Seymour Lopez

MPhil, MRes, MSc, BEng

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Education:

MPhil/PhD: Machine learning in medical imaging, UCL Nov 2018-April 2024

- Designed a LASSO model as a feature reduction tool in order to identify brain regions associated with phenotypic traits of patients with epilepsy, serving as a new supplementary tool for diagnosing type of epilepsy.
- Implemented a clustering algorithm that determines the treatment response and epilepsy subtype based on their disease progression, using a combination of T1W and DTI data.
- Assessed signalling pathways using differential gene expression analysis in epithelial cells treated in presence of a bio-polymer that prevents retinal scarring, comparing against control conditions.
- Implemented pipelines for cleaning and preprocessing genetic data using Plink and R libraries for genome-wide association studies and polygenic risk score analysis.
- Designed survival analysis pipeline using Python libraries that predicted the survival in patients with Alzheimer's disease from atrophy measured in the brain.
- Experienced in tuning hyperparameters in predictive, clustering, and classification algorithms, such as linear or logistic regression, decision trees, and SVMs, resulting in an average 10% increase in model performance.

MRes: Biomedical Science, University of Glasgow Sept 2017-Aug 2018.

- Investigated changes in the gene expression in HOX family using HEK293T cells transfected with NH9 and HOXa9 plasmids, and qPCR, revealing biomarkers for leukemogenesis activity.
- Analysed the effects of palmitoylation in cardiac cells using Western blotting, providing insights of the mechanisms that modulate their ion channels.

MSc: Biomedical Engineering, University of Strathclyde Sept 2015-Aug 2016.

- Researched and analysed the requirements for CE markings and regulations for deploying medical devices on the market, resulting in a report that was used to inform product development.
- Designed and developed a virtual reality application to teach eye surgery to ophthalmologists, using C# in Unity3D, which was used in a pilot study with medical students.

BEng: Electronics and Telecommunications, University of Mumbai June 2008-May 2012.

- Designed and developed a wireless ECG monitoring system using ZigBee technology that enabled real-time central monitoring of patient data, improving safety and reducing the risk of errors.
- Programmed microcontrollers using C++, Java, and assembly language to control sensor systems and signal processing algorithms.

GitHub Link: https://github.com/Seymour22

Work Experience:

Customer Services, Scottish Power, Kura, Glasgow Mar-Aug 2017

- Managed meter readings and billing updates for over 100 customers weekly, resulting in a 25% decrease in billing errors.
- Successfully promoted smart meter installations to customers, resulting in a 35% increase in installations and reduced manual meter readings.
- Advised potential new customers on the best tariffs based on their usage and needs, resulting in a 20% increase in new customer sign-ups.
- Demonstrated excellent communication skills by explaining the benefits of smart meters and tariffs to customers and resolving their queries.

KnowHow Engineer, PC World, London Jun 2013-Aug 2015 & (Part time) Glasgow Feb-Aug 2017

- Diagnosed and repaired an average of 20 electronic devices per day, achieving a customer satisfaction rate of 90%.
- Communicated progress with customers and liaised with colleagues to ensure timely and efficient repairs.
- Documented all repairs and data recovery on computers, ensuring accuracy and compliance with data protection regulations.

Skills:

- Machine learning, deep learning
- Python, R, Bash, C#, C++, SQL
- DeSeq2, Plink, TensorFlow, PyTorch,
- AWS, Docker