

John Worrall

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Summary

Problem solver with over 12 years' experience in the transport sector, providing informed decisions making through mathematical, spatial, statistical analysis. Developed skills in data manipulation, modelling, analytics and visualisation, with a keen interest in continuing automating to minimising cost, time and processing. Aspiring Mathematician with research interests in intersecting fields of dynamic systems, computational statistics and machine learning.

Academic Qualifications

2023	PhD Statistics Queensland University of Technology Current Student
2018	MSc Mathematics University of Southern Queensland
2016	BSc Mathematics University of Southern Queensland
2013	BSc Spatial Science, Hons University of Southern Queensland

Professional Certification

Amazon Web Services (AWS)
Developers association certification,
SysOps association certification

Surveying & Spatial Science Institute (SSSI)
GISP-AP (Geographic Information Systems Professional – Asia Pacific)

Software Skills

Analytics
Alteryx, Excel, FME, Jupyter, Matlab, SPSS

Programming
C/**C#**/C++, Git, Java, Javascript, **Python**, R, **SQL**, VB

Visualisation
ArcGIS, Deck.gl, **D3**, MapInfo, **QGIS**, Tableau

Databases/Virtualization/Cloud Services
Access, **Amazon Web Services**, Docker, **PostgreSQL**

Work Experience

<i>Current Position</i>	Principle Analyst 11/2018 - Current (Full time)	Department of Transport and Main Roads (DTMR) Road Operations, Data Solutions and Insights Brisbane
<i>Duties and Responsibilities</i>	<p>Development Created real time incident reporting and passenger transport impacts application for traffic operators to decrease their assessment and response time. Develop machine learning model and manage deployment on AWS platform including flexible client engine & API integration. (Python, JS-React/D3/Deck.gl, Postgres)</p> <p>Management Manage a specialized technical analytics team of three, ensuring short and long term deadlines and projects goals are met and performance reported on.</p> <p>Team lead Successful delivery of near-real time congestion traffic flow project, ingesting HERE data and a number of data sources for low latency analytics. Managing lead developer and delivery of primary IT funded project to support strategic goal of migrating to a server less environment, i.e Data Lake and Hub (Python, Postgres, Tableau, AWS).</p>	
<i>Current Position</i>	Freelancer 2016 – Current (Part time)	John Worrall (MESS Analytics) Brisbane
<i>Duties and Responsibilities</i>	<p>Tutor Communicate mathematical concepts clearly and concisely, addressing individual student strengths and weaknesses, build academic self-confidence, encourage and meet goals. (10-12 Maths B,C, undergraduate Algebra & Calculus 1,2,3)</p>	
<i>Position</i>	Senior Analyst 07/2018 to 11/2018 (Full time)	DTMR Transport Strategy, Policy, Planning and Investment Brisbane
<i>Duties and Responsibilities</i>	<p>Visualisation Analysis Build dashboard for Queensland Travel Survey, setting up a fieldwork progress reporting through integrating with third party data from database. (Python, Alteryx, Tableau, AWS).</p> <p>Modelling and Analysis Deliver quality data analysis which supports TMR's role in transport policy and planning. Develop models to provide high quality analysis of complex datasets and use a variety of geospatial, analytical and presentation tools to interrogate, analyses and report on data to inform transport policy, planning and system management. (Python, Alteryx, Tableau, Oracle, Postgres)</p>	

<i>Position</i>	Analyst 11/2017 to 07/2018 (Full time)	DTMR Transport Strategy, Policy, Planning and Investment Brisbane
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Duties and Responsibilities

Implement quantitative model

Help build and implement quantitative model (MAP) allowing policy and planners to access most current modelled data. Extract, transform and loading normalized tables in relational database visualizing patterns and performance metrics in dashboard for self-service. (Alteryx, Tableau, Postgres, Python)

Visualisation Analysis

Modeling and presentation through the use of visualization and graphic reports to ensure current and appropriate data is available for decision making. Identified patterns in data by relationship and breakdown, for example converted road maintenance program spreadsheet table into dashboard for easy of viewing and critical analysis to support funding of works. (Alteryx, Tableau, Python)

TMR Representation

Team winner of customer focus KPMG hackathon. Developed and implement machine learning and statistical algorithm for phone app, predicting bus delays caused by unexpected incidents. (R, Ruby on Rails)

<i>Position</i>	Spatial Analyst 2012 to 2017 (Full time)	DTMR Engineering Technologies Brisbane
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Duties and Responsibilities

