Joelle Abu-Hani

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Objective

MSc in Computer Vision with two research articles on 3D point clouds processing, focusing on unsupervised enhancement and geometric primitive extraction methods, tested on datasets collected using LiDAR. I am seeking roles as a computer vision engineer, deep learning engineer, algorithm engineer, and AI researcher.

Work Experience

Geo-Information Engineer , Survey of Israel, Tel Aviv - Jaffa Nov. 2024 - present

- **Generate 3D models** by integrating aerial imagery from drones with ground-based mobile laser scanner data, leveraging tools like CloudCompare, GlobalMapper, and Open3D in Python.
- Validate **triangulation solutions**, **orthophoto generation**, and assess the accuracy of elevation models (e.g., DTM, DSM) using tools such as Agisoft Metashape, Terrasolid, and LAS tools.
- **Research 3D point cloud** classification and processing techniques, with expertise in linear algebra, geometry, and data preprocessing (e.g., filtering, down-sampling, registration).

Geo-Information Engineer , Survey of Israel, Tel Aviv - Jaffa Aug. 2023 - Oct. 2024

- Perform feature extraction and change detection in **aerial image analysis** using GIS tools to monitor structural changes.
- Conduct spatial data analysis using **python libraries (e.g., numpy and pandas)**, including spatial statistics, geostatistics, and spatial modeling.

GIS Data Analysis | Geoformation, geoformation.co, Nazareth Sept. 2020 - Feb. 2021

- Design, maintain, and regularly update spatial databases to ensure the accuracy, consistency, and reliability of geographic data.

Education

2021 - 2023 MS.c In Mapping and Geo-Information at **Technion - I.I.T GPA. 91.3**
thesis titled: Unsupervised data enhancement and geometric primitive extraction methods for 3-D handheld point clouds.

2016 - 2020 B.Sc. In Mapping and Geo-Information at **Technion - I.I.T GPA. 81.8**

Certifications

Sep. 2024 - present AI and Deep Learning Development Program at **Google and Reichman Tech School**.

Publications

[1] Joelle Abu-Hani, T Zhang, and S Filin. “High Fidelity Edge Aware Normal Estimation for Low Resolution and Noisy Point Clouds of Heritage Sites”. In: *The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences* 43 (2022), pp. 737–743.

[2] Tian Zhang, J Abu-Hani, and S Filin. "Shape Preserving Noise Attenuation Model For 3-D-Modeling Of Heritage Sites By Portable Laser Scans." In: *International Archives of the Photogrammetry, Remote Sensing & Spatial Information Sciences* (2022).

Awards

- ISPRS 2022 Congress Attendance Grant Award.
- Dean's List Award For Outstanding Academic Achievements.

Poster and Orals Presentation

- ISPRS Congress 2022, High Fidelity Edge Aware Normal Estimation for Low Resolution and Noisy Point Clouds of Heritage Sites (Poster)
- 3D-ARCH 2022, Shape Preserving Noise Attenuation Model For 3-D-Modeling Of Heritage Sites By Portable Laser Scans (Oral)

Skills

- Programming languages: **Python**
- Data libraries: **Numpy, OpenCV, Scikit Learn, Pandas, Matplotlib, ArcPy, and more.**

Languages

Arabic (native), Hebrew (native), English (proficient).