Tom Manderson

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Work Experience

Freelance
Consulting Developer   Dec 2018–Present
- Time-series PostgreSQL query and schema optimisation yielding a 70% read/30% write performance improvement
- Implementing concurrency in a Python socket server yielding 60% performance improvement and eliminating UDP packet loss

Polymathian
Developer   Dec 2015–Mar 2019
- Diverse role including full stack web dev, system administration/DevOps, data science, client-facing consulting
- Solely responsible for company-wide transition to deployment with Docker
- Developed a transparent API for running tasks asynchronously in a distributed and concurrent environment
- One of two developers on rearchitecture of core internal tooling to microservices

University of Queensland
Tutor, Introduction to Software Engineering   Feb–Nov 2015
- Modified Python's `unittest` to provide student-friendly test results and automated marking features
- Awarded a prize due to high performance evaluation from students

Volunteering

UQ Computing Society (UQCS)
President   2015–2017
- Doubled membership year on year throughout presidency
- Ran annual hackathon with >100 attendees in both 2016 and 2017

Robocup Junior Australia
Soccer Referee 2014, 2017, Head Referee 2015, 2016   Aug 2014–Sep 2017
- Responsible for technical and safety audit of robotic soccer robots
- Contributor to development, maintenance, and system administration of competition management system

Projects

UQCS Projects and Infrastructure
Development, Operations, Python, Ruby, JavaScript, LaTeX   2015–2018
- Developed and maintained 6 public-facing, 1 infrastructure project for UQCS including build and deployment automation
- Sole developer on three Python/Flask based projects
- Lead contributor to development of a Python slack bot framework

Stable Matching for Dynamic Ride-Sharing Systems
Development, Mathematics, Python, Operations Research   2017
- Took an existing Operations Research paper and successfully increased performance more than 3x
- Improved both mathematical formulation and software characteristics
- Included linear programming, integer programming, dynamic programming, mathematical problem decomposition

mypy Type Checker
Development, Python   2017
- Open source project: official type-checker for Python
- One of two contributors to metaclass type-checking capabilities

Education

University of Queensland
BE (Software)/BS (Mathematics)
2014–2019
- Awarded the "ICT Excellence Scholarship" 2014
- Software focus in distributed and concurrent programming, program verification
- Mathematics focus in operations research and abstract algebra
- Thesis: "Proving Consistency of an Abstract Algebra for Verification of Concurrent Programs"

Skills

- Python
- Haskell
- Java
- JavaScript
- C/C++
- Bash
- Linux/Unix
- AWS
- Build systems
- CI/CD
- Operations research
- Program verification
- Abstract algebra
- System administration
- VCS (Git/SVN/Mercurial)
- Configuration management

Presentations

PyCon Australia 2017:
Gradual Typing in Python

PyCon Australia 2018:
Task Queues: A Celery Story

Interests

- Type theory
- Cooking
- Rogaining
- Meditation
- Operations Research
- Functional programming

References available on request