

# Benjamin Giles

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## ANALYSIS AND DEVELOPMENT EXPERIENCE

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- **Languages:** Python, C99, C++14, x86 ASM, Lua, SQL, Java, MATLAB, Perl, LaTeX, Bash, PowerShell, .NET.
- **Tools:** gcc/ld/gdb, make, nasm, coreutils, git, vim, ESRI SDK's, Visual Studio, JetBrains, IDA Pro, x64gdb, WireShark, Linux, Windows Server
- **Programming practice:** version control, DevOps, UML, CI/CD, pair programming, code review
- **Leadership:** Mentoring, tasking, reporting, course delivery, hiring, management, agile processes
- **Applications:** Linux system and network programming, geographic information systems, algorithm development, operations research, machine learning, database development

## RECENT EXPERIENCE

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- **Australian Defence Force Academy** Canberra, Australia  
*Cyber Security (Advanced Tradecraft)* Feb 2020 - July 2020
  - **Post-graduate Coursework:** Reverse Engineering, Information Security Engineer, IoT and Wireless Security, Digital Forensics
- **FEISAR Pte Ltd** Singapore  
*Senior Analysis Programmer* June 2014 - December 2019

Delivered software consulting and development services to oil & gas and fintech sectors.

  - **Pin Payments:** Developed a machine learning model in MATLAB to predict customer risk during onboarding to reduce fraud loss.
  - **Player, with GIS-Pax Pty Ltd:** Implemented features in the de facto standard prospect evaluation tool for geoscientists used by all oil and gas supermajors (ExxonMobil, BP, Royal Dutch Shell, Chevron, Total, Conoco Phillips) and the majority of mid-sized firms (Hess, Repsol, Petronas, Equinor, Petrobras). Written with ESRI SDK's for Windows Workstations.
  - **Player QwikVol, with GIS-Pax Pty Ltd:** Designed, implemented and formally tested for stability several numerical algorithms, including a Markov Chain Monte Carlo simulation to produce probability distributions of expected oil, gas and condensate in prospects. The result of this is the primary information for a \$100m exploration drilling decision. Designed for portability, it runs on x64 workstations and Apple A-Series ARM CPU's. Technologies used: C, MATLAB, C#, Mathematica, Math.NET Numerics.
  - **PlayHouse, with GIS-Pax Pty Ltd:** Lead engineering on a team that developed a geospatial data pipeline that consumed data produced by geoscientists to feed visualisation and decision support systems. These were consumed by oil & gas exploration economists and senior exploration management. Implemented in Python, C, C#, shells scripts, PowerShell, and integrated with ArcGIS Server.
  - **Consulting, with GIS-Pax Pty Ltd:** Conducted technical pre-sales and onsite deployments worldwide, and in the cloud (GCP, Azure and AWS).
  - **Professional development in Mathematics and Machine Learning:** Multivariable Calculus, Linear Algebra, Differential Equations, Vector Calculus, Numerical Methods, Number Theory, Probability, Statistics, Supervised Learning, Unsupervised Learning.
- **Pin Payments** Melbourne, Australia  
*Engineer Manager* May 2012 - May 2014
  - **Core Payment Systems:** Lead software design, architecture, development and infrastructure for international payments, foreign exchange, fraud detection and credit card processing. Written in Ruby, SQL, Bash, Mathematica.
  - **Financial system integrations:** Managed relationships and technical requirements with upstream financial providers.
  - **Leadership:** Hired and managed five technical staff, and several contractors, defining software development processes and best practices.
  - **Acquisition prospect analysis:** Performed technical and economic due diligence of acquisitions.
  - **Dev/test/prod/analysis environment:** Owned DevSecOps automation in AWS, including HA production and high security internal analytics systems.
  - **Data ETL for analytics:** Setup, schema design and management of Amazon Redshift for use by Tableau users in operations and management.

## FURTHER EXPERIENCE

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- **ActiveEight** Australia  
*Freelance Programmer* *Feb 2003 - May 2012*
  - **Department of Defence, Nova Systems:** Geospatial analysis tools, written in C, C++, Python, and Java.
  - **iiNet:** IP telecommunications management systems, written in Perl and DB/2 on Debian.
  - **Spoon Media:** Statistical analysis tools for a reproductive medicine startup, written in Drupal.
- **ESRI Australia** Canberra, Australia  
*Geographic Information Systems Programmer* *May 2000 - Jan 2003*
  - **Consulting at Department of Defence:** Developed spatial data transformation pipeline.
  - **ActewAGL:** Developed tool to translate Autodesk CAD models into a spatial database.
  - **Software Development:** Designed, developed, and tested workstation & server-based GIS products for using Sun, SGI, DEC, Microsoft, and GNU C/C++ compilers with ESRI's SDK's.
  - **Geospatial analysis:** Performed ad hoc geospatial data analysis in Perl.
  - **Consulting:** Provided technical support for federal government ArcGIS programmers and analysts using ESRI and Microsoft SDKs.
  - **Training Delivery:** Delivered ESRI certification track training courses.
- **Eclipse Group** Melbourne, Australia  
*System Programmer* *Dec 1997 - Apr 2000*
  - **Deloitte Touche Tohmatsu stake in Eclipse Group Pty Ltd:** Oversaw hiring of 20 technical staff and provisioning of Linux servers, Cisco network infrastructure, and Mac workstations for the expansion to Melbourne. This team ultimately became what is known today as Deloitte Digital.
  - **Multimedia software development:** Designed, developed, and tested desktop real-time 2D/3D multimedia software and libraries for macOS and Windows in Java, C++, and OpenGL.
  - **Server-side development:** Apache CGI script development on Linux servers using Perl, C, and shell scripts.

## OTHER NOTEWORTHY PROJECTS

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- **Royal Australian Navy:** Large volume data processing system deployed on vessels using NetCDF data from other Defence agencies. Pipeline written in Java- embedded system written in Qt/C++
- **OpenAI:** Contribution of MATLAB client for OpenAI's gym used to measure the performance of deep reinforcement learning agents.
- **RMIT & Defence Science and Technology Group:** Researched mobile ad hoc network protocol performance using simulations sampling from large multi-nation wargame datasets.
- **Victorian Government:** Developed fire models and visualisation used by emergency personel and operations staff.
- **Diploma of Screenwriting - Film and Television Institute:** Wrote a number of spec scripts, and directed music videos including writing custom VFX software <https://github.com/benkant/FXPlug-cloner>.
- **Spoon Media:** Developed a WYSIWYG website builder written entirely in the browser. Backend development in Drupal, front-end in JavaScript.

## EDUCATION

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- **Australian Defence Force Academy @ UNSW Canberra** Canberra, Australia  
*Master of Cyber Security (Advanced Tradecraft)* *Feb. 2020 - Dec. 2021 (Expected)*
- **Royal Melbourne Institute of Technology** Melbourne, Australia  
*Master of Computing in Distributed Systems (Awarded with Distinction); GPA: 3.9/4* *Mar. 2011 - Dec. 2014*