Agoritsa Spirakis

Cape Town, South Africa | agi23.github.io | agoritsa-spirakis-4b3634144 | Agi23

Profile

I completed my undergraduate degree in Electrical and Computer Engineering at the University of Cape Town, before pursuing an MSc focused on 3D reconstruction of pancake sea ice floes using LiDAR and cameras. Visit my personal site for more information: agi23.github.io.

Technical Skills

Programming: Python, MATLAB, C/C++, C#, Julia, Java

Robotics & Perception: ROS, LiDAR processing, point cloud analysis, 3D reconstruction

Tools: Git, Linux/Unix, LaTeX, AWS EC2, HTML/CSS

Education

MSc Eng Electrical Engineering (by dissertation), University of Cape Town — 2022 – 2026

- Thesis: *3D Reconstruction of Pancake Sea Ice Floes Using LiDAR and Cameras*
- Supervisors: Robyn Verrinder & James Hepworth (references available on request)
- Affiliations: African Robotics Unit (ARU), Marine and Antarctic Research for Innovation and Sustainability (MARIS)
- Submitted in February 2026 (still awaiting results)

BSc Eng Electrical and Computer Engineering (with honours), University of Cape Town — 2018 – 2021

- Dean's Merit List (2018)
- Specialised in Computer Science, Embedded Systems and Network Engineering courses.
- Notable project created for Engineering Design: CR95HF NFC API for Raspberry Pi
  Developed a Python API for the CR95HF NFC chip for Raspberry Pi (with a partner). This was subsequently published on PyPi. Link to repository

St Mary's DSG Pretoria, National Senior Certificate (IEB) — 2013 – 2017

- 7 distinctions in IEB National Senior Certificate (English, Afrikaans, Mathematics, Life Orientation, Accounting, Information Technology, Physical Sciences)

Fieldwork

SCALE Winter 2022 Expedition, Antarctic Marginal Ice Zone

- Collected 3D reconstructions of on-deck extracted ice floes for my MSc work.
- Collaborated with the University of Melbourne and the University of East Anglia in the collection LiDAR data ice in waves from the ship.
- Collected stereo camera data of ice-tethered buoy deployments and retrievals as well as assisting with buoy deployment operations.

Publications & Presentations

Publications

- *A. Spirakis, J. Hepworth and R. Verrinder, "3D Reconstruction of Pancake Sea Ice Using Lidar and Cameras," IGARSS 2023 -* ***2023 IEEE International Geoscience and Remote Sensing Symposium****, Pasadena, CA, USA, 2023, pp. 60-63, doi:10.1109/IGARSS52108.2023.10282250.*
- *Vichi, M. (2023)* ***"SCALE-WIN22 Cruise Report"****. Zenodo. doi:10.5281/zenodo.7902557.*

Conferences

- Oral presentation at the **2025 South African Nation Antarctic Programme Symposium, Kwalata Lodge, South Africa**
- Co-authored poster at **2024 International Conference on Southern Hemisphere Meteorology and Oceanography (ICSHMO), Cape Town, South Africa**. Poster presented by first author David Sephton-Poultney.
- Poster presentation at **2023 Southern Ocean Observating System (SOOS) Symposium, Tasmania, Australia.** - poster presented by my supervisor, Robyn Verrinder. I later presented this poster at the 2024 MARIS Early Career Researcher conference and won the award for **Best Poster**.
- Oral presentation at the **2023 IEEE International Geoscience and Remote Sensing Symposium, Pasadena, USA**

Poles to the Promenade: SANAP Art Project

- A collection of 20 powerful photographs and data visualisations captured by South African polar researchers displayed on the Seapoint Promenade for a period of 2 years (2026-2028).
- *"Contours of a pancake: the ice keeps the score" - Agortsa Spirakis*
  A contour map visualisation created from my 3D reconstructed pancake ice floe.

Industry Experience

Software Development Intern, Thinkst Canary — July 2021

- Developed a Windows Service Canarytoken for canarytokens.org which triggers an alert if this Windows Service is killed or uninstalled with an additional option to hibernate on trigger. Link to repository
- Developed the Windows service using C# with Python for integration and HTMLCSS for the user interface modification. Additionally expanded familiarity with Git/GitHub and Amazon EC2.

Teaching Experience

Teaching Assistant, University of Cape Town — Feb 2023 – Jul 2023

- Led weekly practical sessions for 194 students in coursework covering STM32 C programming and digital logic implementation.
- Managed a team of tutors achieving timeous assignment grading and fair marking guidelines.
- Assisted with general course administration including the creation of the EEE2046 Practical Instructions Documentation available at github.com/Agi23/EEE2046Pracs.

Academic Tutor, University of Cape Town — 2021-2023

- EEE2050F: Embedded Systems I (Head Tutor) – 2023 Semester 2
- EEE3092F: Signals and Systems II – 2021 Semester 1
- CSC1019F/CSC1017F: Introduction to Programming – 2021 Semester 1

Volunteering

Science Expo Judge, Eskom Science Expo, Cape Town Regionals — 2022, 2023, 2025

- I volunteer at the Eskom Science Expo in Cape Town, where I am part of the Engineering category judging team. It is phenomenal engaging with young students interested in science and engineering.

Secretary, UCT Biomimicry Society — 2019

- Biomimicry looks to nature for design inspiration when solving problems.
- Organised society events, managed announcements for the events, and handled other society administration.