ZHENG DONG

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SUMMARY

Computer science student (expected PhD 2024 Fall) with an interest in Human-Computer Interaction (HCI) research. Advanced coursework, internship, and research experiences in HCI, Robotics, Neuroscience, and Deep learning.

EDUCATION

University of Bristol, Bristol, UK   Sep 2020 — Jun 2024
Major: M.Eng. in computer science GPA: 3.3/4.0
Core courses: Data-driven Computer Science, Deep learning, Human-Computer Interaction, Computational Neuroscience, Oriented-objected programming language

PUBLICATIONS

- **Zheng Dong**, "Efficient Mask Detection in Public Spaces Using YOLOv5", The 7th International Conference on Intelligent Computing, Communication & Devices (ICCD 2024), Publised, 2024
- Dandan Zhang, Ziniu Wu, Jin Zheng, **Zheng Dong**, Jialin Lin, "HuBotVerse: Towards internet of Human and Intelligent Robotic Things with a Mixed Reality-Aided Cloud-Based Framework" IEEE Robotics and Automation Magazine, Accepted, 2024

ACADEMIC RESEARCH

Developing a Tangible Social Play Technology to support Neurodiverse children   Bristol, UK
Associate Prof. Oussama Metatla, University of Bristol   Feb 2024 – May 2024

- Designed an AR game to support autistic and non-autistic children using the ARKit and Corelocation
- Applied the Bodystorming and Co-Design methods to make the protocol
- Built an AR application using the SwiftUI with XCode on iPad
- Organized the open game session on Brunel's SS Great Britain Museum for the neurodiverse children

Health-care digital twins using generative AI and virtual reality   Bristol, UK
Prof. Dandan Zhang, University of Bristol   Jun 2023 – Aug 2023

- Constructed lifelike avatars with dynamic expressions using Blender, Maya, and cutting-edge animation techniques
- Created healthcare digital twins with ChatGPT; devised an innovative memory mechanism for responses
- Integrated avatars, animation, and advanced Language Models (LLMs) to archive the synergistic augmentation of healthcare digital twins for personalized and dynamic interactions
- Built a website to introduce the project via Google website and completed a research ethics application

EEG feedback: Behavioral improvements in the covert attention tasks   Bristol, UK
Prof. Petra Fischer, University of Bristol   Jul 2023 – Aug 2023

- Implemented data stream parsing using `pylsl` to connect and retrieve data from NIC-EEG
- Applied a butter lowpass filter to reduce high-frequency noise in the EEG data; computed power metrics for individual channels and the ratio of average power between left and right channels
- Designed and developed a GUI using `pyqtgraph` and Qt to display raw and processed EEG data in real-time
- Engineered a system to save the collected data in JSON format, allowing for further analysis and records keeping

Recognition of EEG motor imagery signals   Online
Dr. Xiaoke Chai, Beijing Tiantan hospital, Capital Medical University   Sep 2022 – Present

- Reproduced a CNN, and a LSTM classification to recognize the motor imagery signal based on brain-computer interface (BCI) competition IV dataset 2b
- Processed the BCI data; built a classifier tool for recognition of motor imagery signals in about 20K BCI data deployed via recurrent neural network (RNN) and convolutional neural networks (CNN) in Keras
- Achieved the precision and the recall of a high standard in recognition of EEG motor imagery signals

Face mask detection   Online
Prof. Hailun Lin, Chinese Academy of Sciences   Sep 2022 – Sep 2023

- Developed an automatic mask detection system using the YOLOv5 model
- Built a classifier for mask detection, using Convolutional Neural Networks (CNNs) via the TensorFlow framework, achieving great performance metrics (92.16% mAP, 93.88%precision)

WORK EXPERIENCES

University of Bristol, Computer science department   Bristol, UK
Teaching Assistance   Feb 2024 – Present

- Course: COMS20011 Data-driven Computer Science: taught lab sections of 171 students

University of Bristol, Computer science department   Bristol, UK
Teaching Assistance   Sep 2023 – Jan 2024

- Course: Computational neuroscience: taught sections of 50+ students
- Average rating of 3.3 out of 4.0 with 50% of respondents giving a perfect score

Intern in the climate service   Bristol, UK
Prof. Jacob Rigby, University of Bristol   Jun 2023 – Aug 2023

- Wrote an evaluation and suggestion report with HCI theory, and a persona report to investigate the needs of different kinds of users
- Synthesized a comprehensive literature review on HCI for climate service applications; informed methodological choices and theoretical frameworks from relevant studies
- Collaborated with a 20-person team; integrated expertise from varied fields using a holistic approach

AI Law   Bristol, UK
Assistant, Marketing operations department, online   Dec 2022 – Feb 2023

- Collected information online about the layers and laws to construct a database (name, experience, specialties, and so on)
- Labeled feedback from users; built the machine learning models for the company future decision-making

PROJECTS

Back to Nature Game   Bristol, UK
Prof. Tilo Burghardt, University of Bristol   Dec 2022 – May 2023

- Managed and coordinated a 6-person team
- Integrated interactive elements aligning with the game's ecological narrative using Maya, Blender, Unity, and Affinity designed pipelines to implement engaging gameplay models
- Developed and Enhanced realism and visual appeal through custom shaders and visual effects in 3D scenes

Smart Home Robotics iCloud Monitoring Website   Bristol, UK
Prof. Dandan Zhang, University of Bristol   Jul 2022 – Sep 2022

- Constructed a smart home robot and a smart dog robot archiving the smart living environment
- Crafted a user-friendly interface controlled by a mobile application, leveraging Arduino, Django, and Raspberry Pi technologies to effortlessly facilitate real-time monitoring
- Develop a web by the Django framework; acquired a new skill set and applied in an iCloud-based monitoring system

SOCIAL & EXTRACURRICULAR ACTIVITIES

UCESCO   Kenya, Africa
Volunteer   Sep 2022

- Assisted above 2000 locals; collaborated with a 40-person team on living conditions and sustainable development
- Communicated 10 local enterprises to solve the job search problem; arranged 100 interviews and trained courses

Study Abroad: Kyoto and Tokyo University   Japan
Student   Feb 2019

- Engaged a academic communication about collecting the satellites monitoring data for the weather service
- Visited to leading technology companies and cultural landmarks

Empowering Young Minds Through Voluntary Teaching   Lombok, Indonesia
Volunteer   January 2019

- Taught English language courses to 30+ students in impoverished areas
- 90% of students rated over 90/100 in course evaluations

SKILLS

- **Languages:** English (academic, communications) Chinese (native) Japanese (beginner) Spanish (beginner)
- **GRE:** 334 (Verbal: 164, Quantitative: 170, Analytical Writing: 4)
- **Programming:** Python, Java, R languages, Web development (HTML, CSS, JavaScript), MATLAB, Go, C++, C