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[my tech blog: motion-planning](https://motion-planning.github.io)

YOU YUFA MOTION PLANNING ENGINEER

EDUCATION	Harbin Institute of Technology <i>M.E. in Control Engineering</i> • Advisor: Assoc. Prof. ZHAO Linhui • Research area: Planning and Control of Autonomous Vehicle	Harbin, China 2021 - 2023
	Dalian Maritime University <i>B.E. in Automation</i> • GPA: 4.06/5.00, Rank: 5/127.	Dalian, China 2017 - 2021
WORK EXPERIENCE	BYD Ltd. Autonomous Driving Unit <i>Senior Motion Planning Engineer</i>	Shanghai, China 2023 - present
	Momenta Tech Ltd. <i>Planning Algorithm Intern</i>	Suzhou, China 2022 - 2023
PUBLICATIONS	1. Y. You, L. Zhao, H. Liu and Z. Liu, "A Hybrid Trajectory Planning Strategy for Intelligent Vehicles with Collision Avoidance," 2022 41st Chinese Control Conference (CCC), Hefei, China, 2022, pp. 5353-5358	
PROJECTS AT WORK	4WD Parking System of BYD Yangwang U8/U7 and Denza Z9GT <i>BYD Ltd. Autonomous Driving Unit</i>	2023.11 - present
	<ul style="list-style-type: none">• Develop path planner for 4WD vehicles(E4 Platform), which have ROTATION gear• Develop framework of parking task, include preplan/env/decider/predict/etc.• Optimize prediction and nudging strategy for dynamic obstacles• Design a multi-thread planning framework to fix functional safety risks• Make developing and testing tools with python/ros/ros2/gtest/QT/etc.	
	Autonomous Valet Parking Research <i>BYD Ltd. Autonomous Driving Unit</i>	2024.04 - present
	<ul style="list-style-type: none">• Design reference path optimizer algorithms with kinematic and collision constraints	
	APA(Autonomous Parking Assistant) Project for BYD Seal and Denza N7 <i>BYD Ltd. Autonomous Driving Unit</i>	2023.07 - 2023.11
	<ul style="list-style-type: none">• Design path planner and decider for parallel/vertical/oblique slot• Adapt parking system to different module	
	Momenta HNP(Highway Navigation Pilot) Product <i>Momenta Tech Ltd.</i>	2022.11 - 2023.03
	<ul style="list-style-type: none">• Implement CiLQR path optimizer• Optimize crossroad and ramp processing	

PROJECTS ON CAMPUS	Motion Planning with Milliken Dynamic Model	2021.06 - 2023.06
	<i>Master's Thesis Research in Harbin Institute of Technology</i>	
	<ul style="list-style-type: none"> Describe vehicle dynamic constraints using MMM(Milliken Moment Method) and DPS(Depth-first Search) Design on-road and openspace planning method with dynamic constrains Implemented the above research with C++ on SOP(NVIDIA ORIN) 	
	Curling Robot for Winter Olympics Exhibition	2021.09 - 2021.12
	<i>Harbin Institute of Technology</i>	
	<ul style="list-style-type: none"> Design game strategies based on curling rules and control curling robot with ROS 	
	Maritime Robot Research in AitLab	2019.12 - 2020.7
	<i>Dalian Maritime University</i>	
	<ul style="list-style-type: none"> Design a 6 DOF shipborne stability platform and implement STM32 MCU control Design a ship-climbing rescue robot and implement C51 MCU control 	
	NXP Cup Intelligent Car Race 2019	2018.09 - 2019.12
	<i>Dalian Maritime University</i>	
	<ul style="list-style-type: none"> Processing images and electromagnetic sensor information to achieve tracking, obstacle avoidance, crossing, and roundabout processing, with a speed of up to 3m/s Optimize entry and exit conditions of elements and control strategies to significantly improve code reliability 	
AWARDS AND HONORS	• Best Student Talent , BYD Ltd. Autonomous Driving Unit	2023.12
	• The 1st Prize Scholarship , Harbin Institute of technology	2022.05
	• Outstanding Talent , Harbin Institute of technology	2022.05
	• The 2nd National Prize , NXP Cup Intelligent Car Race 2019	2020.03
	• The 2nd National Prize , CUMCM(Mathematical Modeling Contest)	2019.10
	• The 3rd National Prize , CMC(Chinese Mathematical Competition)	2019.10
	• The 1st Prize Scholarship , Dalian Maritime University	2019.04
	• The Innovation Scholarship , Dalian Maritime University	2019.04
SKILLS	Languages: Chinese, English(CET6 506).	
	Programming: C++, Python, MATLAB, Shell, Markdown, Latex, RegExp.	
	Tool: Git, Docker, ROS/ROS2, Linux, CMake, Protobuff, DDS, Bazel, GTest	
	Planning: Ceres, Eigen, OSQP, IPOPT, Hybrid A*, RRT, Lattice, iLQR, ego-planner/swarm, Apollo, Voronoi, MPC, PID, Spline. More details in: my tech blog: motion-planning	
	Control: LQR, PID, MPC, DWA	