Jing WU

Linkedin: https://www.linkedin.com/in/jing-wu-068b7b1b4/
South Kensington Campus,
Imperial College London, London SW7 2AZ, UK

Email : jing.wu21@imperial.ac.uk
Tel: +44 07536219046
Github page: https://maximume-wu.github.io/

EDUCATION

Imperial College London — **10/2021-10/2022**
MSc. in Applied Machine Learning — London, UK

- **GPA: 73 (A), Ranking: 5th**
- **Relevant Coursework:** Machine Learning, Deep Learning, Probability and Stochastic Processes, Artificial Intelligence, Digital Image Processing, Wavelet, Computer Vision, Pattern Recognition.
- **Laboratory in Applied Machine Learning:** Bi-Manual Controlled Differential Drive Robot.
- **Individual Project:** Image Segmentation for Lung Cancer: CNN Structure Comparison and Design.

University of Electronic Science and Technology of China — **09/2017-06/2021**
BEng. in Electronic Information Engineering — Chengdu, China

- **GPA: 89.85/100, 3.97/4.0, Ranking: Top 6% (Honorable Class)**
- **Excellent Final Year Project of School of Information and Communication Engineering:** Rapidly learned a new research field and how to use technical commercial software packages, wrote Python code in anaconda environment, wrote thesis, earned a mark of 91%.
- **Honors:**
  - The Outstanding Graduate Award of Sichuan Province.
  - Excellent Student Scholarship of UESTC (Thrice) [12/2020; 12/2019; 12/2018]
  - Team Best Award at Innovation and Entrepreneurship Competition held by iSpace Innovations Asia Pacific Pte.Ltd. (IIAP) [07/2019]

PUBLICATIONS

[1] **Jing Wu**, Qiao Mo, Xiaowen Chen and Jihong Yan, "24-point Game Based on BP Neural Network: A Smart Game Designed for Children," 2020 IEEE 3rd International Conference on Information Communication and Signal Processing (ICICSP), 2020, pp. 312-315.

[2] Xingyuan Ye, Chang Shu, and **Jing Wu**. 2021. P-Grabcut for Accurate Pedestrian Segmentation. In 2021 5th International Conference on Advances in Image Processing (ICAIP) (ICAIP 2021). Association for Computing Machinery, New York, NY, USA, 41–47.

RESEARCH / PROJECT EXPERIENCE

Language-based Tracking — **09/2022-Current**
Visiting Researcher | Supervisor: Dr. Liu Jun, Professor of ISTD, SUTD — Singapore

- Python-based (PyTorch, PyQt5, Jupyter)
- **Goal:** To propose a new dataset for the language-based tracker featuring dynamic samples. A toolkit is provided for the construction of the dataset.
- **My work [Currently Ongoing]:**
  - Developing the toolkit.

Image Segmentation for Lung Cancer: CNN Structure Comparison and Design — **03/2022-09/2022**
Researcher | Supervisor: Dr. Dai Wei, Professor of EEE, ICL — London, UK

- Python-based (TensorFlow, Keras, Jupyter).
- **Goal:** To perform tumor detection and segmentation on medical images (CT), improve model performance, and enhance human interpretability.
- **My work:**
  - Conducted repos and comparisons of classical CNN structures (2D U-Net, Attention U-Net, MultiRes U-Net) in a lung nodule segmentation scenario.
  - Explored the vision transformer in the medical imaging case.
  - Proposed a novel network with an encoder-decoder structure, with the vision transformer as the encoder and the attention gate + CNN as the decoder.

- ○ Experimented with various skip connections.

Bi-Manual Controlled Differential Drive Robot   **10/2021-03/2022**

Research Assistant | Supervisor: Dr. Adam Spiers, Dr. Krystian Mikolajczyk, Professor of EEE, ICL   London. UK

- Python-based (Arduino, IMU sensor, Sci-kit Learn, Jupyter, Sequential data processing and training, Pygame, LSTM)
- Built a piece of hardware with two IMUs to collect sequential gesture data and software, including a neural network and interface. The software includes two models: a baseline model using a button to control input and output (no interference, SVM) experiments in the first stage, and a real-time detection model without a button (with interference, LSTM).
- **My work:** Arduino and IMUs, interface (Pygame), data acquisition, baseline network (SVM) testing, 3D model design and printing.
- **Result Video** https://www.youtube.com/watch?v=i4Up8qyWKu4

Final Year Project: Probability Map Based Pedestrian Skin Detection   **10/2020-06/2021**

Research Student | Dr. Chang Shu, Professor of ICE, UESTC   Chengdu, China

- Python-based (OpenCV, TensorFlow, NumPy, Jupyter, Matplotlib)
- Introduced a new algorithm to perform pedestrian skin detection based on a probability map.
- Used skeletal information detected by PAFs network and groundtruth to train images, standardize the skeleton, and compute the mean skeleton of the train images to obtain a probability skeleton. Then for every test image, inverse mapped the normalized probability skeleton and extended it. Multiplied with the skin result detected by the colour detection and filter with a threshold to get the result.

P-Grabcut for Accurate Pedestrian Segmentation   **10/2020-06/2021**

Research Assistant | Supervisor: Dr. Chang Shu, Professor of ICE, UESTC   Chengdu, China

- Python-based (OpenCV, NumPy, Matplotlib)
- Introduced a novel algorithm to perform pedestrian segmentation based on the cascade of PAFs and Grabcut; used the resulting skeleton to construct masks for Grabcut in order to improve segmentation.
- **My work:** Completed the cascade coding of PAFs and Grabcut to cut the foreground of the images out.
- Admitted by ICAIP 2021

Electronic Lab 24-point Game based on BP Neural Network   **03/2020-06/2020**

Research Assistant | Supervisor: Dr Jihong Yan, Professor of ICE, UESTC   Chengdu. China

- MATLAB based.
- **Result:** Developed a platform that takes four poker cards as input, recognizes the number and computes the result of the 24-point game.
- **My work:** Image preprocessing (correcting image angles, removing the number using the morphology method), wrote the graphic user interface in MATLAB.
- Published on IEEE ICICSP.

ACTIVITY

National University of Singapore Summer Exchange Program   **Singapore, 07/2019**

- Took scientific innovation courses.
- Participated in iSpace Innovations Asia Pacific Pitching Competition
- Won the Team Best Award.

UESTC-MIT SUMMER Program   **Boston, US. 07/2018-08/2018**

- Attended general lectures covering various fields.
- Took courses in education, scientific technology, and EE; attended various lectures, including "Global Issues."

Sports Awards:

- 1st Place, Women's Doubles at "Chengdian Cup" Badminton Individual Race of UESTC. [05/2018]
- 4th Place, "Chengdian Cup" Badminton Team Race of UESTC. [05/2018]
- 2nd Place, mixed doubles at "Freshmen Cup" Badminton Individual Race of UESTC [10/2017]
- 3rd Place, Female Triathlon at 50th Track and Field Sports Meeting of UESTC [09/2017]
- 8th Place, Women's 100m Race of the Sports Meeting of UESTC [09/2017]

LANGUAGE AND TECHNICAL SKILLS

- Language: Mandarin (Native), English (Fluent)
- IELTS: 7.0, GRE: 151 + 170 (3.5)
- Competent in MATLAB, LaTeX, Git
- Python: Proficiency in TensorFlow, Keras, OpenCV, Numpy, Jupyter, Matplotlib