

# Zhenyuan Zhang

@ z.zhang@2023.ljmu.ac.uk |  LinkedIn |  GitHub |  Portfolio |  Liverpool, United Kingdom

## EDUCATION

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### PhD candidate in Human Movement Biomechanics

Jul 2023 – Present

Research Institute for Sport and Exercise Science  
Liverpool John Moores University, United Kingdom

### Master of Science in Sport and Clinical Biomechanics

Sep 2020 – Nov 2021

School of Sport and Exercise Science  
Liverpool John Moores University, United Kingdom

### Bachelor of Education in Human Movement Science

Sep 2016 – Jun 2020

School of Exercise and Health Science  
Chengdu Sport University, China

## SKILLS

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**Languages:** Python, Matlab, Git, Shell, L<sup>A</sup>T<sub>E</sub>X

**Computer Simulations:** OpenSim, Visual3D, Pyomeca, MyoSuite

**Biomechanics Tools:** Optical Motion Capture, Inertial Measurement Unit, Force Plates, EMG

**High-Performance Computing:** SLURM, AWS, Dask

**Machine Learning:** PyTorch, TensorFlow, Keras, Scikit-learn

## EXPERIENCE

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### Machine Learning and Biomechanics Researcher

Jul 2023 – Present

SportScientia Ltd., Contracted  
United Kingdom

- Developed and validated deep learning neural network models to estimate ground reaction forces from instrumented insoles for various movement tasks.
- Validated instrumented insoles with sensor fusion algorithm for measuring spatiotemporal gait parameters against optical motion capture and force plates for athletic performance and load monitoring applications.
- Assisted in developing cloud computing pipelines with AWS to automate data processing and analysis for the instrumented insoles.

## AWARDS & ACHIEVEMENTS

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**High Honors Degree:** Awarded to Bachelor alumni who have graduated with a GPA greater than or equal to 3.50 by Boğaziçi University. (Jul 2023)

**TÜBİTAK 2247-C Intern Researcher Scholarship:** Awarded to students who take part in research projects carried out by the Scientific and Technological Research Council of Turkey (TÜBİTAK). (Dec 2021 – Jun 2022)

**KYK Outstanding Success Scholarship:** Awarded to students who have been ranked in the top 100 on National University Admission Exam by Higher Education Credit and Hostels Institution (KYK). (Sep 2018 – Jun 2023)

**Kocaeli Science High School Valedictorian Award:** Graduated as the highest ranked student. (Jun 2018)

## PROJECTS

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### Filters and Fractals | [GitHub](#)

- A C project which implements a variety of image processing operations that manipulate the size, filter, brightness, contrast, saturation, and other properties of PPM images from scratch and recursive fractal generation functions to model popular fractals including Mandelbrot set, Julia set, Koch curve, Barnsley fern, and Sierpinski triangle.

### Chess Bot | [GitHub](#)

- A C++ project in which you can play chess against an AI with a specified decision tree depth that uses alpha-beta pruning algorithm to predict the optimal move. Aside from basic moves, this mini chess engine also implements chess rules such as castling, en passant, fifty-move rule, threefold repetition, and pawn promotion.

#### **DS&A Projects** | [\*GitHub\*](#)

- Five Java projects that apply DS&A concepts such as discrete-event simulation using priority queues, Dijkstra's shortest path algorithm, Prim's algorithm to find the minimum spanning tree, Dinic's algorithm for maximum flow problems, and weighted job scheduling with dynamic programming to real-world problems.