Yu Qin

PhD Application

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Education

KTH Royal Institute of Technology — *Stockholm, Sweden*

Master of Science — *2021/09 - ongoing*

- **Major: Information and Network Engineering**
- **Averaged Grade: A-**

Beijing University of Post and Telecommunication(BUPT) — *Beijing, China*

Bachelor of Engineering — *2016/09 - 2020/06*

- **Major: Information Engineering, GPA: 86.61/100 Rank: 29/183**
- **Winner of The Outstanding Graduate Title**

Peking University — *Beijing, China*

Bachelor of Economics (Double Major) — *2017/09 - 2020/06*

- **Major: Economics**

Related Project

Master Thesis — *EPFL&CHUV, Lausanne*

Supervisor: Dr. Grégory Dumont, Prof. Grégoire Courtine, .NeuroRestore, EPFL — *2023/02 - ongoing*

- **Title: The data-driven CyberSpine: Modeling the Response of Epidural Electrical Stimulation using Finite Element Model and Artificial Neural Networks**
- Modeling the effect of current-based EES for Spinal Cord Injury to re-establish locomotion of spinal cord injured people. Skills involved: Optimization, EMG Signal Processing, Computational Neuroscience, Sim4life, FEM analysis, Machine Learning.

Bachelor Thesis — *BUPT&Tsinghua University, China*

Supervisor: Dr. Chen Yang, Neural Engineering Lab, Tsinghua University — *2019/10 - 2020/05*

- **Title: Design of a robotic arm control system based on Steady-State Visual Evoked Potentials(SSVEP) Brain-Computer Interface**
- Based on the SSVEP brain-machine interface and ROS system, this paper designs a complete set of the robotic arm control system and verifies the effectiveness of it. Skills involved: EEG Signal Processing, ROS, Matlab and Python.

Work Experience

Tsinghua University, Neural Engineering Laboratory — *Beijing, China*

Research Assistant — *2020/07 - 2021/07*

- Rapid Serial Visual Presentation (RSVP) Stimulation System. Writing the demand document; Designing the software architecture and Designing the communication system based on TCP/IP. Skills used: Python, C#, PsychoPy.
- Diagnosis system for Autism with Eye-tracking Equipment. Designing software architecture and machine learning algorithm of diagnosis. Skills used: python, eye tracking software
- Non-invasive EEG Data Acquisition on Amblyopia children. Cooperated with doctor at Beijing Children's Hospital.
- Developing EEG signal compression algorithm (AR+Bayesian Network+Arithmetic Code) and optimizing the speed. Skills used: C++, object oriented style, GIT

Publication

Simple, high performance clasification model for autism base on machine learning and pupillary response — *Tsinghua University*

DOI: 10.16511/j.cnki.qhdxxb.2021.26.030 (It is written in Chinese)

Related Key Courses

- **Neuroscience (A)**: Neuroanatomy, Synaptic Plasticity, Motor Control , Hodgkin-Huxley equations, etc.
- **Adaptive Signal Processing (A)**: Stochastic gradient, LMS (least mean squares), RLS (recursive least squares), State space models and optimal (Kalman) filtering, etc.
- **Pattern Recognition and Machine Learning (B)**: AI, Logistic Regression, HMM, Bayesian Learning, Deep Learning
- **Optimal Control Theory (A)**: Model Predictive Control, Numerical Optimization, etc.

Skill

- Software: Matlab, C++, ROS, python, C#(simple), Software Architecture Design, Stata(simple), signal processing algorithms
- Hardware: VHDL for digital circuit design, Designed a Switch Mode Power Supply on a project course
- Experiment: Non-invasive EEG wet electrodes experiment, eye-tracking experiment