

# Jed Abanat

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I am an experienced software engineer proficient in building and maintaining Windows desktop applications in C# with a strong understanding of designing & implementing signal processing algorithms. I've worked autonomously as a sole developer for most of my career, leading development initiatives from conception to global deployment. I actively question the requirements and collaborate cross-functionally to ensure the best solution is developed. As a passionate advocate for automation, I strive to streamline processes within both the development workflow and the product itself.

## Work Experience

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### Career Break / Travel

July 2023 - Present

- Resigned to travel and relocate back to Australia. Available for an immediate start.

### Fugro USA Marine

Houston, TX, USA

Innovation (Software) Engineer

Sep 2019 - July 2023

- Technical lead of a software suite which processed airborne lidar bathymetry data. Wrote 70% of the code and reviewed the remaining 30%.
- Developed a novel bathymetric lidar processing solution with the ML team which replaced traditional signal processing algorithms with an image recognition approach. Resulted in 95% less noise & improved accuracy of final product by 30%. Filed a patent for this invention - 'Machine Learning Processing of Airborne Lidar Bathymetric Waveform Data'
- Refactored original MATLAB processing app into a .NET console app in C#, following SOLID design principles & implementing Test-Driven Development practices. Increased test coverage from 0% to 65%.
- Architected and implemented a high-performance data processing pipeline using TPL Dataflow with a multi-process, event-driven approach achieving an 80% reduction in processing time. Utilised Microsoft ONNX Runtime & CUDA to run inference on the raw data with NVIDIA GPUs.
- Designed user interfaces in WPF using MVVM, working with end-users to achieve an intuitive user experience. The UI displayed the raw data along with various plots and graphs to assist data processors during QC/QA.
- Effectively served as Agile Product Owner for 18 months, actively engaging with end-users to gather requirements, prioritise deliverables, and define the development roadmap, ensuring alignment with business objectives.
- Built 2 additional .NET apps to support field staff; an automatic data transfer tool to copy raw data (2TB/flight) & a QC tool to generate georeferenced images collected during the flight.
- Implemented CI/CD workflows in GitHub Actions, reducing release time by 2 hours.
- Rotated through two other teams and contributed to separate Windows application development; collaborated with architects to refactor legacy C# code & added functionality to encode/decode messages via TCP which allowed operators to remotely control winches.
- Contributed to Visual Studio .NET project configuration templates to standardise all .NET repos in the company.
- Led on-boarding programs and mentored colleagues, providing technical guidance and demonstrating best-practices.

### Fugro Australia Marine

Adelaide, Australia

Airborne Software Engineer

March 2018 - Sep 2019

- Maintained and improved an acquired MATLAB code-base as the sole developer, working autonomously to fix bugs and add additional features requested by data processors.
- Researched, tested and implemented signal processing & noise filtering algorithms to meet client requirements.
- Travelled to Houston regularly to meet directly with end-users and external clients to gather requirements and collect app feedback. Provided hands-on field support and gained additional context to proactively identify & address bottlenecks in the processing workflow.
- Led fortnightly planning and demo meetings with end-users to ensure alignment on key priorities and to collect feedback on new features & bug fixes, resulting in improved user satisfaction.
- Automated the deployment of the MATLAB code using Ruby scripts to compile (MATLAB Compiler) and generate an installer (WiX Toolkit).
- Developed comprehensive test procedure documents to compare the performance and accuracy of Fugro's lidar sensors. Designed a rubric and scoring system for fair comparison between the sensors and provided recommendations to management for future development efforts.
- Designed mounting plates in AutoCAD to install lidar sensors in aircraft, adhering to all Civil Aviation Safety Authority (CASA) standard while ensuring mounting plate was adaptable to multiple aircraft.

- Independently conducted thorough analysis of an acquired code-base in MATLAB (~8000 lines) to identify and understand each component and function of the process.
- Produced comprehensive technical documentation and detailed flowchart diagrams explaining the code to global stakeholders, resulting in improved cross-functional collaboration between the Adelaide & Houston offices.
- Designed a UI for the code using MATLAB GUIDE, working with end-users to design an intuitive & interactive tool.

## Technical Skills

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**Languages:** C#, MATLAB, Ruby, Python

**Frameworks:** .NET (Core & Framework), WPF, Blazor

**Developer Tools:** Git, Jira, TestRail, WiX Toolkit, Inno Setup

## Education

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**The University of Adelaide**

*Bachelor of Engineering (Mechatronics) (Honours)*

2014 - 2018