William John Meakin
SmartSat CRC Top-Up Scholarship application
Cover Letter

Project - Onboard Machine Learning for Intelligent Satellites

My Background

When I began my degree, I was mostly interested in abstracted application development. As I progressed though I gained an interest in lower level systems and concepts, i.e. computer science over software engineering, hence my interest in pursuing research grew. The opportunity to explore cutting edge technology, investigate novel problems, and contribute to scientific knowledge became highly motivating.

My first exposure was during my Honours project, where I conducted research into optimising a correlation coefficient algorithm for an embedded System on a Chip. This was conducted as part of an industry placement at Minelab, as part of their research and development team, and gave me an awareness of how research can be tailored to industry end-users for practical real-world application.

After graduating and then spending a year as a research assistant in the Advanced Computing Research Centre at The University of South Australia, I decided not to pursue a PhD immediately. I have since spent three years as a tutor at UniSA, and a year as a Staff Cadet at the Royal Military College Duntroon. This has given me perspective and skills that will assist in undertaking the challenge a PhD can be. The motivation, discipline and professionalism I have developed along the way have strengthened my commitment to returning to a career in research.

I am now intent on pursuing a career in Machine Learning, and the domain of embedded systems for satellites extends upon my past experience while suiting my passion for space and exploration. Its continued growth will also provide unique problems to solve to further enhance capabilities for the betterment of the world, and is an area I’m very excited to pursue.

I believe gaining expertise through this PhD will enable an engaging career that necessitates constant skills growth to contribute to emerging technologies. Being a part of the SmartSat CRC will enhance this experience and provide unique opportunities that broaden my knowledge.

RESUME - William John Meakin

CONTACT DETAILS

Name: **William John Meakin**
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EDUCATION

2016. Bachelor of Software Engineering (Honours), First Class, 6.62 GPA
~ The University of South Australia

- Technology Proficiencies:
  - Linux / Windows / Mac
  - Java / C++ / Python 3
- Web (HTML, CSS, SQL, Javascript, dynamic frameworks)
- Git
- Mobile development (Android / iOS)
- .NET
- Amazon Web Services

2016. Industry Placement
~ Minelab Electronics

- Optimising computer vision algorithms via parallel processing
- Technologies used:
  - OpenCV
  - NVIDIA embedded GPUs - CUDA, Tegra K1 (Jetson series)
  - Working effectively and efficiently on various novel technical problems
  - Working in a professional environment, both independently and in a team

2011 - 2012. South Australian Certificate of Education
~ Thebarton Senior College

- ATAR result: 91.75 (natural), 99.65 (bonus points applied)

EMPLOYMENT

2021-current. Laboratory Supervisor / Tutor
~ The University of South Australia

- *Information Technology Fundamentals*
- *AnDe College Programming Fundamentals*
- *Cloud and Concurrent Programming*
- *Agile Development and Governance*
- *Project Studio*

2020. Staff Cadet ~ *Royal Military College Duntroon*

2018-2019. Laboratory Supervisor / Tutor
~ The University of South Australia

- *Concurrent Programming*
- *Cloud Programming*
- *Programming Fundamentals*
- Facilitating effective learning by:
  - Interpreting and responding to technical questions
  - Ensuring conceptual understanding
  - Doing so in a fast paced environment
- Grading student work, requiring detail oriented consideration
- Management / administration (organising students, clarifying course details, etc.)

2017-2018. Computer Science Research Assistant
~ The University of South Australia

- Implementing omnidirectional camera calibration algorithms
- Calibrating confidence of object detection CNNs
- Building, training, and using Neural Networks for facial expression recognition
- Technologies used:
  - Tensorflow Object Detection API
  - UnrealCV (Virtual Scenes)
  - NumPy, SciPy
  - MatLab
  - Keras
  - Deep / Wide Residual Networks
  - Software analysis and integration
  - Writing technical reports/documentation for team collaboration

PUBLICATIONS

V. Stamatescu et al., ‘Automatic Ground Truths: Projected Image Annotations for Omnidirectional Vision’, in 2017 International Conference on Digital Image Computing: Techniques and Applications (DICTA), Sydney, NSW, Nov. 2017, pp. 1–8. doi: 10.1109/DICTA.2017.8227409. Available: https://arxiv.org/pdf/1709.03697.pdf

AWARDS AND RECOGNITIONS

Member of ~ *Golden Key International Honour Society*

2016. George H B Haskard Prize - BAE Systems
- Awarded to the student with the most outstanding project at undergraduate or postgraduate program work level.

2015, 2016. Chancellor's Letters of Commendation - *University of South Australia*
- Division of Information Technology, Engineering and the Environment
- Top 5% of students in Division

2014. Outstanding Work Award ~ *University of South Australia*
- INFS 2035 Systems Analysis, Design and Project Management course

2013, 2014. Merit Awards ~ *University of South Australia*
- Division of Information Technology, Engineering and the Environment
- Top 15% of students in Division

2013. Study Support Grant - *University of South Australia*
- Selected on the basis of the Aspire bonus point scheme and academic merit.

2011/2012. 6 SACE Stage 1 Outstanding Achievement Awards ~ *Thebarton Senior College*

VOLUNTEERING

2013-2019. Assistant Karate Instructor ~ *Bushido Martial Arts*
- Structuring and running karate classes
- Teaching children and adults techniques and exercises.
- Assisting senior instructors
- Managing assistant instructors

2016. Orientation Day Volunteer ~ *University of South Australia - Mawson Lakes*

2015. Development of "Introduction to Programming" seminar
~ *Unley Libraries Digital Literacy Reboot Program*
- Developed beginner Python programming seminar structure and content
- Active group work consisting of:
- Cooperative content idea generation.
- Interpreting and responding to constructive criticism for content refinement
- Offering constructive criticism on other seminars in development.

REFERENCES

Assoc. Prof. Stewart Von Itzstein
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