

YIXIAO WANG

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🎓 EDUCATION

Northwestern University Sept. 2019 – Mar. 2021(Expected)

Master of Mechanical Engineering (GPA: 4.0/4.0)

Shanghai Jiao Tong University Sept. 2018 – Mar. 2021(Expected)

Master of Mechanical Engineering

Shanghai Jiao Tong University Sept. 2014 – June 2018

B.S. in Mechanical Engineering (Major GPA: 3.8/4.3 Rank: 5%)

⚙️ PROFESSIONAL SKILLS

Expert Knowledge Path Planning, Additive Manufacturing, Optimization, Machine Learning

Frameworks and Models ROS, Pytorch, Muzero

Coding and Tools C++, Python, VS, Matlab, Abaqus, UG

📁 RESEARCH EXPERIENCE

Path Planning for Force-controlled Robotic Grinding of Hub Surfaces Oct. 2020 – Dec. 2020

- Proposed a **numerical surface segmentation** algorithm based on sweeping lines so that local path can be continuous in each sub-surface and ultimately increase **production efficiency**.
- Developed **feed velocity and path spacing planning** algorithm by solving constrained nonlinear optimization problems with the goal of minimizing the average residual volume to be polished.
- Generated grinding **interval movement planning** algorithm to decrease the unnecessary production time.

Toolpath Planning for AM through Reinforcement Learning Jan. 2020 – Present

- Reproduced **Muzero** algorithm, a deep reinforcement learning model combining with **Monte Carlo Tree Search**, to plan an optimal coverage path for arbitrary geometries in additive manufacturing (AM).
- Established a **distributed framework** for a faster training convergence and designed a proper network structure for better total rewards

Path Planning for 6-DOF Robot Grasping with Obstacles Dec. 2017 – July 2018

- Generated a **path planning** algorithm with better overall performance in a **dense environment** based on RRT-connect, RRT* and self-designed **probability field sampling** in the configuration space of UR10

Motion Planning on the Coverage Path of UAV Dec. 2015 – Oct. 2017

- Planned an optimal smooth **spiral coverage path** for sweeping the arbitrary areas including concave geometries with islands by **Partial Differential Equations** and **B-spline curve**
- **Trajectory optimization** to minimize flying time under the kinematic constraints and tracking accuracy.

💎 HONOR

Shanghai Jiao Tong University Outstanding Graduates Dec. 2020

Shanghai Outstanding Graduates (21/415) June 2018

Scholarship of Shanghai City (9/415) Dec. 2017

First Prize of SGMW Scholarship (Top 10%) Oct. 2016

INESA Scholarship (Top 20%) Dec. 2015

🌐 PERSONAL PAGES

<https://yixiaowang7.github.io/>

Github