Ashkan **Alvand** (Ph.D.)

https://ashkan-alvand.com/ | linkedin.com | github.com|

EDUCATION

2018-2024	University of Auckland	Doctor of Philosophy, Psychology (Computational Neuroscience)
2014-2016	Azad University	Master of Engineering (1st Class Honors), Information Technology
2010-2014	University of Mazandaran	Bachelor of Engineering, Information Technology

KEY STRENGTHS & ACHIEVEMENTS

Data Analysis & Technical Expertise

- Developed and optimised complex data pipelines for multimodal datasets using Matlab, Python, and advanced Excel functions.
- Conducted statistical analysis and applied graph theory algorithms to drive research outcomes.

Complex problem solving

- Engineered sophisticated computational models (e.g., brain networks) to integrate multimodal MRI datasets, addressing complex neuroscience challenges in vulnerable human populations and revealing novel insights into their brain function and structure.
- Designed and implemented a computer vision framework for MRI datasets of premature neonates, investigating the effects of brain growth under various interventions.

Project Management & Leadership

- Managed $14 million budgets and collaborated with cross-functional teams, driving agile workflows and ensuring alignment with project goals.
- Coordinated team tasks, schedules, and logistics to optimise resources and meet deadlines.
- Led large-scale research projects and mentored postgraduate students, enhancing their academic and professional development.
- Implemented robust risk management and quality assurance protocols for MRI data processing, ensuring data integrity and reliability across multimodal datasets from vulnerable populations, such as premature neonates, to support reproducible and clinically relevant neuroscience findings.

Operational Efficiency

- Streamlined operational processes in customer service and inventory management, ensuring smooth daily operations and customer satisfaction.

Financial Management & Fundraising

- Successfully managed budgets for large-scale projects, secured research funding, including grants for high-performance computing.

Research & Publication

- Authored multiple peer-reviewed journal articles and contributed to innovative neuroimaging and computer vision research, with findings published in top-tier journals like *Neuron*.

WORK EXPERIENCE

Foodstuffs North Island limited, Auckland, NZ

Wholesale Program Analyst. Full-time, contract. Dec 2024 - present

- Effectively managed budgets (~$14 million) in Extended Warehouse Management projects by leveraging SAP for real time finance tracking, reporting and analysis, ensuring accurate allocation of resources and adherence to financial targets. Utilised advanced excel functions (e.g., VLOOKUP, X-LOOKUP, SUMIF, pivot tables etc.) to streamline budget planning, monitor expenditures and identify cost saving opportunities.
- Leveraged Jira to raise tickets, manage user stories, epics and team tasks, driving agile workflows and ensuring alignment with project milestones and deliverables. Monitored sprint progress, and collaborated with stakeholders to refine requirements, enhancing team productivity and transparency through effective task tracking.
- Coordinated project workflows by scheduling and facilitating team meetings, preparing detailed minutes and ensuring actionable follow ups to maintain project timelines and communication across stakeholder. Arranged travel and venue logistics, including booking flights, accommodations and transportations for team members, optimising schedules and budgets while ensuring seamless operational support.

BoulderCO, Auckland, NZ - Career Break (Post Doctorate)

Duty Manager, Part-time, contract. Dec 2023 - Dec 2024.

- Led a team, delegating/prioritising tasks, and managing time efficiently to ensure that daily operations run smoothly.
- Understanding customer behaviour, addressing complaints, and improving service based on feedback.
- Collected and reported on data related to sales, customer feedback, inventory, or staff performance.
- Used point-of-sale systems, Excel, and software (e.g., gymmaster) to track sales and manage inventory.

Liggins Institute, Auckland, NZ

Postdoctoral Research Fellow. Full-time, contract. Feb 2023 - Sep 2023.

- Analysed large multimodal datasets (1+ TB) on two computer vision projects with 200+ subjects' data.
- Secured funding for high performance computing (HPC, Mac OS), maintained and configured data repositories on cloud computing platform (NeCTAR) and conducted data organisation (connection through WinSCP, SSH, PuTTY).
- Developed and optimised processing and analysis pipelines using Bash, Matlab and Python (Nileran, Nibabel) for semi-automated image segmentations, registration, noise reduction and feature extractions.
- Developed statistical analysis pipelines on randomised control trial dataset using *t*-test, histogram and multivariate permutation tests (Matlab, SAS) for investigating biomarkers (i.e., trends) on babies' brains.
- Communicated insights with multidisciplinary teams by writing 4+ reports and presentations.

