# Justin (Hongyu) Wang

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## EDUCATION

**University of Electronic Science and Technology of China** *Sept. 2020-Jun. 2024*
*Joint Educational Programme with* **University of Glasgow**
*B.E. in* ***Electronic Information Engineering*** */ GPA：* ***3.44/4***
***Honors：*** *Scholarship for Excellent Student Cadre (4% of all students)*
***Selected Courses:*** *Embedded Processors (4.0), Electronic Devices (4.0), Artificial Intelligence and Machine Learning (4.0), Dynamics and Control (4.0), Signals and Systems (4.0)*

**Programming Languages:** C*, MATLAB, Python, Verilog, Java, Kotlin*
***IDE & Tools：*** *Visual Studio (code), Jupyter notebook, Android Studio, OpenMV, Vivado, Modelsim*

## INTERNSHIP

**School of Aerospace, Tsinghua University** *Jul. 2023-Aug. 2023*
*Research Intern, Neural Regulation National Engineering Research Center* *Beijing, CN*
- Engaged in cutting-edge research on artificial spinal cords, with a primary focus on monitoring muscle fatigue states
- Conducted review of pertinent literature and replicated the experiments mentioned therein to gather empirical data
- Utilized MATLAB for advanced data processing and analysis of the experimental results
- Assessed the indicators proposed in the literature to determine their accuracy in monitoring muscle fatigue conditions

## PROJECT & RESEARCH

**Autonomous Rover Project**
*Glasgow College Research Program / Leader* *Jan. 2023 - May. 2023*
- Led the technical development of an autonomous rover equipped with autonomous tracking, shape recognition, wireless transmission, load release and ultrasonic distance detection capabilities
- Conducted in-depth research and successfully integrated the OpenMV module, achieving high-precision path detection and recognition

**Smart Water Dispenser System** *Sept. 2022 - Oct. 2022*
*Glasgow College Research Program / Leader*
- Spearheaded the development of a mobile smart water dispenser with autonomous path planning for libraries and banks
- Integrated a high-resolution camera for user and cup recognition, employing OpenCV for image processing and machine learning models for object detection
- Enabled real-time low water level alerts via WiFi using MQTT protocol for efficient and timely notifications

**Machine Learning & AI Optimization** *Mar. 2022 - Jul. 2022*
*Glasgow College Research Program / Leader*
- Optimized the temperature curves by Genetic Algorithms (GA), fine-tuning parameters for optimal convergence
- Implemented a 6D vector input tied to resistor indices and leveraged the Mutshrink parameter in GA for enhanced stability

**Face-Mask Detection** *Jan. 2022 - Feb. 2022*
Nanyang Technological University *Business AI Lab / Key Member*
- Spearheaded the development of a mask detection method using a Simple Convolutional Neural Network (CNN), expertly managing and utilizing three distinct datasets for model training and validation
- Implemented a two-stage detection method using Faster Region-based Convolutional Neural Network (Faster R-CNN) and integrated Region Proposal Network (RPN) for target region determination
- Achieved outstanding mask detection accuracy using optimized models: 99.71% with a streamlined CNN model of only 56,066 parameters and up to 100% with YOLOv3
- **Publication**: *Z. Zhang, M. Ma, H. Zhang, L. Lv, H. Wang and T. T. Toe, "Good Generalization on Face- Mask Detection Based on Simple Convolutional Neural Network," 2022 IEEE 10th Joint International Information Technology and Artificial Intelligence Conference (ITAIC), Chongqing, China, 2022, pp. 1004-1009*

## VOLUNTEER EXPERIENCE

**Volunteer Educator in Nanba Primary School, Mianyang Sichuan** *Jul. 2021 - Aug. 2021*
- Designed lessons on Chinese culture and literature, and led extracurricular activities
- Provided psychological counseling and researched challenges faced by left-behind children