GREY

Software Engineering Manager

9 Singapore

% https://greyxmike.info/

🗘 @mxgrey

@ greyxmike@gmail.com

\$ +65 8877-6696

\$ +1 (847) 530-1093

EMPLOYMENT & RESEARCH

Autonomous System Orchestration

Intrinsic (an Alphabet company)

🛗 January 2023 - Ongoing

♥ Singapore

Project leader and architect of Open-RMF, continuing to elevate its capabilities and broaden its scope into the general orchestration of autonomous systems. Lead engineer and technical mentor for the APAC region at Intrinsic.

Robotics Middleware Framework for Healthcare Open Robotics

May 2018 − December 2022 Singapore

Designed and implemented open source software and open specifications to enable and enhance integration of heterogeneous robotics systems, with a focus on the healthcare sector. Developed Open-RMF to empower healthcare facilities to enhance their logistics operations with fleets of mobile robots from various vendors, sharing infrastructure like hallways, doors, and lifts. Additionally empowered the robotics industry in Singapore to support such deployments.

Robotics Software and Physics Simulation

Open Robotics

🛗 July 2017 - May 2018

♥ Mountain View, CA, USA

Designed and implemented open source software to facilitate robotics research, development, testing, and deployment. This includes development of middleware, simulation tools, and CLI/GUI utilities.

Humanoid Robot Motion Planning

Graphics Lab & AMBER Lab

🛗 August 2015 – July 2017

• Atlanta, GA, USA

Developed algorithms to efficiently perform locomotion and manipulation planning for humanoid robotic platforms.

Humanoid Robot Teleoperation

Humanoid Robotics Lab

🛗 August 2011 – August 2015

🕈 Atlanta, GA, USA

Developed software systems to allow human users to teleoperate humanoid robots to perform complex tasks which reflect the needs of various disaster scenarios.

DARPA Robotics Challenge Trials

Team DRC-Hubo

🛗 August 2012 – December 2014 🔹 🛿 Atlanta, GA, USA

Worked on a multi-institute team to participate in a DARPA-sponsored competition. Helped to develop and maintain core software systems at all levels of the teleoperation pipeline, and co-piloted several of the DRC tasks.

EDUCATION

Ph.D. in Robotics

Georgia Institute of Technology

🛗 August 2011 - July 2017

Advised by: C. Karen Liu, Aaron Ames, and Mike Stilman

B.Sc. in Aerospace Engineering

University of Illinois at Urbana-Champaign

🛗 August 2007 - May 2011

PROJECTS

E	Open-RMF Initial author and current project lead		
	SOSS (now Integration-Service) Initial author		
\mathbf{i}	Dynamic Anim. and Robotics Toolkit Co-author		
*	Gz-Physics Initial author		
\bigotimes	Gazebo Contributor		
•••	ROS1 Contributor		
::: 2	ROS2 Contributor		

NOTABLE LANGUAGES

Rust C++ Python

ROBOTICS INTERESTS

Multi-ager	Planning	
Locomanip	Dynamics	
Controls	Teleoper	ation

DESIGN FOCUS

Correctness	Rel	iability	Robustness
Maintainability		Jser-frie	endliness

PUBLICATIONS

🞓 Doctoral Thesis

• Grey, Michael Xander (2017). "High Level Decomposition for Bipedal Locomotion Planning". PhD thesis. Georgia Institute of Technology.

Journal Article

• Zucker, Matt et al. (2015). "A General-purpose System for Teleoperation of the DRC-HUBO Humanoid Robot". In: *Journal of Field Robotics* 32.3, pp. 336–351.

Conference Proceedings

- Chakravarty, Arjo et al. (2024). "Time-Ordered Ad-hoc Resource Sharing for Independent Robotic Agents". In: *Intelligent Robots and Systems (IROS), 2024 IEEE/RSJ International Conference on*. IEEE.
- Grey, Michael X., Aaron D. Ames, and C. Karen Liu (2017a). "Footstep and Motion Planning in Semi-unstructured Environments Using Randomized Possibility Graphs". In: *IEEE Int'I Conf. on Robotics and Automation (ICRA)*.
- (July 2017b). "Probabilistic Completeness of Randomized Possibility Graphs Applied to Bipedal Walking in Semi-unstructured Environments". In: *Proceedings of Robotics: Science and Systems*. Cambridge, Massachusetts. DOI: 10.15607/RSS.2017.XIII.029.
- Grey, Michael X, Caelan R Garrett, et al. (2016). "Humanoid manipulation planning using backward-forward search". In: Intelligent Robots and Systems (IROS), 2016 IEEE/RSJ International Conference on. IEEE, pp. 5467–5473.
- Hubicki, Christian M et al. (2016). "Work those arms: Toward dynamic and stable humanoid walking that optimizes full-body motion". In: *Robotics and Automation (ICRA)*, 2016 IEEE International Conference on. IEEE, pp. 1552–1559.
- Grey, Michael, Sungmoon Joo, and Matt Zucker (2014). "Planning heavy lifts for humanoid robots". In: *Humanoid Robots (Humanoids)*, 2014 14th IEEE-RAS International Conference on. IEEE, pp. 640–645.
- Luo, Jingru et al. (2014). "Robust ladder-climbing with a humanoid robot with application to the darpa robotics challenge". In: *Robotics and Automation (ICRA)*, 2014 IEEE International Conference on. IEEE, pp. 2792–2798.
- Grey, Michael X, Neil Dantam, et al. (2013). "Multi-process control software for hubo2 plus robot". In: *Technologies for Practical Robot Applications (TePRA)*, 2013 IEEE International Conference on. IEEE, pp. 1–6.
- O'Flaherty, Rowland et al. (2013). "Humanoid robot teleoperation for tasks with power tools". In: *Technologies for Practical Robot applica-tions (TePRa), 2013 ieee international conference on.* IEEE, pp. 1–6.

TEACHING

Volunteer Instructor Code in the Community

🛗 May 2019 – November 2020

Code in the Community was a program that provided free coding lessons to children of disadvantaged families in Singapore. As instructor, my role was to prepare educational presentations, explain programming concepts to the class, lead the students through hands-on exercises, provide students with one-on-one help to supplement the efforts of the assistants, and mentor the teaching assistants to maximize their ability to help the students.

Teaching Assistant

Georgia Institute of Technology

🛗 August 2013 - May 2014

CS 8803: Humanoid Robotics. Multidisciplinary project-oriented class which introduced students to the fundamentals of planning, control, and operation for humanoid robot platforms. In addition to providing technical assistance to the students, I taught a series of voluntary "crash courses" for students who lacked some of the necessary technical background for the class.

Aerospace Department Tutor University of Illinois at Urbana-Champaign

🛗 August 2010 - May 2011

Assisted fellow aerospace undergraduates with technical courses, both fundamental and domain-specific. This position was sponsored by the Aerospace Department at the University of Illinois.