RAGAV SACHDEVA

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EDUCATION

Doctor of Philosophy (PhD/DPhil) **Oct 2021 –**

University of Oxford, United Kingdom

- Computer Vision and Machine Learning
- Supervisor: Prof. Andrew Zisserman

Bachelor of Computer Science (Advanced)
and Honours Degree of Bachelor of Computer Science **Feb 2017 – Jun 2021**

University of Adelaide, Australia

- GPA: 6.96/7.0 (Bachelor) + 7.0/7.0 (Honours)
- Valedictorian
- University Medal

PUBLICATIONS

For a comprehensive list of publications see: https://scholar.google.com/citations?user=js1EQ8oAAAAJ&hl

- **[ICRA 2022]** Autonomy and Perception for Space Mining
  Ragav Sachdeva, Ravi Hammond, James Bockman, Alec Arthur, Brandon Smart, Dustin Craggs, Anh-Dzung Doan, Thomas Rowntree, Elijah Schutz, Adrian Orenstein, Andy Yu, Tat-Jun Chin, and Ian Reid

- **[WACV 2021]** EvidentialMix: Learning With Combined Open-Set and Closed-Set Noisy Labels
  Ragav Sachdeva, Filipe R. Cordeiro, Vasileios Belagiannis, Ian Reid, and Gustavo Carneiro

EXPERIENCE

Project Lead, NASA Space Robotics Challenge Phase 2 (SRCP2) **Feb 2021 – Aug 2021**

Adelaide, Australia

– Lead a team of 40+ members to develop University of Adelaide's solution to the SRCP2.
– Programmed a heterogenous fleet of robots to autonomously find, excavate and retrieve resources from a simulated lunar environment.
– Key challenges included no GPS, unknown resource deposit locations, hazardous terrain, and complex robot interactions.
– Won 3rd place ($75,000 USD) and the innovation award.
– Electronic summary: https://arxiv.org/abs/2109.12109

Software Engineering Intern, Google **Dec 2019 – Feb 2020**

Sydney, Australia

– Built a refinement type system (RTS) into Arcs.
– Proposed and implemented RTS expression grammar and parser.
– Designed and implemented a custom SMT solver for static type checking to enable automated prediction and protection against runtime errors in core system services.

Software Engineering Intern, Microsoft **Aug 2019 – Nov 2019**

Redmond, United States

- Ported Go (lang) to Windows on Arm64.
- Added functionality for Go runtime to interact with the OS. This includes implementing various assembly functions for making system calls, stack and thread local storage initialisation, exception handling etc.
- Worked with a range of low-level technology areas including assemblers, [Go's pseudo] Arm64 assembly, compilers, OS ABI, memory-management etc.

Software Engineering Intern, Google **Nov 2018 – Feb 2019**

Sydney, Australia

- Worked on the Cameos iOS-app to provide offline support.
- Added functionality to cache (on client side) and serve user data when server is unreachable.
- Owned and implemented an algorithm to provide client-server data consistency and conflict resolution when transitioning from offline to online.

Teaching Staff, University of Adelaide **Feb 2018 – Jun 2021**

Adelaide, Australia

Tutored the following courses at the University:

- *Algorithm & Data Structure Analysis (Sem 1, 2019 + Sem 1, 2020 + Sem 2, 2020 + Sem 1 2021)* – a core course with an emphasis on teaching techniques for the design and analysis of efficient algorithms and data structures.
- *Grand Challenges in Computer Science (Sem 2, 2018 + Sem 2, 2020)* - an introductory course to key areas of research in computer science. Topics include AI, data visualisation etc.
- *Problem Solving and Software Development (Sem 2, 2020)* - a course that presents students with open-ended and complex programming problems that focus on developing their software design and implementation skills.
- *Puzzle Based Learning (Sem 1, 2018 + Sem 1, 2020 + Sem 1, 2021)* - a course focused on framing and solving unstructured problems.

HONOURS AND AWARDS

- NASA Space Robotics Challenge Phase 2 – 3rd place ($75,000) and innovation award
- ETH Zurich Robotic Student Fellowship 2020 (Acceptance rate: 7%; cancelled due to covid-19)
- Playford Trust Honours Scholarship 2020
- University of Adelaide Executive Dean's Excellence Award – 2020, 2018, 2017.
- ACM-ICPC International Collegiate Programming Contest 2020 (1st position in South Australia) + 2018 (2nd position in South Australia) + 2017 (2nd position in South Australia)
- Adelaide Access Scholarship 2017
- Adelaide High School Senior School Subject Prize - Information Technology Studies, Specialist Mathematics and Mathematics Studies Eva Langsford Prize
- SACE Certificate of Merit in Mathematical Studies
- Certificate of High Distinction in Australian Mathematics Competition
- High Distinction in South Australian Schools Mathematics Competition for SPE Prizes