

Jonathan McGillivray

Senior Software Developer | Geospatial software & aerial inspection

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Software developer and former commercial pilot with a background in survey flying, photogrammetry and solar PV inspection. I work across the path from aerial imagery to module-level data and web-based inspection review. I have developed the evolving inspection solution since our first large-scale solar inspection in 2015, and am Aerometrix's Senior Software Developer.

Professional experience

Aerometrix Ltd | 2024 - present

Senior Software Developer | Scotland

- Develop Python processing workflows for thermal and optical imagery, including per-module image selection, geographic projection and stitched raster outputs.
- Develop Solarview's inspection application and spatial data workflows, connecting findings with physical components and supporting imagery.
- Work across data models, processing configuration, GIS integration, tests and technical documentation.

Current employee; formerly also a director.

Project InnerSpace | 2025

GeoMap geospatial platform development | Contract / Freelance

- Worked with Supabase and PostgreSQL/PostGIS on the geospatial backend. The agreed scope covered spatial catalogue and search APIs, authentication, dataset access and documentation.
- Contributed to the frontend and CMS using TypeScript, React and Mapbox.

Hawk Air Survey / Hawk62 Aviation | Earlier experience

Aerial surveying, inspection and software development | South Africa

- Worked across aircraft and UAV surveying, RTK GPS, photogrammetry and GIS using Agisoft Metashape, QGIS and Global Mapper.
- In 2015, oversaw an inspection of a 75 MW solar farm with approximately 204,000 panels and worked with developers on the initial approach.
- Became the primary or sole developer of the evolving inspection solution, continually refining the processing software and inspection methodology. Over time, the company built up to an estimated inspection volume of approximately 1 GW of solar capacity per year.

Technical practice & education

Technical experience

Software development

Python, Rust and Go; frontend and backend web development; TypeScript/SvelteKit in Solarview; some C++/Qt desktop development.

Delivery and infrastructure

CI/CD pipelines, Docker, Linux, Git and automated tests.

Spatial systems

QGIS, PostgreSQL/PostGIS, GeoPackage, DuckDB and GDAL; cloud-optimised GeoTIFFs and PMTiles for spatial products.

Imagery and acquisition

Thermal and optical aerial imagery, photogrammetry, Agisoft Metashape, RTK GPS, aircraft and UAV survey workflows.

Selected work

Module orthophoto processing

Image selection and projection at the level of an individual solar module.

Solarview

Inspection findings, component identity and evidence across application views.

Research collaboration

Supplied more than 10,000 thermal and optical inspection images to Nelson Mandela University researcher James Westraadt for his PhD work on photovoltaic fault classification. My role was as an inspection-data contributor.

Education

University of South Africa | 2015 - 2017

Bachelor of Laws (incomplete). Awarded 108 South African NQF credits across nine modules passed with distinction in 2015 - 2016. Further registrations are recorded in 2017. I particularly enjoyed the foundations of law, especially logic and reasoning. During my studies, I began learning software development and chose to pursue it professionally.

University of Cape Town | 2014

Start and Manage a Small Business short course.

National Senior Certificate, South Africa | 2012

Six subjects at 80% or above, including Mathematics (83%), Information Technology (82%) and Physical Sciences (90%).

Aviation qualifications

Private Pilot Licence - Aeroplane | 11 June 2012

Commercial Pilot Licence - Aeroplane | 13 February 2014

Remote Pilot Licence | 5 July 2016

Historical initial-issue dates. Current operational privileges are not asserted.