

JAMIE POPKIN

FULL-STACK SPATIAL DEVELOPER

GIS · GEOMATICS · WEB MAPPING

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PROFILE

Full-stack spatial developer with **28 years** building GIS, geomatics, and web-mapping systems end to end — from PostGIS and Oracle Spatial databases and Node.js REST APIs to React, Vue, and SvelteKit map interfaces on Leaflet, OpenLayers, and MapLibre. Sole principal of **Little Earth Spatial Programming Inc.** (est. 2000), delivering production spatial web applications to the BC Government, Canadian natural-resource agencies, and international clients across telecommunications, fisheries, agriculture, forestry, and land-use planning. Equally effective as a **GIS programmer / analyst** and a **GIS web-mapping developer** — embedded in agile government delivery teams or building, deploying, and operating a platform solo. Deep roots in geomatics (hydrographic charting, terrain and DEM modelling, cartographic production) modernized into a current cloud-native web stack.

CORE COMPETENCIES

LANGUAGES / SCRIPTING	JavaScript (~20 yr), TypeScript (~6 yr), SQL / PL-SQL (~24 yr), Python (~15 yr), Perl (~20 yr), Bash / shell (~24 yr), R, Elixir, Rust (WASM), VB / ASP (early)
FRONTEND / FRAMEWORKS	React, Vue.js, SvelteKit / Svelte, Angular, HTML5 / CSS3, Material-UI, D3.js (~9 yr), Bootstrap
WEB MAPPING / GIS LIBS	Leaflet (~9 yr), OpenLayers, MapLibre GL (incl. 3D terrain), Cesium, Turf.js, JSTS, WMS / WFS / WFS-T / CQL, offline-first PWAs
BACKEND / APIS	Node.js / Express (~11 yr), Django, Phoenix (Elixir), REST (~16 yr), WebSockets, Swagger / OpenAPI, PHP / Slim, Apache / Tomcat
DATABASES	PostgreSQL (~20 yr), Oracle / Oracle Spatial, ArcSDE, SQLite, GeoServer, MapServer, Martin vector-tile server, GeoPackage
GIS / GEOMATICS TOOLS	PostGIS (~15 yr — spatial indexing, query optimization), ArcGIS / ArcInfo / AML / ArcMap / ArcGIS Online, ArcIMS, ArcPlot, FME, GDAL / OGR, QGIS, GRASS, CARIS (hydrographic), H3, zonal statistics (GeoPandas / rasterstats), DEM / COG / terrain analysis (slope, aspect, viewshed, line-of-sight), vector & tile caching, KML / GeoJSON / Shapefile
DEVOPS / CLOUD	Linux / Unix (~24 yr), Docker, OpenShift, Kubernetes, AWS (EC2 / S3 / CloudFront), GitHub Actions, Jenkins, CI/CD, Git (~9 yr), SVN, load / integration testing (Mocha, Chai, Cypress, BrowserStack)
DATA / ANALYSIS	ETL & data migration, spatial SQL analysis, network / conflation analysis, real-time high-frequency data streams, DEM / terrain & hazard modelling, wildlife-habitat modelling, radio-propagation / telecom-coverage modelling
DOMAINS	Natural-resource & forestry GIS, land-use planning, transportation, hydrographic / marine, telecommunications infrastructure, fisheries & aquaculture, agriculture (agtech), conservation / biodiversity, mining, government digital services

SELECTED ENGAGEMENTS

BC Road Value Assessment / Forest Engineering

2018–2026

BC Ministry of Forests · Coastal Engineering Branch · direct · sole developer · 3,750+ hrs

Provincial-scale DEM and road-network conflation and optimization analysis in PostGIS; a bridge-asset “network-crawl” tool identifying road segments stranded on bridge loss; and a forest-engineering web dashboard migrated from D3 / RaphaelJS to a SvelteKit / TypeScript / MapLibre vector-tile stack with a live database-backed bridge API.

