MAKSYMILIAN MROCZKOWSKI

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Website:https://maks-mroczkowski.github.io/Personal-Website/portfolio_Project.html
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SKILLS

- JavaScript
- Python
- CSS
- English, Polish, Russian, Slovak - varying levels of proficiency
- HTML
- C / C++ for programming microcontrollers
- CAD (Fusion360 and SolidWorks)
- Rapid prototyping

PROJECTS

• Designed a convolution neural network that identifies brain MRI scans as either “no tumor” or “meningioma” using image classification. The algorithm was trained with 1000+ images from a medical MRI database, and when tested with validation/testing data sets (80:20 training testing split respectively) the model achieved a ~ 97% accuracy. The model was created using Python and Jupyter notebook along with TensorFlow for importing the ‘sequential model’ and MatPlotLib for data representation and visualization.

•As a part of my first year at Imperial College London, I collaborated to rapidly prototype a fully functional robotic arm, capable of reaching a distance of ~500mm and lifting a mass of ~150g.The individual components were designed using CAD (Fusion 360) and were manufactured using a range of materials and techniques such as 3D printing and laser cutting. Servos were programmed using Arduino unos and a mixture of C/C++. My team's finished robot was able to reach a distance that was 10% greater than the class average. A total of three prototypes were created within a 3 month period during which I was elected as the team leader for the project.

•Participated in a research study titled “Assessing wrist loading patterns and muscle activation during handstands” at Imperial College London, the research project analyzed the biomechanics of handstands in gymnastics to help diagnose reasoning for wrist pain in gymnasts. Electromyography was used to measure muscle contraction and responsiveness for force distribution analysis, along with motion sensors placed on the body to generate a computer simulated “skeleton” model of the participant. Matlab and Python were both used to plot, visualize and analyze the data received from the EMG’s.

•Collaborated on a regression algorithm with Imperial College Data Science Society. The model uses a linear regression model imported from Scikit-Learn to predict housing prices and how housing prices may change with varying distance from the coast in California. The model was created using Python and Jupyter notebook and was trained with thousands of cases and considered factors such as longitude and latitude, total bedrooms and house value. The model achieved a 95% confidence when testing data was used (80:20 training testing split respectively). A “import data, clean data, split data into training/testing sets, choose and import a machine learning model, train model, predict, evaluate and improve” ideology was used throughout the creation of the model.

•After self-teaching myself HTML, CSS and JavaScript I consolidated my knowledge by building and replicating YouTube.com. Alongside this I also built a dynamic and mobile optimized personal portfolio website to display my projects and additional information.

EDUCATION

Imperial College London, Uk
•B.Sc. in Biomedical Technology Ventures(Bioengineering)

Richard Huish College, Uk
• A-levels in: Chemistry, Mathematics, Biology