DAVID RYAN

Software Engineer

📱 (+61) 424 554 196

🌐 dryan.id.au
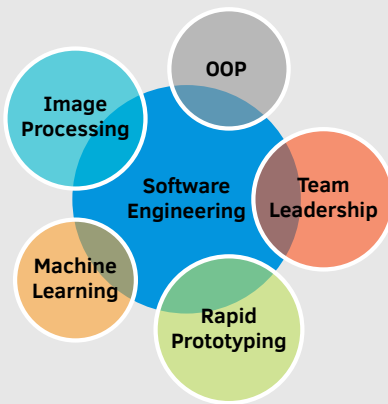
✉ david.ryan1@gmail.com

in /in/davidryanau

g⁺ tinyurl.com/dryanau

Skills

Overview

Programming

Modern C++

Python • MATLAB • C

Verilog • VHDL

Projects

ViDAR - Automated detection of targets in maritime environments, using real-time Ultra HD image processing.

Airports of the Future, *Australian Research Council*, Linkage LP0990135, Project value $9M. Live trials of crowd counting and virtual gate technologies to monitor queue parameters in real-time. Deployed at Brisbane International Airport for Australian Customs and Border Protection Service.

Intelligent Surveillance Research for Crowd Monitoring & Event Detection, *National Security Science and Technology Unit (NSST)*, Project value $795K. Responsible for three out of the nine key milestones (pertaining to crowd & queue monitoring).

Personal Summary

- Highly-driven software engineer with 10 years of C++ experience.
- Specialising in image processing and real-time computer vision.
- Natural aptitude for leadership.

Education

2013	**PhD, Computer Vision**	
	Queensland University of Technology (QUT), Australia	
2008	**BEng, Electrical and Computer Engineering** (GPA: 6.5/7.0)	
	Queensland University of Technology (QUT), Australia	

Experience

Present 2018 — Team Lead – Computer Vision — Sentient Vision

Coordinated a team of computer vision developers to deliver a multi-camera visual detection system under a short timeframe.

- Coordinated with commercial team to prioritise work, delegated tasks to the software team.
- Developed long-term plan for the next generation of deep-learning based systems.
- Involvement from algorithm design → code review & testing.

2018 2015 — Computer Vision Engineer — Sentient Vision

Built visual detection analytics for Maritime and Search & Rescue applications.

- Reduced memory footprint of the analytic by 50% and CPU consumption by 40%, within my first few months.
- Designed and implemented new CV functionality.
- Trained new engineers in the codebase & analytics.

2014 2013 — Project Coordinator — QUT

Designed & implemented new computer vision algorithms for crowd monitoring, anomaly detection and automatic camera calibration using pedestrian detection.

- Large-scale evaluation of computer vision algorithms.
- Academic supervision to students & researchers.
- Served on review panels for PhD defence seminars.
- Developed GUIs for crowd monitoring applications.
- High quality journal article publications.

Research

2013 2009 — PhD Candidate — QUT

Thesis: Crowd Monitoring Using Computer Vision

- Novel computer vision algorithms were developed for automatic crowd monitoring in multi-camera networks.
- These techniques enable crowd counting, crowd flow monitoring, queue monitoring and abnormal event detection.
- Experienced in camera calibration, background modelling, feature detection, optical flow, texture analysis, pedestrian detection.
- Successfully implemented & used machine learning algorithms, such as hidden Markov models (HMM), Gaussian process regression (GPR) and neural networks.
- Exciting live demos & research presentations.

DAVID RYAN

Software Engineer

📱 (+61) 424 554 196

🌐 dryan.id.au

✉ david.ryan1@gmail.com

in /in/davidryanau

g⁺ tinyurl.com/dryanau

Tools

OpenCV • VXL • boost
dlib • Eigen • blas • mlpack
Multithreading • Pipelining
SIMD • ARM NEON
cmake • Qt • wxWidgets
scikit-learn • matplotlib • LaTeX
Neural networks • GMM • HMM
SVM • Gaussian processes
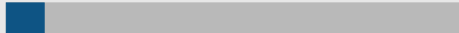Decision trees • Random forests
Visual Studio • gcc • clang

Windows

Linux

Mac OS

Awards

- Australian Postgraduate Award (APA) Scholarship

- Information Security Institute (ISI) Top-Up Scholarship

- Dean's Scholars Award – Undergraduate Scholarship

- Defence Science and Technology Organisation (DSTO) – Undergraduate Prize

- Dux of the college (Villanova)

- Australian Students Prize

Interests

- Trail running

- Strength training

- Creative writing

- Overnight hiking

- Cliff diving

Publications

Journal Articles

D. Ryan, S. Denman, C. Fookes and S. Sridharan. "An Evaluation of Crowd Counting Methods, Features and Regression Models," in Computer Vision and Image Understanding (CVIU), Elsevier, 2015.

D. Ryan, S. Denman, S. Sridharan and C. Fookes. "Scene Invariant Multi Camera Crowd Counting," in Pattern Recognition Letters, Elsevier, 2013.

Book Chapters

D. Ryan, S. Denman, S. Sridharan and C. Fookes. "Scene invariant crowd counting and crowd occupancy analysis," in Video Analytics for Business Intelligence, pages 161-198. Springer-Verlag, 2012.

Conference Papers

D. Ryan, S. Denman, C. Fookes and S. Sridharan. "Textures of Optical Flow for Real-Time Anomaly Detection in Crowds," in Advanced Video and Signal Based Surveillance (AVSS), 2011.

D. Ryan, S. Denman, C. Fookes, and S. Sridharan. "Crowd counting using multiple local features," in Digital Image Computing: Techniques and Applications (DICTA), 2009.

More: http://dryan.id.au

Other Experience

2008	**Software Tester**	Leica Geosystems

- Created and executed software testing plans for a mining vehicle tracking application.
- Liaised with software developers to resolve faults.
- Developed test documentation for future evaluations.

References

Tim Crawley   Sentient Vision
+61 409 967 612

Prof Clinton Fookes   Queensland University of Technology
+61 7 3138 2458
c.fookes@qut.edu.au

Dr Simon Denman   Queensland University of Technology
+61 409 917 446
s.denman@qut.edu.au