> PostGIS > SvelteKit > TypeScript > MapLibre > Node.js > Elixir/Phoenix > Oracle

Mines Digital Trust

2022–2023

BC Ministry of Energy & Mines · Exchange Lab — via Quartech · subcontract · 2,862 hrs

Digital-trust and compliance platform for the BC mining sector — WebRTC feature work (tenant restore / pass-off), REST API enhancements, Innkeeper API transaction testing, and knowledge transfer ahead of hand-off.

[> React](#) [> Vue](#) [> TypeScript](#) [> Python](#) [> WebRTC](#) [> Docker](#) [> OpenShift](#)

GlobalMaps — Multi-Country Telecom Planning Platform

2019–present

Research ICT Solutions · international · geospatial developer

Telecom-infrastructure planning platform spanning South Sudan, Namibia, Malawi, Uganda, Ethiopia and Kenya, integrating HRSL population data and OpenStreetMap, with radio-propagation coverage dashboards, MapLibre 3D terrain, and viewshed / line-of-sight computed in Rust / WebAssembly. Operational behind client firewalls.

[> SvelteKit](#) [> MapLibre](#) [> PostGIS](#) [> Martin](#) [> AWS](#) [> Rust/WASM](#) [> GDAL](#)

Organics Info V2

2025

BC Ministry of Environment · direct · 223 hrs

Public organics-information dashboard: new video component, Figma-aligned styling, responsive basemap controls, official BC Government header / footer integration, and end-to-end test updates.

[> React](#) [> Leaflet](#) [> BC Gov design system](#) [> e2e](#)

Northeast Restoration Tracker (NERT)

2024

BC Ministry of Environment — via Quarteck · subcontract · 1,207 hrs · 61 commits

Environmental-restoration tracking and reporting system (bcgov/nert-restoration-tracker): multi-feature mask-attribute promotion, search API enhancements, MapLibre performance tuning, and React-Hooks render optimization.

[> React](#) [> TypeScript](#) [> MapLibre](#) [> Node.js](#) [> Perl](#)

BC Invasive Species Platform (InvasivesBC)

2020–2022

BC Ministry of Environment & Climate Change Strategy — via Quarteck · subcontract · 1,798 hrs · 179 commits

Province-wide invasive-species tracking system (bcgov/invasivesbc): SQL → Metabase reporting, GeoJSON coastline processing, and contributions to the field-data mobile app and administrative web portal.

[> React](#) [> OpenLayers](#) [> TypeScript](#) [> GeoServer](#) [> PostGIS](#)

BC Telemetry Warehouse (BCTW)

2020–2021

BC Ministry of Forests — via Quarteck · subcontract · ~1,100 hrs · 301 commits

Wildlife GPS-collar telemetry data warehouse (bcgov/bctw-ui): database-connection logic and endpoints, cross-browser onboarding, authentication alignment, and React-Hooks permissions-state migration.

[> React](#) [> Vue](#) [> Leaflet](#) [> Node.js](#) [> PostGIS](#)

Variable Speed Limit Sign (VSLS) · Phases 1 & 2

2014–2021

BC Ministry of Transportation & Infrastructure · direct · ~1,500 hrs (Phase 2)

Real-time monitoring of variable-speed signs across the BC highway network: a POST / PUT / GET / WebSocket API redistributing a live third-party stream with sub-second lag, Swagger-documented and HA-clustered, with an extensive load / integration test harness (BrowserStack).

[> Node.js](#) [> WebSockets](#) [> REST/Swagger](#) [> Mocha/Chai](#) [> BrowserStack](#)

MoTI Corporate Spatial Web & IMF Replacement (incl. DriveBC)

2012–2020

BC Ministry of Transportation & Infrastructure · direct · spatial web developer

Long-running development and maintenance of Ministry corporate spatial web apps including public DriveBC; replaced a licensed Internet Mapping Framework with an open-source stack plus seven bespoke apps, with ongoing security patching, browser-compatibility fixes, and HTTPS hardening.

