Jianye Xu

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Education

RWTH Aachen University — Aachen, Germany
MSc in Automation Engineering (graduated with distinction) — *Oct 2020 – Sep 2022*

- **GPA:** 1.2/1.0 (corresponds to 3.8/4.0)
- **Specialization:** Control engineering, robotics, machine learning
- **Master's thesis:** Parallel Priority-Based Trajectory Planning with Safety Guarantees for Networked Vehicles (wrote in English, **Grade: 1.0/1.0**)

Beijing Institute of Technology — Beijing, China
BSc in Vehicle Engineering (graduated with distinction) — *Aug 2016 – Aug 2020*

- **GPA:** 92/100 (corresponds to 3.7/4.0, top 5%)
- **Exchange experience:** The final year at RWTH Aachen University (wrote bachelor's thesis here)
- **Bachelor's thesis:** Implementation and Comparison of Different Strategies for Maximum Torque Per Ampere Control of Permanent-Magnet Synchronous Machines with Saturation Effects (wrote in German, **Grade: 1.7/1.0**)

Projects & Experience

Cyber-Physical Mobility Group, RWTH Aachen University — Aachen, Germany
Master Thesis Project (contributes to project GROKO-Plan) — *Apr 2022 – Sep 2022*

- **Aim:** Enable parallel trajectory planning for networked control systems (demo video , GitHub)
- **Involved methods:** Model Predictive Control (MPC), graph-based trajectory planning, motion primitives, reachability analysis, graph partitioning algorithm, ROS communication

Cyber-Physical Mobility Group, RWTH Aachen University — Aachen, Germany
Lab Task – Control and Perception in Networked and Autonomous Vehicles — *Oct 2021 – Feb 2022*

- **Tasks:** Design controllers for the optimization formulation of a platoon of mobile robots

Institute of Automatic Control, RWTH Aachen University — Aachen, Germany
Project Task – Machine Learning in Control Engineering — *Nov 2021 – Feb 2022*

- **Tasks:** Given raw sensor data, train data-driven machine learning models (support vector machine, gaussian process, neural network) for MPC-based control of a rolling machine and design virtual sensors (Kalman filter, extended Kalman filter) to close the control loop

Institute of Automatic Control, RWTH Aachen University — Aachen, Germany
Seminar on Control Engineering — *Nov 2021 – Feb 2022*

- **Aim:** As a supplement deepening of control engineering in the degree program to other advanced courses; provides students with a broad spectrum of methods for controller design; cultivates their ability to acquire new control methods from technical literature independently
- **Topics:** Parameter space design; control of distributed parameter systems; machine learning control; fuzzy control; feedforward control; self-tuning control; control allocation; multi-agent systems

Institute of Automatic Control, RWTH Aachen University — Aachen, Germany
Lab of Automatic Control — *Apr 2021 – Aug 2021*

- **Aim:** Deepen knowledge from control theory through independently designing controllers and implement them on real-life applications

- **Tasks:** Control of quarter vehicle and inverse pendulum; identification and control of three-tank system

School of Mechanical Engineering, Beijing Institute of Technology Beijing, China
Training Program: Innovation Entrepreneurial Practice Project *Dec 2018 – Jan 2020*

- **Aim:** Increase students' comprehensive quality such as awareness of innovation, practical ability and scientific literacy through supervisors' detailed guidance on their career planning, academic development, ideological and psychological development.
- **Outcome:** Successfully applied for a patent, see below (graded top 3%)

School of Mechanical Engineering, Beijing Institute of Technology Beijing, China
Undergraduate Teaching Assistant *Sep 2017 – Oct 2017*

- **Task:** Give digital design training lectures on a CAD software to freshmen

Awards & Honors

2021 | **German National Scholarship** | Awarded by RWTH Aachen University

2021 | **Patent: Quick Locking and Unlocking Device for Vehicle-Mounted Power Battery Box (see Google Patents ↗)** | Authorized by China National Intellectual Property Administration

2020 | **German National Scholarship** | Awarded by RWTH Aachen University

2020 | **Outstanding Undergraduate** | Honored by Beijing Institute of Technology

2018 | **China National Scholarship** | Awarded by Ministry of Education of the People's Republic of China

2018 | **Second Prize in National Student Mechanical Product Digital Design Competition** | Awarded by China Mechanical Discipline Steering Committee

2017 | **Outstanding Student** | Honored by Beijing Institute of Technology

2017 | **First Prize in Beijing Student Engineering Design Expression Competition** | Awarded by Beijing Institute of Technology

2017 | **First Prize in Engineering Design Expressions Competition** | Awarded by Beijing Municipal Commission of Education

2017 | **First Prize in National Student Drafting and Modelling Innovation Competition** | Awarded by China Cartographic Association

Skills

Programming: MATLAB/Python (advanced), C/C++/JavaScript/HTML/CSS (intermediate)

CAD: SolidWorks, Inventor, Siemens NX

Soft skills: Teamwork, Problem-solving, Self-motivation

Languages: Chinese (native), English (proficient), German (proficient)

Others: Simulink, LaTeX, Git, ROS, Docker, Linux, Inkscape, video editing

Licenses & Certifications

2022 | **Object-Oriented Data Structures in C++ (certificate ↗)** | authorized by University of Illinois at Urbana-Champaign | offered through Coursera |

2021 | **Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning (certificate ↗)** | authorized by DeepLearning.AI | offered through Coursera

2021 | **Neural Networks and Deep Learning (certificate ↗)** | authorized by DeepLearning.AI | offered through Coursera