Oltan Sevinc

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Profile

In the final year of studying a Mechatronic Engineering (Honours) and Computer Science (AI) dual degree at the University of New South Wales (UNSW). Strong background in SLAM, sensor fusion, robotics, neural networks, and programming. Active member of the Autonomous vehicles department of UNSW's student formula team. Recipient of several merit scholarships.

Experience

UNSW Redback Racing **2023 March – Present**

- Working as a part of UNSW's Student Formula team's autonomous vehicles department.
- Implementing EKF Based SLAM coded in C++ using LIDAR data and IMU sensor readings communicated over ROS2.

Software Engineering Intern – HONEYWELL **December 2021 – September 2022**

- Enhanced the backend of Honeywell's flagship product Experion by adding developer options, using modern C++ with Boost.
- Automated the nightly build archiving process with a robust Python script.
- Applied AGILE software development principles, implemented over tools such as JIRA, Confluence, and git.
- Fostered strong relationships with colleagues and was invited to continue the internship beyond the summer period.

Part Time Academic – UNSW **February 2022 – Present**

- Teaching and reviewing assessments for courses:
  - MTRN4230 Robotics, where a UR5e robot is used to teach students coordinate transformations, the DH convention, the Jacobian, and path planning.
  - MTRN4010 Autonomous Systems, where sensor data fusion using an Extended Kalman Filter is taught. The course is implemented as a project over MATLAB.
  - COMP9331 Computer Networks, where the network protocol stack is examined piece by piece, with a practical component requiring socket programming over Python.
- Collaborating with professors to determine course content.

Undergraduate Researcher – UNSW **January 2021 – July 2021**

- Generated point cloud recordings of real human interactions and created a dataset.
- Developed skills in academic reading, writing, data processing, and anonymization.

Education

Bachelor of Mechatronic Engineering (Honours) **July 2018 – Present**
Bachelor of Computer Science (AI)

Expected Graduation: September 2023

University of New South Wales, Sydney

- Weighted Average Mark: 80+

Select Projects

More information about my projects can be found at https://oltans.github.io/.

Computer Vision Cell Tracking **2022**

- Compared the effectiveness various motion tracking methods for cells using the OpenCV framework over Python.
- Implemented and tested novel algorithms to quantify the performance of tracking methods, with a result of 82% correct tracking.

Neural Network Categorizing Cats by Coat **2021**

- Compared different neural network architectures such as linear, convolutional and ResNet for their effectiveness in an image classification task.
- Read in and processed data using the pandas and numpy libraries.
- Implemented a ResNet architecture from the ground up over pytorch. Configured the layers, chose the optimizer and meta variables for best results.
- Researched and utilised data augmentation to reduce overfitting in the data.
- Reached a 79% correct classification over 10 categories with a limited learning set.

Honours/Awards

Australian Financial Review Top 100 Future Leaders **2023**

- Recognized as one of Australia's top 100 future leaders from a large pool of applicants.

UNSW's Best and the Brightest **2022**

- Identified as one of the highest achievers at UNSW Engineering and was offered a sponsored Masters/Doctorate after my graduation.

UNSW Dean's Honours List **2021, 2022**

- Acknowledged for outstanding academic performance in the UNSW's Dean's Honours List in 2021 and 2022.

Extracurricular Activities

UNSW Mechatronics Society **2020 January – 2021 December**

- Served as the society secretary through 2020, coordinated with a society executive team of 7 people via weekly meetings to run events that engaged mechatronics students.
- Led a marketing subcommittee through 2021, assigned tasks to members and provided guidance with completing said tasks.

Skills

Software/IT: C++, Python, MATLAB, Object Oriented Programming, AGILE, Multithreaded Programming, Network Protocols, Computer Vision (OpenCV), Neural Networks (PyTorch), numpy, pandas

Robotics/Engineering: Robot Operating System (ROS), LIDAR processing, Kalman Filters, Coordinate Transformations, CAD (SOLIDWORKS)