Applications development and customisations

Managing geospatial customisable code that is distributed regionally; Embedding web service request (SOAP/REST) property segmentation; Setting up spatial environment interface with (Asset Master) database for DTMR intelligent transport systems; and extending and enhancing asset management capabilities.(MapBasic, ArcPy, C#)

Provide information for informed decision making

In-depth modeling and presentation through the use of spatial visualisation and graphic reports to ensure current and appropriate data is available for decision making. Sources used to develop reports and models include crowd source data (Strava) to identify numerous interests, such as cycling route choice, network impacts, days/hours and gaps in cycling networks. (PyQGIS, ArcPy, Mapbasic, PLSQL, FME)

Manage corporate datasets

Consolidating available raster (aerial/satellite/radar) and vector datasets (LiDAR) for the department to ensure it meets standards and is ready for release. In addition, responsibilities include data Extraction, Transformation and Loading (ETL) of spatial model releases using automated workflows to enterprise database.(Batch, Powershell, Mapbasic, FME, LAsTools)

Provide technical advice and presentation

Advise and support provided in relation to the use of spatial data products and processes to both regional representatives and internal/external clients. Present findings through training staff and conferences.

<i>Position</i>	Spatial Scientist 2010 to 2012 (Full time)	DTMR Geospatial Services Rockhampton
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<i>Duties and Responsibilities</i>	<p>Design and develop programs and scripts for automation Including streamline users requests or provided alternative solutions based on current blockages. Regular development to receive customer feedback, bugs identified, and add functionality. i.e Fitzroy utilities, DRCL Tools, and least squares. (Python, C#, Mapbasic)</p> <p>Databases architecture and implementation Traditional two tier client database and customized macro. Introduce integrated enterprise geodatabase “Fitzroy Database System” adding to regions spatial data infrastructure.(SQL, MsAccess)</p> <p>Management of regional datasets and software Ensuring quality assurance checks, timely delivery, and relevant metadata had been applied. Including deployment of MapInfo software and custom-built tools to district servers and end users workstations.(Mapbasic, MsAccess, VBA)</p> <p>Spatial data QA/QC, analysing various datasets Update of DRCL from survey, LiDAR, MLS, photogrammetry, digital design and as constructed plans. (C#, Python, Mapbasic)</p> <p>Public consultation in planning, design and construction phases of the projects Aid presentation and discussions through spatial electronic model of possible alignments, environmental factors, flood inundation, and resumptions.</p>
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<i>Position</i>	Graduate Spatial Scientist 2007 to 2010 (Full time)	DTMR Geospatial Services Rockhampton
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<i>Duties and Responsibilities</i>	<p>Completion of graduate program Graduate intake of 2007, successful completion of development program in 2010. Proficient in departmental available systems and datasets to produce quality outputs meeting deadlines and business needs.</p> <p>Proven ability to understand geodetic and information system concepts. Interrogating, extracting, converting, validating and interpreting necessary information related to road projects.</p> <p>Creating tailored thematic visualisation, meeting cartographic and plan standards. Outputs included, but were not limited to, ministerial layouts, realignment maps, and inundations extents.</p>
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Demonstrated Skills

Team work and leadership skills

President of Young Professional, YP representative within Queensland Regional committee and GIS-PAP assessment panel member for SSSI. Within these role, interpersonal relationships and leadership skills have been developed. Can effectively work in small and large teams in a range of different projects.

Continual growth mindset

Undertaking postgraduate candidature, completing MOOC courses, Kaggle competitions, hackathon, Statistical/R/Python meetups and an active presents with professional institutes SSSI and AustMS.

Personal Qualities

Problem Solving and Challenges

An INTP personality type, I thrive on identifying alternative methods to achieving my goal through a logical and hierarchical approach. Example of this is setting up a systems to record, analysis and visualise information within DTMR. Projects include optimising near-real time road congestion alerts, reporting crowd sourcing cycling network and manage 3d centerline and asset for regional network. These systems provided end users with an effective process when enquiring and analysing in order to make informed decisions.

Languages

Samoan

Publications / Presentations

Worrall, John (2012), *Assessing Rockhampton City 2011 Flood Extents and Impacts using Remote Sensing and GIS*, USQ Research 2011. Spatial Science Symposium 2012.

Worrall, John (2018), *An ensemble-ANFIS and a hybrid SOM-ANFIS based model for stock market variable forecasting*, USQ Research 2018.

Worrall, John (2020), *Road incident and traffic monitoring in low latency environment for intelligent decision making*, ITS Asia Pacific Conference 2020, Brisbane, Australia. (Conference canceled, COVID-19)

Referees

Provided on request