Kelsey Kaplan

South African

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Website
LinkedIn

EDUCATION

M.S. in Computer Science Feb 2023
University of Delaware, USA
Specialisation in Computer Vision & Remote Sensing, GPA: 4.0

Courses: Ocean & Atmosphere Remote Sensing, Intro to GIS, Algorithm Design & Analysis, Computer Graphics, Artificial Intelligence, Large Scale Machine Learning, Neural Networks & Deep Learning, Computer Networks

B.Sc (Hons) in Electrical Engineering Mar 2020
University of Cape Town, ZA
Specialisation in Computer & Electrical Engineering

Courses: Digital Signal Processing, Control Systems, Medical Imaging & Image Processing, Embedded Systems, Electromagnetic Engineering, Engineering Design
Honors: Siemen's Award for best capstone project, First Class Honors, NRF research grant, Dean's Merit List

B.A. in Architectural Studies Mar 2015
University of Cape Town, ZA

EXPERIENCE

Technical Developer & Lead Creative Jun 2023 - Present
Inspirational Places, Cape Town, ZA
- Set up company CRM system, established sales and analytics reporting system, designed & developed new company website, managed team of interns.

Research Associate Oct 2020 - Jan 2023
VIMS Lab, Newark, USA
- As part of SIDEx (Sea Ice Dynamics Experiment), designed and developed novel Computer Vision algorithms for sea ice motion analysis from satellite imagery.
- Downloaded, processed and analysed Optical and SAR satellite imagery from multiple modalities, including RADARSAT-2, Sentinel satellites, WorldView satellites, COSMO-SkyMed, TerraSAR-X and MODIS.
- Assisted in writing proposals for research grants, reviewing papers for CVPR and other conferences, and maintained and updated lab website.

Front End Web Developer Feb 2019 - Feb 2020
Zaio, Remote
- Front End developer for a Cape Town-based start-up.

PROJECTS

SIDEx (Sea Ice Dynamics Experiment) Sep 2020 - Feb 2023

- Developed and tested novel Computer Vision algorithms for sea ice analysis from satellite imagery. Algorithm achieves the best known spatial resolution and accuracy in motion estimation of sea ice (at time of publication).

Optimizing Descriptors using Reinforcement Learning (RL) for Sea Ice Satellite Image Matching Sep 2021 - Dec 2021

- Developed and tested an RL pipeline for optimizing SIFT feature descriptor sizes for feature tracking, and reduced the overall matching error rate.

SCALE (Southern Ocean Seasonal Experiment), Antarctic Expedition aboard the S.A. Agulhas II Oct 2019 - Dec 2019

- Performed sea ice core extraction and ASPeCT sea ice observations.
- Debugged communications layer of embedded software on ice buoy systems.

Undergraduate Thesis: Stereo System Design for Ship-based Acquisition in Antarctica Jun 2019 - Oct 2019

- Designed, developed and deployed an integrated hardware and software stereo camera and IMU system for recording sea ice data in Antarctica.

TECHNICAL SKILLS

Programming: Python, C++, MATLAB, Java, Javascript, HTML, CSS
Software: QGIS, ESA Snap, ArcGIS Pro, Autodesk AutoCAD, SketchUp, Zoho, WordPress
Frameworks: NumPy, SciPy, Pandas, PyTorch, Tensorflow, React
Platforms: Linux, MacOS, Raspberry Pi

PROFESSIONAL SKILLS

Research & Development
Writing Reports & Proposals
Designing Presentations & Presenting Results
Team Management & Collaboration
Problem Solving & Critical Thinking
Time Management

PUBLICATIONS

- **Kelsey Kaplan** and Chandra Kambhamettu. "A Novel Methodology for High-Resolution Sea Ice Motion Estimation", IAPR Workshop on Pattern Recognition in Remote Sensing (PRRS), August 2022.

- Rohit Venkata Sai Dulam, **Kelsey Kaplan**, and Chandra Kambhamettu. "Deep Learning-based Sea Ice Lead Detection from WorldView and Sentinel SAR Imagery", IAPR Workshop on Pattern Recognition in Remote Sensing (PRRS), August 2022.

REFERENCES

Alison Hunt
Owner of Inspirational Places
alison@inspirationalplaces.com / +27 82 950 1558

Dr Jennifer Hutchings
SIDEx Project PI and Professor at OSU
jennifer.hutchings@oregonstate.edu