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Profile

Academic Data scientist skilled in programming, experimental design, data cleaning quantitative computational modelling, data visualisation, statistics, and machine learning algorithms (custom-code, scikit-learn). Have 8+ years working as a data scientist in both research and industry, 2 years' industry experience in a medical device company. Currently work with Matlab / Python technologies in a training and project-based role, whilst also managing a distributed team of researchers across different projects. Alongside my current role I work on side projects such as Kaggle to upskill into industry-based software applications This combination has given me a proven ability to easily adapt to learning required languages / frameworks / techniques and an ability to decipher and solve complex data analytics problems for a variety of sources. I am an approachable and professional senior researcher and driven to transfer into a career in data science in industry.

Skills

Data Analytics , Programming , Data Science , Statistics , Python (Pandas, Numpy) , SQL (novice), R (novice), Jupyter , Tableau , Matplotlib, ggplot , Git & Github , Management , Leadership, Teamwork

Experience

Postdoctoral Research Associate

University of Rochester. USA

Feb 2020 - Present

My role in the Dept. of Neuroscience involves research, neuroimaging database management and curation, data cleaning and analyses using computational modelling of multidimensional data, project supervision, and dissemination of results in forms of stakeholders, publications, and conferences. This includes:

- Database construction (enabling SQL quarrying) and multisite curation of large (TB+) multidimensional neuroimaging data (M/EEG, fMRI, MoBi AR-VR).
- Developed code to standardise data across multisite lab hardware, data preprocessing and computational analyses of over 300 multidimensional neuroimaging datasets.
- Prepared database for Open Science publication with coding best practices and data repository sharing to conform to international standards (BIDS).
- Supervision and collaboration of multiple graduate projects to degree of publication.
- Developed custom code for analysing clinical animal models and statistically compared model parameter outputs with human models.
- Successfully demonstrated an improved method to optimise clinical neuroimaging analyses in RETT and Batten Disease patients thought means of machine learning applications (ridge regression) to model neurodegeneration in the brain to incoming stimuli.
- Being proficient in various technologies: Matlab, Github, Bash, Signal processing.
- Intermediate: Python, Pandas, Numpy, Scikit-learn. | Novice: R, SQL

Code (Github): https://github.com/kevinprinsloo/BIDS_EEG

Paper (Preprint): https://github.com/kevinprinsloo/Manuscript_Response_Inhibition_Database.pdf

Postdoctoral Research Associate

University of Rochester. USA

May 2018 – Mar 2020

My role in the Dept. of Biomedical Engineering involved four core aspects: Research, Data collection using state of the art biomedical imagine technologies, Data cleaning and analyses using computational modelling of multidimensional data, and dissemination of results in forms of stakeholders, publications, conferences, and teaching. This includes:

- Successfully demonstrated evidence to support the hypothesis that the brain uses top-down predictive coding to improve modeling of linguistic features of incoming complex natural speech using ML applications.
- Improved existing models descripting hierarchical processing of complex natural language processing from low-level acoustic input in human neuroimaging data using various models based on GloVe, NLP, Mutual Information and Entropy.
- Extensive Experience of neuroimaging data collection, data cleaning and analyses using complex computational modelling and statistics based on machine learning approaches and statistics of model parameters using bootstrapping and non-parametric Monte Carlo permutation statistics.
- Used various predictive analytics such as speech-to-text algorithms and Montreal Forced Phoneme Alignment to parametrise speech into its constituent units to be used as multi-dimensional decoders to test predictive linguistic coding in the brain.
- Being proficient in various technologies: Matlab, Excel, Git / Github, Bash, Signal processing.
- Intermediate: Python, Pandas, Numpy, Scikit-learn. | Novice: R, SQL, Cloud services (AWS).

