ZI RUI (RACHEL) ZENG

+61 0468520222 | ziruizeng02@gmail.com | *Linkedin* | *Portfolio*
Australian Citizen | Eligible for E-3 Visa (No H-1B Lottery Required)

EDUCATION

National University of Singapore **Jul 2025 - Aug 2026**
Master of Science in Applied Geographic Information Systems | GPA: 4.95/5
Key Coursework: Spatial Data Science, Geospatial Machine Learning, Spatial Big Data & Analytics, Internet GIS

University of Melbourne **Mar 2021 - Feb 2024**
Bachelor of Science (Spatial Systems) | GPA 78.9/100
- Exchange: National University of Singapore (2022)
- Exchange: University of Toronto (2023) | GPA 3.8/4
- Research Projects:
  - Specialized in vegetation biophysical/chemical retrievals; global carbon cycle estimation in remote sensing

University of Canberra **Aug 2026 - Aug 2027**
Graduate Certificate in Building and Construction Information Management (Online)
Coursework: Integrated Construction Procurement; Contract Administration; Building Information Modelling

TECHNICAL PROJECTS

- **Transit Comfort Intelligence Dashboard** | *JavaScript, NEA API, Python, Mapbox*
  - Engineered an interactive routing dashboard integrating real-time IoT weather APIs to dynamically render commuter pathways (Singapore National Champion & ASEAN Excellence Award @ASEAN Geospatial Challenge 2026)
- **Working Family Trip-Chain School Navigator** | *ArcGIS Experience Builder, Web GIS*
  - Developed a multimodal accessibility analysis and Web GIS application for Singapore, modelling realistic **home–school–work trip chains** by integrating heterogeneous spatial datasets, constructing a rail-and-walk network, and engineering a **Python/ArcGIS workflow** to handle associated ODCostMatrix
- **Singapore Haze Digital Trace Analysis** | *Python, Spatial Modeling*
  - Developed a transboundary haze analysis workflow combining regional fire hotspots, meteorological variables, PSI/PM2.5 records, Google Trends, Reddit activity and news data to examine gaps between official air quality indicators and public concern in Singapore.

WORK EXPERIENCE

Willoughby City Council **Sep 2026 - Now**
Spatial Insights & Innovation Officer (Business Solution Innovation Team) | Sydney, Australia

- Drive enterprise GIS modernisation by auditing legacy spatial systems, addressing CRS inconsistencies, and supporting migration from MapInfo to interoperable GIS platforms.
- Enhance cartographic quality through improved symbology, colour palettes, labelling and visual hierarchy, promoting consistent and professional map design.
- Coordinate a Property Portfolio Dashboard initiative across approximately 10 Council teams, integrating spatial, asset and operational data to support facility utilisation analysis and property management.
- Develop a centralised Spatial Data Catalogue to improve metadata governance, dataset discoverability and spatial data quality, while exploring FME-based ETL workflows for data integration.
- Supervise a Spatial Analyst, introducing structured QA/QC procedures and documentation standards to improve the GIS deliverables.

NUS Centre for Nature-based Climate Solutions X Singapore Land Authority **May 2026 - Jul 2026**
GIS Researcher | Singapore

- Developed a topo-bathymetric data integration workflow combining terrestrial elevation, bathymetric soundings, and vertical correction surfaces into a continuous coastal elevation model for Singapore.
- Engineered SQL/PostGIS-based geospatial pipelines to integrate heterogeneous land and marine datasets across intertidal zones, addressing challenges in coverage gaps, vertical datum alignment, and nearshore data continuity.
- Built automated validation workflows to evaluate model continuity, interpolation uncertainty, and data sufficiency, supporting follow-up surveying.

Singapore Land Authority **Nov 2025 - Apr 2026**

Geomatics + Geodesy Intern | Singapore

- Built a reproducible GNSS PPP workflow in GipsyX, converting raw RINEX observation files into analysis-ready geodetic time-series products.
- Automated daily multi-station PPP processing with Python/Linux, including data validation, dependency management, parallel job execution, and failure diagnosis.
- Aligned fiducial-free solutions to ITRF and generated NEU time series, motion-model fits, and residual-based quality assessment for deformation and station-stability analysis.

Agency for Science, Technology and Research (A*STAR)
Institute of High Performance Computing (IHPC) **Sep 2025 - Nov 2025**

GIS + Remote Sensing Research Assistant | Singapore

- Configured and executed large-scale WRF meteorological models on Linux High-Performance Computing (HPC) clusters, managing batch job scheduling and compute resource allocation.

Fulton Hogan Construction **Feb 2024 - Nov 2024**

Geospatial Survey Cadet | Sydney | Full-time

- Managed geospatial asset data for 100+ airport infrastructure facilities supporting regulatory compliance
- Applied survey data analysis to detect pavement deviations, preventing rework and saving AUD 40,000;
- Supported construction QA workflows through survey data reporting and pickup plan preparation.

Australian Electoral Commission **Feb 2025 - Jun 2025**

Electoral Officer | Melbourne | Contract

- Organised the end-to-end execution of the 2025 federal election with secure handling, accurate documentation, and compliance of all election resources from 150+ voting centres
- Collaborated with cross-functional teams on day and night shifts to meet deadlines, ensuring smooth delivery of a national electoral process

Teaser F&B Franchise **Mar 2025 - Jun 2025**

Assistant Store Manager | Melbourne | Contract **Jan 2021 - Aug 2023**

- Trained 20+ employees to operate under SOPs to ensure consistent product quality; evaluated 25+ employee's performance
- Managed inventory supply chain and optimised stock health with active coordination regrading procurement, inventory, and service delivery
- Supervised in-store operation and daily maintenance, optimising front-/back-of-house workflows

SKILLS

- **Web GIS & Development:** HTML, CSS, JavaScript, Web GIS deployment, ArcGIS Maps SDK for JavaScript
- **GIS & Geospatial Platforms:**
  - ArcGIS Pro, ArcGIS Online (Dashboards, Experience Builder, Instant Apps), QGIS, Google Earth Engine
- **Programming:** FME, Python, SQL, Linux, PostGIS/PostgreSQL, Tableau

CO-CURRICULAR ACTIVITIES

National University of Singapore **Jul 2025 - Now**

Graduate Student Representative | Department of Geography

- Hosted events for 100+ staff and students in the Department of Geography
- Collaborated with departmental committees to address student concerns and advocate for student interests

In2Science - University of Melbourne **Jan 2023 - Aug 2023**

Science Mentor

- Mentored 25+ students from low socio-economic backgrounds in STEM learning