University of Auckland, NZ

Doctoral Researcher. Full-time. July 2018 - Dec 2022

- Authored/co-authored 5 original research articles published in peer-reviewed journals, contributing to manuscript writing, design of controlled hypothesis-driven experiments, literature reviews, data plotting (Python, Matlab), schematic drawing, and statistical analysis.
- Secured internal funding for purchasing a supercomputer (Ubuntu machine), including installation and troubleshooting of OS, software and analytical tools for neuroimaging computing.
- Developed an image processing and analysis pipeline for multimodal imaging dataset (s/f/dMRI) using Matlab, Bash, docker, Python (Tedana, Nilearn, Nibabel), for semi-automated image segmentation, registration and denoising, which was subsequently published.

- Created and optimised 15+ pipelines for implementing graph theory algorithms (community detection, random forest etc.) utilising Matlab and Python (Networkx) with the methodology and results published in top tier journals of *Neuroimage* and *Cerebral Cortex*.
- Conducted two large-scale human projects on 70+ clients by designing project's plans, writing 10+ SOPs and strategising data collection (recruitment, experiment, survey, questionnaire, interviews).
- Mentored postgraduate students, tutored course labs for 100+ graduate students and volunteered as a committee member in multiple student-led societies for organising workshops/seminars/events.
- Collaborated with international researchers on two global research projects for improving cross-species neuroimaging pipelines, published in top tier journal of *Neuron*.
- Managed research funding, authored mobility grant applications, and secured funding for conference travel from multiple research institutions such as EMC.

FEATURED PROJECT

Analysis of brain networks in children with APD
Identifying functional biomarkers in the brains of children diagnosed with APD

- Implemented graph theory frameworks using Matlab, Bash and C++ for applying community clustering algorithms (Louvain, Infomap, Leiden), hub detection as well as topology-based algorithms for modeling and finding relationships (i.e., networks) on data points.
- Implemented several evaluation pipelines such as 1) intra/inter subject reproducibility tests for comparing different methods for accurately segmenting brain regions in paediatric population (70% accuracy), 2) modularity consistency test across network density thresholds, 3) performance and efficacy tests such as pearson's r, Spearman' rho and temporal DOF (Matlab) on fMRI denoising pipelines, resulted with 20% improvement in pipeline denoising accuracy.
- Implemented multivariate statistical tests in Matlab and SPSS such as t-test, ANOVA, ANCOVA, GLM, permutation, correlation and meta-analytical tests for assessing brain-behavior relationship.
- Wrote Bash scripts and utilised Python packages (e.g., Pybids) and neuroimaging tools (e.g., dcm2niix) for structuring and formatting multimodal dataset.
- Processed and visualized fMRI time series for extracting signal from noise based on Matlab and Python (Nilearn, Pandas) tools in imaging platforms (e.g., FSLeye).
- Visualised study results using Matlab visualisation functions and Python (e.g., Nilearn, Scipy, Matplotlib) for plotting data distributions, brain's region of interests and network simulation.

TECHNICAL PROFICIENCY

Matlab	■■■■■	Python	■■■■□	Bash	■■■□□
Git	■■■□□	Docker	■■■□□	Linux	■■■■□
SPSS	■■■■■	SAS	■■■□□	Office suite	■■■■■
Excel	■■■■□	SQLite	■■□□□	Power BI	■■□□□
SAP	■■□□□	Jira	■■□□□	Confluence	■■□□□
Photoshop	■■■■□				

AWARDS

- Eisdell Moore Centre mobility grant — Nov 2022
- Travel award from Child Mind Institute — Sep 2019
- Faculty of Science full tuition award — 2018-2022

CERTIFICATION/TRAINING

- MATLAB: LinkedIn Skill Assessment
- Linux: LinkedIn Skill Assessment
- Bash: LinkedIn Skill Assessment
- Python: LinkedIn Skill Assessment
- Power BI: Dashboards, LinkedIn, Oct 2023
- Fundamental of R programing: Nov 2018
- Ngā Paerewa Te Tiriti: Nov 2023
- SQL Essential Training, LinkedIn, Oct 2024

HOBBIES

- Rock climbing/Bouldering
- Astrophotography
- Camping

VOLUNTEERING

- Committee member at Neuroimaging Research Group (NRG), the UoA — July 2022 - Aug 2023
- Committee member at Early Career Researcher Group, the UoA — May 2019 - May2022
- Committee member at Postgraduate Student Staff Advisory Group, the UoA — Nov 2020 - Mar 2022
- Committee member at Auckland Rock Climbing club at the UOA — Dec 2018 - Jan 2020