Code (Github): https://github.com/kevinprinsloo/Semantic_Dissimilarity_Project

Paper (bioRxiv): https://www.biorxiv.org/content/10.1101/423939v1

Senior Clinical Associate

Neuromod Devices. Ireland

Dec 2016 – May 2018

My role at Neuromod, a medical device clinical startup company, was to coordinate and lead one branch of the company's pilot project, which covers various core responsibilities from:

- Successfully demonstrated the feasibility of using a decoder algorithm to model objective audiometry in hearing loss patients, laying down the foundation to explore a self-tuning hearing aid.
- Managed streamlined collaboration across multidimensional teams, including software engineers, design, a clinical ENT and audiologist and research staff.
- Prepared documents for hospital ethical approval and attended hospital research training standards.
- Responsible for data collection, data cleaning and analyses, and dissemination of results to stakeholders and collaborators. Including preparing dashboard reports (Tableau and equivalent custom software).
- Designed and coded a Matlab GUI to administer pure tone audiometry using audiometric grade insert Etymotic earphones. Signed off by a professional audiologist and is now used at Trinity College Dublin.
- Being proficient in various technologies: Matlab, Excel, Git / Github, Bash, Signal processing .
- Novice, infrequent use: Python

Doctoral Site Lead Collaborator: MEG UK Partnership

University of Glasgow

Sep 2012 – Dec 2016

Alongside my PhD, I was the lead site collaborator on the UK's first national database of MEG neuroimaging data. My role included:

- Maintained effective communication and database collaboration with external members across eight UK universities.
- Lead on data collection, database curation and ensured partnership protocols in collecting and analysing high density neuroimaging machines (fMRI, MEG) where adhered to.
- Processed large (TB+) multidimensional data and applied invers modelling techniques (LCMV and DICS beamforming) and computational modelling using machine learning applications (SVMs, MVPA,LDA, Mutual Information) to assess neural sensory functioning in humans.
- Demonstrated skills in technologies: Matlab, Excel, Git / Github, Python (novice).

PhD Researcher in Cognitive Neuroscience

University of Glasgow

Oct 2013 - Oct 2017

My PhD used a combination of brain imaging, psychophysics and machine learning to build predictive models of the brain. I collected large (TB+) datasets from high density neuroimaging machines (fMRI, MEG) and used various data cleaning (principal component analysis) and machine learning techniques (SVMs, MVPA, LDA, Mutual Information) to try and classify whether human beings were seeing images or hearing sounds while their brain data was being recorded. All coding work was completed in Matlab, FieldTrip Toolbox.

Code (Github): https://github.com/kevinprinsloo

Teaching Assistant / Lecturer

University of Glasgow

Oct 2013 - Oct 2017

Designed and taught Research Methods, Brain Imaging Methods, and Biological Psychology on a Certificate of Higher Education (Cert HE) course titled "Introduction to Psychology". This course focused on teaching students the basics of brain science as well as practical data science topics relevant to psychology masters research students, including experimental design, statistics, data cleaning, data wrangling and machine learning. Also taught programming, data analysis, and practical skills labs to Undergraduate and M.Sc. students.

Clinical Research Assistant

Dorset Council, St. Annes's Psychiatric Hospital

Sep 2011 - May 2012

Psychiatric clinical research assistant in collaboration with UCL and Bournemouth University. This role involved:

- Successfully offered insight & adaptation into a new mental health delivery and recovery plan, STAR.
- Completed various psychiatric hospital research training courses, including, Mental Health Research, Breakaway and Emergency Management training.
- Creating visualisations and reports to Dorset Council and external stakeholders

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Education

Ph.D. Cognitive Neuroscience

University of Glasgow, Centre for Cognitive Neuroimaging

2013 - 2017

M.Sc. Neuroscience

University of York, York NeuroImaging Centre & York Diagnostic Imaging

2012 - 2013

B.Sc. (Hons) Psychology

Bournemouth University, Department of Psychology & Computing

2009 - 2012

Volunteering

I volunteered as a demonstrator at the Trinity College Dublin Summer School Programme in the Biomedical Engineering. My role was to introduce the labs existing work by means of demonstrating the correction biotechnology in hearing aid developments and language processing capabilities. As well as provide hands on experience in coding experiments and analysing data using Matlab and in-house custom software.