

YUE HAO

COMPUTER SCIENCE (Ph.D.) • ROBOTICS • GRAPHICS • WEB APPS (Full-Stack)

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EXPERIENCE

Research Assistant

Motion and Shape Computing Group, GMU

2016-Present Fairfax, VA

- Researched in computational origami where the user input 3D geometry is unfolded and optimized into 2D foldable patterns. The folding sequence is modeled as path planning for a high-DoF articulated robot simulated and rendered in C++.
- Designed an optimization framework for complex geometric design and folding sequence planning with transfer learning.
- Created a set of computational tools for designing and fabricating various 3D objects using laser folding metal sheets.

Summer Visiting Research

Multi-Variant Structures & Materials Lab, SNU

2020 Seoul, South Korea

- Collaborated with material scientists in research and design compact stackable/foldable structures.
- Helped to optimize their Python and Box2D-based simulator for 10x performance in reinforcement learning training and evolution-based optimization.

Summer Visiting Research

Learning Agents Research Group, UT Austin

2013 Austin, TX

- Training simulated soccer robots in a 4000+ CPU cores cluster.

Research and Competition Team Member

Network Robot Group, NJUPT

2010-2014 Nanjing, China

- Lead member of the Apollo3D team for competing in RoboCup simulated humanoid soccer league. Investigated in every aspect of simulated robotics, including vision based localization, motion control, decision making, and multi-agent collaboration in C++ based simulation environment.
- Won 2013 RoboCup 3D Simulation League world championship and 2011-2014 three national championships in a row.

Summer App Developer Intern

BPOVIA

2011 Nanjing China

- Designed a neural-network classifier in MATLAB and processed human body motion data collected from smart phone gyroscope and accelerometer for training.
- Worked with app developers to deploy the algorithm in iOS/Android and achieved top-tier accuracy as a pedometer.

EDUCATION

Ph.D. in Computer Science - 3.82/4

George Mason University, Fairfax, VA

2014 - May 2021 (Received M.S. in 2016)

B.S. in Computer Science - 3.76/4

Nanjing University of Posts and Telecommunications, Nanjing, China

2010 - 2014

MORE EXPERIENCE

Teaching Assistant

CS451 Computer Graphics • CS485 Autonomous Robotics • CS310 Data Structures

Web Development

Hobbyist web developer for fun.

- Megafba.com: a ecommerce app based on Flutter and Firebase, help resellers manage orders and payments.
- FuelSpots.com: a digital coupon marketplace with Flask as backend, javascript front-end, Google maps, and Stripe payments. Users trade their fuel rewards.

SELECT PUBLICATIONS

- **Yue Hao**, W Guan, E Hernandez, and JM Lien, "Planning Folding Motion with Simulation in the Loop Using Laser Forming Origami and Thermal Behaviors as an Example", *IEEE International Conference on Robotics and Automation (ICRA)*, May 2021
- **Yue Hao** and JM Lien, "Volume Compaction via Thick Polyhedral Surface Stacking", *Pacific Graphics (PG)*, Oct 2019
- **Yue Hao** and JM Lien, "Computational Laser Forming Origami of Convex Surfaces", *ACM Symposium on Computational Fabrication (SCF)*, Jun 2019
- **Yue Hao** and YH Kim and Z Xi and JM Lien, "Creating Foldable Polyhedral Nets Using Evolution Control", *Robotics: Science and Systems Conference (RSS)*, Jun 2018

SKILLS

- Language: C++ (CMake), Java, \LaTeX , Dart
- Script: Python, Shell, MATLAB, LISP
- Web: Flask (REST), Flutter
- DB: Firestore, MySQL, MongoDB
- Other: OpenGL, WebGL, Docker, Git