# Husheng Deng

husheng.deng@outlook.com | linkedin.com/in/hsdeng

+44(0)7422938430 | Flat 11 Sandpiper Building, 44 Newnton Close, London, N4 2GX

## EDUCATION

### Imperial College London | UK
*Oct. 2016 – Jun. 2020*

*First Class Honours Master of Engineering, Electrical and Electronics Engineering*

### National Junior College | Singapore
*Jan. 2014 – Mar. 2016*

*Ministry of Education Scholarship, Singapore GCE A-Level Grade A (highest) in all subjects*

## TECHNICAL SKILLS

**Languages**: Python, JavaScript, C#, C, C++        **Frameworks**: React, Node.js, .Net Core

## EXPERIENCE

### GPU Engineer
*Aug. 2020 – Present*

*Arm Limited | Cambridge, UK*

- Designed the testing methodology and hardware testing framework for a crucial GPU debug hardware IP. Initiated communications among multiple departments to set up long term plans on its maintainance and future directions
- Created and maintained internal Python tools for efficient context-aware analysis of GPU debug logs
- Implemented features, designed tests and debugged for Arm GPU driver on Linux and Android
- Assisted in the debug of high-priority issues across FPGA, software and hardware domains

### Full-Stack Software Engineer
*(Part-Time) Jan. 2020 – Present*

*WeJam | London, UK*

- Worked at the early stage of the start-up that delivers technology enhancement to music jamming sessions
- Developed a full-stack JavaScript PWA application with React and express.js that supports integration with third-party audio software
- Designed testing framework based on Puppeteer and Jest
- Managed the JavaScript development process and the git collaboration among core technology teams

### GPU Design and Verification Intern
*Apr. 2019 – Sep. 2019*

*Arm Limited | Cambridge, UK*

- Independently researched on the impact of hardware description language semantics on the deviation of design simulation behaviour from hardware performance
- Designed a Verilog language parser and analysis tool in Python to detect problematic code blocks. Successfully identified bugs when integrated into internal verification framework
- Developed a JavaScript web search engine for collected verification statistics.
- Optimised custom data structure and algorithms for searching and filtering with responsive UI update
- Developed a Python tool to communicate the verification data captured with company-wide product requirement system server

### Software Developer
*Jul. 2018 – Sep. 2018*

*Imperial College London | London, UK*

- Researched on empowering physically challenged people to control smart devices via a universal controller
- Developed a .Net cross-platform server that supports wireless and USB smart devices as plug-ins
- Implemented a plug-and-play system for USB devices with runtime reflection of prebuilt driver libraries
- Designed a cloud-based solution to allow remote update of supporting device behaviour via serialised descriptions
- Designed a graphical UI based on feedback from physically challenged users
- The project is sponsored by Wooden Stone Charity and featured in *2019 Telegraph Christmas Charity Appeal*

### Undergraduate Researcher
*Imperial College London | London, UK*

Jul. 2017 – Sep. 2017

- Designed a C++ control system for an LED light stage and machine cameras for imaging-based researches
- Developed a graphical user interface for the control system with Windows API
- Developed auxiliary tools for OpenCV to support MSc research projects
- Co-authored conference paper *Improving Image-Based Lighting Reproduction using a Multispectral Light Stage*

## PROJECTS

### Image Data Analysis
Oct. 2019 – Mar. 2020
- Experimented with machine learning techniques in the context of face recognition and medical imaging
- Achieved 90% face recognition accuracy with discriminant classifier ensembles
- Obtained a low average error of 5.08 years in in-class neural network brain MRI age prediction challenge
- Designed a multiprocessing framework to accelerate the learning speed
- Implemented most analysis algorithms used such as PCA-LDA ensemble and Neighbourhood Component Analysis

### Multi-Agent Game Simulation Platform
Oct. 2019 – Jan. 2020
- Developed an F# simulation platform to research AI behaviour in collaborative games under constraints
- Designed and implemented AI behaviour models based on reinforcement learning algorithms
- Analysed simulation data for the correlation between model parameters and AI society stability indicators

### Greenhouse Monitor System
Jan. 2019 – Mar. 2019
- Managed a self-proposed IoT project to design an environment control system for greenhouse plantation
- Organised weekly meetings to ensure intra-team transparency and conduct software integration tests
- Designed a full-stack MQTT-based software in Python to collect environment data from multiple sensors
- Learned to predict optimal plant growth condition from historical data with mini-batch K-Means algorithm

### Real-Time Noise Reduction
Jan. 2019 – Mar. 2019
- Designed a real-time application in C to enhance audio speech quality via adaptive noise suppression

### Imperial College AI Hack Road Accident Analysis
Nov. 2018
- Performed data cleaning of 2015 UK road accident record and time-series analysis
- Predicted the road accident number of given random dates to 75% accuracy with classification-based algorithms
- Overall runner-up team of the hackathon

## OTHER EXPERIENCES AND ACTIVITIES

### Orchestra Manager
Oct. 2016 – Mar. 2020
- Conducted in Imperial College CSSA Chinese orchestra and managed weekly rehearsal sessions
- Negotiated for external performance opportunities including 2018 Trafalgar Square Chinese New Year Celebration
- Organised the first formal concert of the orchestra in 2020

### Concert Volunteer Coordinator
Oct. 2017 – Feb. 2018
- Volunteered for 2018 China-Britain Chinese New Year Extravaganza to promote Chinese culture and arts
- Made proposals and supported negotiations with venue management and catering service
- Coordinated 20 volunteers on the date of the event and ensured a seamless event proceeding

### Camp Instructor
*Ad hoc*
- Taught Java game programming in FireTech day camps for upper primary school students
- Worked as an instructor and judge for IoT programming in 2019 Future Engineer International Youth Challenge