

# Chuanfang Ning

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🌐 [chuanfang-ning.github.io](https://chuanfang-ning.github.io)

## Education

### École Polytechnique Fédérale de Lausanne (EPFL), Switzerland

Sep.2020 - present

M.Sc. in Robotics

Cumulative GPA: [5.66/6](#)

### Tongji University, China

Sep.2016 - Jul.2020

B.Eng. in Mechatronics

Cumulative GPA: 4.78/5; Rank: 1<sup>st</sup>/55

National Scholarship (top 1.25% of 4075 undergraduates; Twice 16/17 & 17/18)

### University of Applied Science Aachen, Germany

Sep.2019 - Jul.2020

B.Eng. in Mechatronics (Double Degree Program)

Cumulative GPA: 1.36/1

DAAD Scholarship awarded by German Academic Exchange Service (19/20)

## Featured Projects

### Deep learning method for mobile furniture skeleton localization

Research Assistant

[BioRob](#) and [VITA lab](#) at EPFL, Lausanne, Switzerland

Feb. 2022 – present

Supervisor: [Prof. Ijspeert](#), [Prof. Alahi](#), [Dr. Bolotnikova](#) and [Dr. Crespi](#)

- Extend the [Omnibot](#) baseline design to prepare parallel control for a swarm robotics framework.
- Evaluate the performance of [OpenPifPaf](#) furniture skeleton localization model on mobile furniture with Optitrack system.
- Facilitate the localization model with real and synthetic data collected from Omnibots.
- Improve the OpenPifPaf network structure based on the test performance.

### Omnibot: Mobile furniture baseline development

Semester Project (6.0/6.0)

[BioRob](#) and [RRL](#) at EPFL, Lausanne, Switzerland

Sep. 2021 – Jan. 2022

Supervisor: [Prof. Auke Ijspeert](#), [Dr. Anastasia Bolotnikova](#) and [Dr. Alessandro Crespi](#)

- Designed and prototyped interchangeable mechanical connection from a mobile robot to furniture.
- Implemented multi-model teleoperation for sensors/actuators of the mobile robot with C in Arduino.
- Improved and validated the electronic circuit design for mobile furniture with a custom PCB board.
- Coded baseline for furniture localization, navigation, and interactive control (UI, voice, gesture).
- Developed an Android application for interactive furniture control with Android Studio in Java.

### U\_Cite: American politician network analysis based on QuoteBank

Course Project (5.8/6.0)

CS-401 Applied Data Analysis, Advisor: [Prof. Robert West](#) @ [DLAB](#)

Sep. 2021 – Dec. 2021

- Analyzed the [Quotebank](#) quotations to reveal the bi-polar political landscape of America.
- Cleaned and preprocessed data from QuoteBank, Wikidata and Partisan Audience Bias Scores.
- Implemented NLP pipeline on political mentions to detect topics, sentiments, and media biases.
- Analyzed politicians' social network with community analysis and edge/node feature detection.
- Visualized analysis result in our [data story](#) with front-end design for interactive graphs.

### Optobot: An automated system for optogenetic experimentation

Semester Project (6.0/6.0)

[Ramdya Lab](#) (Neuroengineering Laboratory) at EPFL, Lausanne, Switzerland

Sep. 2020 – Jan. 2021

Supervisor: [Prof. Pavan Ramdya](#), [Dr. Victor Lobato](#) and [Dr. Daniel Morales](#)

- Addressed the failure modes and weaknesses in an automated experimental system ([Optobot](#)) for high-throughput biomedical experiments.
- Designed, prototyped, and validated mechanical structures for the [improved Optobot system](#).
- Adapted control logic and user interface to the brand-new mechanical design with Python and C++.

## **AutoSynPose: Automatic 6D-pose detection dataset generation pipeline**

*Institution for Applied Automation and Mechatronics ([IaAM](#)), Aachen, Germany*

Bachelor Project  
Jan. 2020 – Jun. 2020

Supervisor: [Prof. Stephan Kallweit](#) and [Heiko Engemann](#)

- Developed an automatic synthetic dataset generating pipeline with Unreal Engine 4 ([paper](#)). Generated a [dataset](#) with 6 Mio. subsegments for 5 YCB objects using 97 rendering locations in 12 different environments with domain randomization in lighting, color, texture, etc.
- Developed an automatic real-world dataset capturing pipeline with ROS on a UR5 robotic arm holding a camera mounted on a mobile platform. Generated a dataset with 3k subsegments.

## **Fischer Intelligent Factory 4.0**

*[Research Institution for Intelligent Autonomous Systems](#), Shanghai, China*

Research Assistant  
Dec.2018 - Mar. 2019

Supervisor: [Prof. Nan Xie](#)

- Implemented distributed control for Fischer multi-processing stations on SIEMENS PLC S-1500.
- Programed intelligent ware management, processing, and sorting pipeline with TIA Portal.
- Developed a human-model interface for the process control with SIEMENS Comfort Panel.
- Fused interactive control of industrial process with Virtual Reality gears.

## **Skills**

### **Language:**

Mandarin: native

English: TOEFL iBT 108/120 (C1)

German: Test-DaF: 18/20 (C1)

### **Computer:**

**Programming:** Python, Matlab, C/C++, Java, VHDL, Assembly and PLC programming

**Designing and Mechanics:** Inventor, CAD, CATIA, Adams and Solidworks

**Control and Electronics:** Multisim, Simulink and Altium Designer

**Graphics and Vision:** WebGL, OpenGL, Blender, UE4 and OpenCV