Chuanfang Ning

☎ +41-783375207 ✉ chuanfang.ning@epfl.ch 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 Machatronics
Cumulative GPA: 4.78/5; Rank: 1st/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 Machatronics (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 Bachelor Project
Institution for Applied Automation and Mechatronics (IaAM), Aachen, Germany *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 Assistant
Research Institution for Intelligent Autonomous Systems, Shanghai, China *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