# Roee Heily

**Software Engineer**

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## Experience

**Software Engineer - Computer Vision & Systems, IDF - Hatal**                    Aug 2023 — Present

- Led the redesign of an existing prototype into an end-to-end Android application (Kotlin & C++ & Room) that provides a panoramic map of aerial imagery with embedded GPS data, replacing manual comparison of 4K image pairs for spatial analysis.
- Implemented image stitching and registration pipelines (OpenCV) to enable spatial analysis across large sets of aerial images instead of manual comparison.
- Increased panorama stitching distance to 1.2km and increased speed by 60%, removing a scalability limitation that previously prevented generation of high distance panoramas in a short time.
- Designed and developed an internal platform used by the unit's team to manage containerized applications (Docker API) operational tasks and info, boosting manual workflows.
- Architected the platform as a monorepo (Angular, Nest.js, MySQL, Redis), Deployed in a classified IDF network using a Linux VM with Docker.

**Mobile Developer (Freelance), Julius Agency**                    Feb 2024 — Dec 2024

- Delivered consumer mobile apps end-to-end (React Native + Firebase): authentication, OTP flows, analytics, storage, and release configuration.
- Shipped apps from product requirements document into a Google Play production release. Built admin interfaces (React) to support operations and user management.

## Projects

**3D Object Reconstruction Pipeline**                    github.com/roee1454/sFM-Reconstruction

Built an end-to-end 3D reconstruction web GUI (Python & Streamlit) that converts image sequences or video into a 3D scene. Integrated COLMAP for sFM and OpenMVS for multi-view stereo (dense reconstruction).

**Personal Website**                    github.com/roee1454/Website

Built and currently maintaining a personal portfolio website (Angular, Nest.js) in order to showcase work experience and personal projects.

## Skills

**Programming Languages:** C++, Python, TypeScript, Kotlin, SQL

**Frameworks / Libraries:** React, React Native, Angular, Jetpack Compose, Nest.js, FastAPI

**Databases:** PostgreSQL, MySQL, Redis, Firebase

**DevOps:** Docker, Git, GitHub CI/CD, Linux