YUNI FUCHIOKA

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EDUCATION

University of British Columbia September 2021 – May 2023
Master of Science, Computer Science *Vancouver, Canada*

- Supervisor: Professor Michiel van de Panne.
- Thesis Title: Imitating Optimized Trajectories for Dynamic Quadruped Behaviors.
- Thesis Link: `http://hdl.handle.net/2429/84355`
- Coursework average: 91.5%

University of British Columbia September 2015 – April 2021
Bachelor of Applied Science, Engineering Physics (with distinction) *Vancouver, Canada*

- Fully accredited engineering program covering topics in mechanical, electrical, and software engineering, and its connection to foundational physics and mathematics.
- Elizabeth and Leslie Gould Scholarship in Engineering.
- Dean's Honour List Designation (received every academic year).
- Overall average: 85.1%

EXPERIENCE

Research Intern June 2023 – December 2023 (Expected)
OMRON SINIC X *Tokyo, Japan*

- Researching robot controls for industrial manipulation. Supervisor: Dr. Masashi Hamaya.

Research Assistant June 2021 – May 2023
UBC Motion Control and Character Animation Group (MOCCA) *Vancouver, Canada*

- Sourced parts for, assembled, debugged, and set up control software for the Solo 8 quadruped robot designed by the Open Dynamic Robot Initiative, the first legged robot owned by the lab. Used the robot to research reinforcement learning and trajectory optimization based control—see Publication section below.

Research Intern, Humanoid Robotics Group June 2018 – April 2019
Honda Research Institute Japan/Honda R&D *Tokyo, Japan*

- Researched methods of modelling and controlling bipedal locomotion through the application of geometric nonlinear control theory, feedback linearization, and template models, as applied to planar biped systems. Supervised by Dr. Chunjiang Fu.

Strategic Reporting and Data Migration Intern January 2017 – April 2017
UBC Information Technology *Vancouver, Canada*

- Programmed web-based data visualizations and developed a prototype web application for centralized master data management, for a university-wide project to replace the legacy student information system.

Mechanical Part Inspector July 2016 – August 2016
Kodak Canada *Burnaby, Canada*

- Inspected CNC-machined laser components with micrometer-scale tolerances for defects and reported findings to production engineers, for a manufacturing plant that produced industrial offset printers.

PUBLICATIONS

OPT-Mimic: Imitation of Optimized Trajectories for Dynamic Quadruped Behaviors
Yuni Fuchioka, Zhaoming Xie, and Michiel van de Panne
International Conference on Robotics and Automation (ICRA), 2023
Website: `https://www.cs.ubc.ca/~van/papers/2022-opt-mimic/index.html`

OTHER PROJECTS

Block Coordinate Descent for 2D Quadruped Centroidal Dynamics January 2022 – April 2022
Graduate Course Project, EECE 571Z: Convex Optimization

· Modified and implemented the methods of the paper "Rapid Convex Optimization of Centroidal Dynamics using Block Coordinate Descent" by Shah et al. 2021 for a simplified 2D quadruped model.

Gibbon Pose Estimation from Videos September 2021 – December 2021
Graduate Course Project, CPSC 533R: Visual AI

· Evaluated two 2D pose estimation methods from research literature on videos of brachiating gibbons, characterizing the various pre- and post-processing techniques needed to account for the challenge of limited, low quality training data and the necessity to adapt research techniques to real-world problems.

Bicopter Drone May 2019 – August 2019
Personal Hobby Project

· Designed and built a radio controlled drone that flies using only two propellers, using limited financial and fabrication resources. Programmed an Arduino for stable flight control, rather than using an off-the-shelf flight controller.

Autonomous Robot Competition June 2017 – August 2017
Undergraduate Course Project

· Designed and built a robot for a 6 week design competition within a 4 member team, placing 4th out of 16 teams. The robot was required to follow a taped track, grasp objects, and place them on a target location autonomously with no remote control.

TEACHING

Teaching Assistant, CPSC 426: Computer Animation — Spring Term 2021–2022

Teaching Assistant, PHYS 170: Mechanics I — Winter Term 2020–2021

Teaching Assistant, PHYS 170: Mechanics I — Spring Term 2019–2020

SERVICE

Reviewer for ICRA 2023.

SKILLS

Programming Languages	Python, C++, MATLAB, Java
Numerical Computing Libraries	PyTorch, CasADi, Numpy, Eigen, IPOPT
Robotics Software	ROS package management (Colcon, CMake), Git, Ubuntu Linux
Mechatronics	Machine shop, Electrical prototyping, CAD (Onshape, Solidworks)
Spoken Languages	English (primary language), Japanese