JOSEPH GURR

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EDUCATION

University of New South Wales, Australia   *2023 - present*

Master of Mathematics

University of Newcastle, Australia   *2015 - 2019*

Bachelor of Mathematics (Pure Mathematics)   *GAP 6.96/7, WAM 91.39*

CERTIFICATIONS

AWS Certified Developer - Associate   *valid December 2022 - December 2025*

Apache Druid Basics   *valid December 2021 - December 2023*

Mental Health First Aid   *valid September 2023 - September 2026*

WORK EXPERIENCE

Software Engineer at Cartesian Software   *August 2023 - present*

I productionise large energy market optimisation models.

Casual Academic at The University of Sydney   *February 2023 - June 2023*

I run linear algebra tutorials for first year science and engineering students. (MATH1002)

Consulting Software Engineer   *February 2023 - present*

I offer software engineering consulting and support services as a sole trader.

Senior Developer at InterAction   *May 2022 - February 2023*

I began working at InterAction on a 3 month contract to complete some short term application development for a client of theirs. There were some issues with the client's budget, so my contract was extended and I began working on improving BAU processes. When the application development began I worked on full stack applications using both Laravel (PHP) and Flask (Python). These applications included authentication, payment systems, and handling data uploads. I met with the clients and scoped out the work. I worked heavily within AWS as a part of this. While completing this development work I also worked with the operations team to assist with BAU tasks. This involved using the Quadient/GMC software Inspire. At the end of this development work I stayed on a contract to help the client support their application.

Sessional Academic at The University of Newcastle   *February 2022 - June 2022*

I ran mathematics tutorials for first year science and engineering students. The content included advanced calculus, linear algebra, and differential equations. I received 5 star feedback for my teaching. (MATH1110, MATH1120)

SwitchDin

SwitchDin is a energy startup that is trying to transform the world's energy grids to be highly distributed and renewable.

Data Science Engineer
July 2021 - January 2022

My team developed distributed optimisation procedures that run on edge devices (Raspberry Pi) to control distributed energy resources. This involved having to run forecasts in real time, solve a convex optimisation problem, process the output, and then have the control implemented on an external device. This was done in Python.

Data Services Team Lead (acting)
January 2021 - July 2021

In the absence of a leader for the newly formed Data Services team I stepped up to the challenge and stood in as the temporary team leader. I lead a team of four data science professionals. This role included software development, internal and external stakeholder management, and management of my team members. Some of my responsibilities included providing and managing a performant and cost effective time series database, providing and operating an OLAP site used by our external clients, developing forecasting algorithms and collaborating with other teams on convex optimisation problems, developing market based decision making technologies, and more typical reporting functionality.

Web Services Engineer
May 2020 - January 2021

I built web and mobile applications using Angular and Ionic. I worked closely with our back-end teams, designers, and external customers to deliver the best product.

Heffron

Heffron provides administration, education, and other services to assist clients with their SMSFs (Self Managed Superannuation Funds). They are specialists in this field.

November 2016 - November 2019

I began at Heffron in a data entry role. I quickly saw ways to automate many parts of my job. I taught myself how to write simple programs before taking some software engineering courses at uni. In my first year I was responsible for refactoring a critical algorithm that determines payable tax for certain SMSFs. This was done in Symfony (a php framework). I also worked on front end wizards that were written in KnockoutJS.

From here I worked on how to make certain parts of the organisation more efficient. I helped increase to use of DocuSign by writing extensive internal documentation. I worked on assessing the regular expression engine used in one of the major pieces of software that the accountants used (Class).

From here I worked on the massive project of transitioning our technology stack from a Symfony and KnockoutJS stack to a serverless architecture using AWS Lambdas (using Typescript). I used DynamoDB and IAM as a part of this. During this time I also worked on a customer facing CMS that our marketing team would ultimately manage.

Mathematics Undergraduate Summer Vacation Scholarship   *November 2015 - January 2016*
I worked to develop a greater understanding of linear representations of k-regular sequences and Stern's diatomic sequence under the guidance of Associate Professor Michael Coons Jr.

Private tutoring
January 2012 - November 2021
I have extensive experience tutoring secondary and tertiary students in mathematics, physics, chemistry, and statistics.

TECHNOLOGIES/PROGRAMMING LANGUAGES

* I have worked with this in a professional capacity in a non-trivial way

Front-End HTML* (plus a variety of HTML templating languages like razor*, blade*, and jinja2*), CSS* (SASS*, SCSS*), Javascript*/Typescript* (Angular*, Ionic*)

Back-End Python* (Django*, Flask*), NodeJS*, Java, PHP* (Laravel*, Symfony*)

Data RDBMS (Postgres*, MySQL*, MariaDB, SQLite), NoSQL (DynamoDB*, MongoDB), Apache Druid*, Apache Superset*, RabbitMQ*, Kafka*, Redis*, Pandas*/Numpy*/other Python data packages*, R

Operating Systems Ubuntu* (16.04, 18.04*, 20.04*), MacOS X, Windows 10

Other git* (GitHub*, GitLab*, Bitbucket*), Docker*, AWS* (mainly S3*, Lambda*, APIGateway*, CloudFormation*), Microsoft Azure*, TeX (LaTeX), Atlassian Suite* (JIRA*, Confluence*), Quadient/GMC Inspire*

Other technologies/programming languages I have used in a limited capacity include: Ansible, Vue, React, LISP, C, C++, SPSS, MATLAB, Haskell, Docker Swarm, and Kubernetes

I am experienced in CI/CD, TDD, and Agile

ACHIEVEMENTS

Awarded the New Columbo Plan Mobility Scholarship to participate in the Reimagining India program	*2018*
Placed on the Faculty of Science Commendation List	*2015, 2016, 2018*
Awarded the School of Mathematics and Physical Sciences Vacation Scholarship	*2015*
Awarded the Shaping Futures Scholarship	*2015*
Awarded the Vice Chancellor's Scholarship for Academic Excellence in Year 12	*2015*

HOBBIES

Glebe Community Garden Volunteer	*February 2023 - present*
Arcadia Park Land Care Volunteer	*2020 - 2022*
Outdoor Activities (rock climbing, hiking, camping)	