## David O’Donohue

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I am an experienced software developer with a diverse range of experience. I rapidly acquire technical expertise and leverage my eclectic breath of experience to create, implement, and refine technical solutions to business problems. I have a strong interest in reducing human error and workload through the automation of tasks, and the design of elegant solutions to complex problems.

### Work Experience

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| Dev Ops Engineer Cogito Group Sept 2019 – June 2020  NV2 security clearance | In this role I use Gitlab pipelines to automate deployment to a server. I implemented features on an application which used REST API webhooks to synchronise task management instances, reducing project manager workload. I used Go (Golang), JavaScript (React/Redux/Node), and C# while developing, bug fixing, testing, and performing code reviews for applications in a microservices environment with a PostgreSQL database. I was involved in creating unit tests and automated tests, as well as performing integration tests, for these applications. |
| Computer Science Mentor Science Mentors ACT Jan 2019 – Dec 2019 | In this volunteer role, I mentored a grade 9 student through a research project in computer science. We wrote a scissors-paper-rock bot which uses machine learning to exploit the inability of humans to choose moves which are truly random. We also described a mathematical conjecture which revealed insights into the assumptions of the machine learning framework. |
| Associate Consultant Veritec Jan 2019 – Sept 2019  Baseline security clearance | I worked autonomously to support other project members to deliver a detailed design document to the client. I created and ran a workshop on inter and intra-personal skills. I developed a proof-of-concept web form for the Department of Agriculture using and integrating a static webpage, JavaScript, and an Azure LogicApp to orchestrate the flow of information. |
| Computer Science Tutor Australian National University Jul 2017 – Dec 2019 | I was responsible for helping classes of first year students to successfully complete the course, as well as marking their assignments and providing them with feedback. I independently created video tutorials on the topics most students found the hardest and was consistently a top contributor on the online forums. In the second semester of 2018, my class showed the greatest improvement between their performance on the mid-semester exam and their performance on the final exam. |

### Skills

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| Go (Golang) | Python | JavaScript |
| C | Git | Haskell |
| PostgreSQL | Microservices | Testing |
| REST API | CI/CD | Agile |

### Awards and Affiliations

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| Boyapati Computer Science and Mathematics Prize for First Year | Australian National University, 2015 |
| Commendation from the Deputy Dean of Science Education | Australian National University, 2015 |
| Golden Key Honours Society | 2012 |

### Personal Projects

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| Neuroevolution | Neuroevolution is a python program which uses an evolutionary algorithm to train neural networks through mutation across successive generations.  <https://github.com/davidodonohue/neuroevolution> |
| XOR-Encryption | XOR-Encryption is a python script which can encrypt and decrypt files and folders using the XOR operator on the bytes of a file and a key, which can be chosen or randomly generated.  <https://github.com/davidodonohue/xor-encryption> |
| Tic Tac Flow | Tic Tac Flow is a graphical implementation of tic tac toe using the tkinter package. It features an AI opponent implemented using the negamax algorithm with alpha-beta pruning as an optimisation.  <https://github.com/davidodonohue/tic-tac-flow> |
| TutorHelper | TutorHelper contains several python scripts which automate repetitive tasks involved in tutoring, such as creating feedback templates and sending the finished product en masse.  <https://github.com/davidodonohue/tutorhelper> |
| Fly | Fly is a basic game which I created while first learning JavaScript. It randomly generates hoops with normally distributed size, responds to touches on a mobile, adjusts its size to fit the browser window, and uses cookies to remember high scores.  <https://davidodonohue.github.io/fly.html> |
| Logicosm | Logicosm is a command line interface python program which gamifies mathematical practice and encourages pattern seeking in children.  <https://github.com/davidodonohue/logicosm> |