

KEXIN HUANG

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EDUCATION

Imperial College London

Msc Biomedical Engineering (Neuro-technology stream)

10/2021-10/2022

GPA: First class (Expected)

Related Courses: Reinforcement Learning, Statistics and Data Analysis, Brain Machine Interface, Neuroscience

The University of Edinburgh

Bsc Artificial Intelligence and Computer Science

09/2016-06/2020

Second Class division one (Hons)

Related Courses: Introduction to Vision and Robotics, Text Technology and Data Science, Software Architecture, Process and Management

WORK EXPERIENCE

Research Assistant, The Hong Kong Polytechnic University

Oct. 2022 - now

- Assist the team in applying deep learning tools for verbal text conversion of brain fMRI images.
- Participates in the design of experiments and analysis of results for EEG signal.

Software Engineering Intern, Gree Intelligent Equipment Co. Ltd

Jul. 2019- Aug. 2019

- **Software development:** Cooperate with the team to develop a coffee robot Android APP which user can order coffee through mobile app.
- **Robot control:** Implement the control code of the six-axis robotic arm, control the robot to complete actions like grabbing and delivery.

RESEARCH EXPERIENCE

Unpaired image-to-image translation task: skin tone transfer for eczema infected skin images

Msc Project at Imperial College London, Biological Control Systems Lab

12/2021-09/2022

This project aims to transfer an already available eczema image of white skin to an eczema skin image of a darker colour tone while preserving the other content representations in the image.

- we proposed a new Generative Adversarial Networks(GAN) structure by adding a neural network for semantic segmentation based on contrastive-unpaired-translation(CUT). The segmentation loss obtained by the added network was applied to help the generator(G) to learn the class information(e.g. skin or background) in the input images during the encoding, then keep the same pixel level class information in the generated images. Our approach showed superior results quantitatively and qualitatively against the state of the art methods(e.g. cycle GAN, CUT). The publication is in progress now.

Design a neural decoder to drive a hypothetical prosthetic device

Course competition at Imperial College London, Brain machine interface course

03/2022- 06/2022

Designing a neural decoder by analyzing spike sequences in monkey brains to drive a hypothetical prosthetic device and precise trajectory of the monkey's hand as it reaches for the target. Our team proposed a multi-regression neural decoder with auxiliary Naive Bayesian classifiers. Proposed estimation architecture outperforms other decoders in competition, achieving a RMSE as low as 7.95 mm.

Modelling and analyzing the trajectory of human lower limbs when moving uphill

Graduate Project at the University of Edinburgh

09/2019-06/2020

The project is to build the mathematical model of the human lower limb movement which aims to implement on the intelligent prosthesis. Based on the mathematical model of bipedal movement on the level ground proposed by the predecessors, we derived the mathematical model of the two feet walking in the uphill state.

- Experimental design and Data analysis: The Vicon system was used to capture the volunteers' movement dynamically. The experiment used 16 cameras to capture the movement trajectories of the human limbs when participants were doing uphill walking from multiple slope angles. After fine-tuning and reconstructing the experimental data through the Vicon system, Matlab was used to pre-process the reconstructed original data and compare with the model's the trajectory to validate the proposed model.

SKILLS

Programming Languages:
Languages:

Python, Matlab
English, Chinese

ACHIEVEMENTS

Otc. 2015 Canadian Senior Mathematics Contest (top 25%) Otc. 2014 Canadian Intermediate Mathematics Contest (top 25%)