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: 5.65/6

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
- Improved the Optobot system mechanical design for high-throughput biomedical experiments.
- Programmed motion control, experiment automation, and user interface with Python and C++.
- Analyzed recorded Drosophila activities by the improved system with OpenCV and deep learning framework in LiftPose3D.

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)
Programming: Python, C/C++, Matlab, Java, VHDL, Assembly and PLC programming
Designing and Mechanics: Inventor, CAD, CATIA, Adams and Solidworks
Electronics and Simulation: Multisim, Altium Designer, Simulink and Webots.
Graphics and Vision: OpenCV, WebGL, OpenGL, Blender and UE4