Chengnan (Jimmy) Shentu

Toronto, Canada

📞 +1 (647) 527 0531 ● ✉ c.shentu@mail.utoronto.ca

🖥 https://cshentu.github.io/ ● 🔗 chengnan-jimmy-shentu

EDUCATION

University of Toronto   **Toronto, Canada**

B.A.Sc in Engineering Science   *Sep 2017 - Apr 2022*

Robotics Engineering Major, Artificial Intelligence Minor

RESEARCH EXPERIENCE

Department of Computer Science, University of Toronto | Undergraduate Thesis Student

Supervised by Prof. Jessica Burgner-Kahrs, Continuum Robotics Lab [`website`]   *July 2021 - Present*

○ Design and support the development of a moduler proprioceptive actuation unit for easier continuum robot prototyping
○ Investigate and implement an impedance controller for a planar continuum robot using the actuation units, to achieve dynamic interactions with the environment while ensuring safety

Department of Computer Science and Technology, Tsinghua University | Research Volunteer (Remote)

Supervised by Prof. Xin Yi, Pervasive Human-Computer Interaction Group   *May 2021 - Sep 2021*

○ Investigated the risk of side channel attack on head mounted consumer devices, such as VR headsets and smart-glasses, through inertial measurement unit (IMU) by recovering speech or motion information
○ Developed custom driver for collecting IMU readings from discrete sensors and VR headsets such as Oculus Quest 2
○ Built a training pipeline for speech recognition and speech reconstruction from collected IMU data, and evaluated performance of popular classification and natural language processing models

University of Toronto Institute of Aerospace Studies | Summer Research Student

Supervised by Prof. Peter Grant, Vehicle Simulation Group   *May 2019 - Aug 2019*

○ Evaluated existing aircraft stall models and parameter estimation methods through literature reviews
○ Implemented mixed parameter estimation to construct a full stall aircraft model from test flight data
○ Tested and compared model performance using flight and stall simulation in Matlab Simulink

INDUSTRY EXPERIENCE

HiLink Integrated Circuit Lab, Huawei Canada | Application and Test Engineer Intern

High-speed SerDes development, Application and Test Team   *May 2020 - Apr 2021*

○ Tested serializer/deserializer (SerDes) components in high-speed integrated circuits and statistically analyzed test data
○ Developed and maintained the testing environment software for fully automated tests and data logging
○ Collaborated with hardware, firmware and software teams to drive test plans and debugging strategies

PUBLICATIONS

○ **C. Shentu**, R. Grassmann, J. Burgner-Kahrs, "Proprioceptive Impedance Control of a Planar Tendon-Driven Continuum Robot," *Manuscript in preparation*, 2022
○ R. Grassmann, **C. Shentu**, T. Hamoda, J. Burgner-Kahrs, "One Actuation Unit to Create Them All – Toward Torque-Controlled Continuum Robots," *Manuscript in preparation*, 2022

HONOURS AND AWARDS

First Place in the AutoDrive Challenge | Control Team Member *2021*
- AutoDrive is a self-driving car competition initiated by General Motors and SAE International, and eight university teams from across North America participated. [competition website] [team website]
- Development of velocity scheduler and model predictive controller with dynamic vehicle model using C++ in ROS
- Tested planning and control subsystems for safety and performance in simulation(rviz) and closed track

ESROP-UofT Fellowship *2019*
- Awarded by Engineering Science Research Opportunities Program to pursue a paid summer research internship at the University of Toronto

Deans Honour List *2017 - 2021*