



Matt Angus

Computer Vision
Machine Learning

Summary Of Qualifications

- Extensive expertise using Tensorflow, creating CUDA ops, training and extending computer vision models with a focus on semantic segmentation and out-of-distribution detection
- Created the largest synthetic segmentation dataset to date
- Extensive development of software systems for autonomous robots

Engage

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- mattangus.me
- [mattangus](https://mattangus.com)
- mcangus (top 7% this year)
- [matt-angus](https://www.linkedin.com/in/matt-angus)

Select Awards

- 2016, 2017, 2018**
Math Domestic Graduate Student Award

- 2016**
University of Calgary Faculty of Science Dean's List

- 2016**
Intelligent Ground Vehicle Competition Rookie of the Year

- 2016**
Intelligent Ground Vehicle Competition 8th Place, out of 24

- 2016**
IEEE Sumobots Competition

- 2015**
IEEE Minibots Competition

Interests

- Tough Mudder
- Raspberry Pi
- Rock Climbing

Citizenships

- United Kingdom
Canada
Australia

Education

- Master of Mathematics in Computer Science** – 3.98/4 Major GPA
The University of Waterloo, Sept '16 – Present
 - Semantic segmentation and pixel-level out-of-distribution detection.
 - Wrote custom TensorFlow unpool operation with CUDA GPU implementation, with 2× speed up at inference time.
 - Created largest public synthetic segmentation dataset to date using GTAV (1 million+ images).
- Bachelor of Science in Computer Science**, Pure Math Minor – 3.68/4 Major GPA
The University of Calgary, April '16
 - Collaboratively researched ontology inference for a semantic knowledgebase where I decreased the runtime of our inference algorithm by 97% to achieve a runtime in $O(x^n)$.
 - Two semester exchange at the University of Western Australia where I was able to grow personally, academically and culturally by studying and travelling in Australia and surrounding countries.

Experience

- Research Engineer**, NXP Semiconductors, Ottawa, May '18 – Aug '18
 - Extended state of the art world models for autonomous driving.
 - Implemented and trained deep learning models, such as variational auto-encoders and RNNs, in TensorFlow using the Carla simulator.
 - Researched independently, providing key milestones to co-workers.
- Application Developer**, Canadian Natural Resources, Calgary, Jan '15 – Aug '16
 - Consulted on architecting the data and business layers of a responsibility management system that tracked responsibilities globally, that extracted a hierarchy from a relational database.
 - Helped translate internal customer requirements into action items for our development team.
 - Championed and implemented bug tracking best practices across our development team, previously there was none.
- Security Analyst**, Canadian Natural Resources, Calgary, May '12 – Dec '13
 - Took initiative and automated various manual processes through the use of scripts, saving the team about 3 hours per week.
 - Performed within the company's workflow to deliver access to various applications.

UCalgary Autonomous Robotics Club

- Lead Software Developer**, 2013 – 2016
 - Architected and implemented over 50% of the core system including the real-time image processor for vehicle navigation.
 - Integrated fuzzy controller with systems data streams (GPS, Lidar, IMU)
- Software Developer**, 2012
 - Experimented with motion planning algorithms such as A* search based motion planner and the distance transform to find open space.

Skills

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|---|---------------------------------|--|------------------------------------|
|  | TensorFlow, C++, C# |  | Python, CUDA, cuDNN, Linux, OpenCV |
|  | SQL, Java, Git, \LaTeX |  | Haskell, Matlab |

Publications

- Unlimited road-scene synthetic annotation (URSA) dataset*, M. Angus et al. (DOI: 10.1109/ITSC.2018.8569519)
- Trajectory prediction of traffic agents at urban intersections through learned inter-actions*, A. Sarkar et al. (DOI: 10.1109/ITSC.2017.8317731)