

RAGAV SACHDEVA

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EDUCATION

Doctor of Philosophy (PhD/DPhil)

Oct 2021 –

University of Oxford, United Kingdom

- Department of Engineering Science
- 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

PUBLICATIONS

Selected Publications

- <https://ragavsachdeva.github.io/research/>

Google Scholar

- <https://scholar.google.com/citations?user=js1EQ8oAAAAJ&hl>

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.
- University of Adelaide Executive Dean's Excellence Award – 2018.
- University of Adelaide Executive Dean's Excellence Award – 2017.
- ACM-ICPC International Collegiate Programming Contest 2020 - 1st position in South Australia
- ACM-ICPC International Collegiate Programming Contest 2018 - 2nd position in South Australia
- ACM-ICPC International Collegiate Programming Contest 2017 - 2nd position in South Australia
- Adelaide Access Scholarship 2017
- Adelaide High School Senior School Subject Prize - Information Technology Studies
- Adelaide High School Senior School Subject Prize - Specialist Mathematics
- Adelaide High School Senior School Subject Prize - 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