2024

**Nanyang Technological University** Singapore  
Bachelor's Degree in Mechanical Engineering with Highest Distinction Aug. 2014 – May 2018

## SELECTED PUBLICATIONS

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- **Push Anything: Single- and Multi-Object Pushing From First Sight with Contact-Implicit MPC**  
Hien Bui\*, Yufei Yang Gao\*, Haoran Yang\*, Eric Cui, Siddhant Mody, Brian Acosta, Thomas Stephen Felix, Bibit Bianchini, Michael Posa. *Under Review*
- **Active Tactile Exploration for Rigid Body Pose and Shape Estimation**  
Ethan K Gordon, Bruke Baraki, Hien Bui, Michael Posa. *Under Review*
- **Enhancing Task Performance of Learned Simplified Models via Reinforcement Learning**  
Hien Bui, Michael Posa. *IEEE International Conference on Robotics and Automation (ICRA 2024)*
- **Reinforcement Learning for Reduced-order Models of Legged Robots**  
Yu-Ming Chen, Hien Bui, Michael Posa. *IEEE International Conference on Robotics and Automation (ICRA 2024)*