Man Xie

Personal Data

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Work Experience

May2021-Dec2021 Nvidia
Research Intern, Seattle Robotics Lab
Primary researcher on the DexPilot project:

- Learning reactive motion policies for the DexPilot robotic manipulator from human demonstrations.

May2020-Aug2020 Nvidia
Research Intern, Seattle Robotics Lab
Primary researcher on the following projects:

- Implement geometric fabrics algorithm, and apply geometric fabric modeling tools to a full robot model (Franka).
- Develop a novel algorithm for imitation learning from demonstration which leverages collocation techniques.

Apr 2016-Jul 2018 Narwal Intelligent Technology (Dongguan) Co., Ltd.
Director (Software Engineer), Mapping and Localization Group
Provide strategic leadership and solid work to the following:

- Develop reliable long-term localization algorithms for home floor vacuum.
- Design and implement mapping and localization system logic algorithm.
- Competitor products analysis.

Education

Aug 2018 - Current PhD in Computer Science, **Georgia Tech**, Atlanta
Research: "Solving Manipulator Dynamics with Factor Graph"
"Kinodynamic Motion Planning using Factor Graph"
"Soft Robot Modeling and Simulation using Factor Graph"
Gpa: 4.0/4.0 | Advisor: Prof. Frank Dellaert

Jan 2014 - Dec 2015 Master in Aerospace Engineering, **Georgia Tech**, Atlanta
Research: "Autonomous Landing Accuracy of Guided Airdrop System"
"Soft Contact Dynamics of Airdrop System Landing "
Gpa: 3.88/4.0 | Advisor: Prof. Mark Costello

Sept 2009 - Jun 2013 Bachelor in Mechanical Engineering,
Huazhong Univ. of Sci. & Tech, Wuhan, China
Gpa: 90/100

Publication

RAL	K. V. Wyk*, M. Xie*, A. Li, M. A. Rana, B. Babich, B. Peele, Q. Wan, I. Akinola, B. Sundaralingam, D. Fox, B. Boots, and N. D. Ratliff, *"Geometric Fabrics: Generalizing Classical Mechanics to Capture the Physics of Behavior."*
ICRA	N. D. Ratliff, K. V. Wyk, M. Xie, A. Li, and M. A. Rana, *"Generalized Nonlinear and Finsler Geometry for Robotics."*
RSS	A. Li*, C.-A. Cheng*, M. A. Rana, M. Xie, K. Van Wyk, N. D. Ratliff, and B. Boot, *" "RMP2: A Structured Composable Policy Class for Robot Learning."*
Preprint	M. Xie, and F. Dellaert, *"A Unified Method for Solving Inverse, Forward, and Hybrid Manipulator Dynamics using Factor Graphs."*
Preprint	M. Xie, A. Escontrela, and F. Dellaert, *"A Factor-Graph Approach for Optimization Problems with Dynamics Constraints."*
Preprint	M. Xie*, K. V. Wyk*, A. Li, M. A. Rana, Q. Wan, D. Fox, B. Boots, and N. D. Ratliff, *"Geometric Fabrics for the Acceleration-based Design of Robotic Motion."*
Preprint	M. Xie, A. Li, K. V. Wyk, F. Dellaert, B. Boots, and N. D. Ratliff, *"Imitation Learning via Simultaneous Optimization of Policies and Auxiliary Trajectories."*
Preprint	N. D. Ratliff, K. V. Wyk, M. Xie, A. Li, and M. A. Rana, *"Optimization Fabrics."*

Scholarships and Honors

Sept. 2010	**State Scholarship**
Sept. 2011	**Chinese Academy of Science Scholarship**
Sept. 2012	**Sany Heavy Industry Scholarship**
July. 2012	Championship in **Federal International Robot-Soccer Association (FIRA) Robot-soccer Competition**
July. 2012	Championship in **International Humanoid Robot Olympic Games (IHOG)**
Jan. 2019	Represent Narwal in CES 2019, and won the "**Best of CES**" reward

Professional Skills

Program Language:	C++, PYTHON
Software & Platform:	MATLAB, MATHEMATICA, SOLIDWORKS, ROS, MOVEIT