Chuanfang Ning

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Education

École Polytechnique Fédérale de Lausanne (EPFL), Switzerland *Sep.2020 - present*
M.Sc. in Robotics (Orientation Medical Robots)

Tongji University, China *Sep.2016 - Jul.2020*
B.Eng. in Machatronics
Cumulative GPA: 4.78/5 (equivalent to 92.81/100) Rank: 1st/55
National Scholarship (1.25% among 4075 undergraduate students in Tongji; 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)

Projects

Deep learning method for mobile furniture skeleton localization Research Assistant
BioRob and VITA lab at EPFL, Lausanne, Switzerland *Feb. 2022– present*

Under supervision of Prof. Ijspeert, Prof. Alahi, Dr. Bolotnikova and Dr. Crespi

- Extend the Omnibot design to multiple copies which prepares for a swarm robotics framework.
- Evaluate the furniture skeleton localization model on Omnibot with the help of key-point localization with Optitrack system.
- Facilitate the skeleton-detection localization model with real and synthetic data for Omnibot.
- Improve the 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*

Under supervision of Prof. Ijspeert, Dr. Bolotnikova and Dr. Crespi

- Mechanical adaptation from an omni-drive platform to a mobile robot driving furniture around.
- Extension and multi-model teleoperation of sensors/actuators for mobile furniture.
- Simplified the on-board system with a custom PCB board for Arduino Mega.
- Designed baseline for localization, navigation, and interactive control (program, voice, gesture).
- Developed an Android application for interactive mobile furniture control.

U_Cite: America politician network analysis based on QuoteBank Course Project
CS-401 Applied Data Analysis, Advisor: Prof. Robert West, DLAB *Sep. 2021 – Dec. 2021*

- Analyzed the Quotebank mentions to reveal the bi-polar political landscape of America.
- Data cleaning and preprocessing pipeline from QuoteBank, Wikidata and bias score dataset.
- NLP pipeline for political mention analysis including topic, sentiment and bias.
- Network analysis pipeline including political community analysis and edge/node feature detection.
- Data visualization pipeline and front-end for composing a data story.

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*

Under supervision of 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, modeled, and fabricated mechanical structures for the improved Optobot system.
- Adapted control programs and user interface for the brand-new design with Python/C++.

AutoSynPose: Automatic 6D-pose detection dataset generation pipeline Bachelor Project
Institution for Applied Automation and Mechatronics (IaAM), Aachen, Germany *Jan. 2020 – Jun. 2020*
Under supervision of Prof. Stephan Kallweit and Heiko Engemann

- Developed an automatic synthetic dataset generating pipeline with Unreal Engine 4 and Domain Randomization plugins. (paper)
- Developed an automatic real-world dataset capturing pipeline with ROS on a UR5 robot on a mobile platform.
- Generated a synthetic dataset of 6 Mio. and real dataset of 3k on with two pipelines on YCB objects.

Fischer Intelligent Factory 4.0 Research Assistant
Research Institution for Intelligent Autonomous Systems, Shanghai, China *Dec.2018 - Mar. 2019*
Under supervision of Prof. Nan Xie

- Implemented distributed control for 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.
- Interactive control of industrial process with Virtual Reality.

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 Modelling: Inventor, CAD, CATIA and Solidworks
Control and Electronics: Multisim, Simulink, Adams and Altium Designer
Graphics and Vision: WebGL, OpenGL, Blender, OpenCV