[> JavaScript](#) [> PHP/Slim](#) [> OpenLayers](#) [> JSTS](#) [> Turf](#) [> GeoServer](#) [> Oracle](#)

Transportation Web Map (TWM) / IMB Spatial Service Project

2020–2023

BC Ministry of Transportation & Infrastructure · direct · GIS / full-stack

TWM enhancements plus discrete features: Height Clearance Tool, Dynamic Router, drag-and-drop spatial-data loading, customizable layer symbology, WFS-T editing via GeoServer CQL, and KML markup tools.

[> OpenLayers](#) [> GeoServer](#) [> PostGIS](#) [> WFS-T/CQL](#) [> Docker](#) [> OpenShift](#)

Commercial Transport Hub (CTHUB)

2021–2022

BC Ministry of Transportation — via Quartech · subcontract · 661 hrs

Centralized commercial-transport management system: scrum delivery, branch rebasing, pull requests, and documentation.

> [Django/Python](#) > [JavaScript](#) > [PostgreSQL](#) > [OpenShift](#)

AR Pathfinder

2019–2020

BC Ministry of Finance — via Quartech · subcontract · 789 hrs

Accounts-receivable modernization: inline-editable frontend features and update logic against the client-account system (CAS) backend, with transaction testing.

> [Vue/Vuesax](#) > [Node.js/Express](#) > [PostgreSQL](#) > [OpenShift](#)

BC LNG Portal

2019–2020

BC Gov Exchange Lab — via Quartech · subcontract · 407 hrs · 142 commits

Public LNG-project tracking and engagement portal (bcgov/lngcanada-public): document-management features, Dev / Test / Prod deployment, admin dashboard, and public mapping.

> [Angular→React](#) > [Leaflet](#) > [Node.js](#) > [PostGIS](#) > [OpenShift](#)

Family Protection Order

2020

BC Ministry of the Attorney General — via Quartech · subcontract · 344 hrs

Digital family-protection-order form system with SurveyJS-based data handling and court-staff workflows.

> [Vue](#) > [Python](#) > [SurveyJS](#) > [Docker](#)

BiohubBC

2020–2021

BC Ministry of Environment — via Quartech · subcontract · 314 hrs

Biodiversity data hub: spatial-mapping consultation and centroid-query performance tuning on a React / Leaflet frontend over GeoServer / PostGIS.

> [React](#) > [Leaflet](#) > [GeoServer](#) > [PostGIS](#)

Yellow Cedar Decline Analysis

2010; 2016–2023

BC Ministry of Forests · direct · recurring · spatial analyst

Recurring raster and terrain modelling of yellow-cedar decline from the BC Provincial DEM — exposure, aspect, elevation, solar-exposure and terrain-shape models merged with aerial-survey data via custom spatial SQL; scaled on AWS with Python / R automation.

> [raster GIS](#) > [spatial SQL](#) > [PostGIS](#) > [DEM](#) > [R](#) > [Python](#) > [AWS](#)

Forest Bridge Analytical Tool & Network Analysis

2013–2020

BC Ministry of Forests · Engineering Branch · direct · ~1,080 hrs (network phase)

Corporate spatial-database-backed forest-bridge management / analysis tool with a D3 mapping interface and a Node.js / Perl REST API serving vector tiles; network analysis isolating cutblock-to-road routing failures and debris-flow hazard algorithms (R / GRASS / Python) as province-wide cloud processes.

> [JavaScript](#) > [D3](#) > [Node.js](#) > [Perl](#) > [Oracle/PostGIS](#) > [R](#) > [GRASS](#)

Catch Analyst — Lobster-Fishery Monitoring

2010–2024

Lat37 Ltd. (New Zealand) · direct · private

Commercial spatial web application monitoring NZ lobster fishing: cloud PostGIS storing millions of pot records served via Apache / Tomcat / GeoServer, with per-vessel secure access to hexbin heatmaps and catch-frequency graphs.

> [PostGIS](#) > [Perl](#) > [Python](#) > [Node.js](#) > [GeoServer](#) > [OpenLayers](#) > [D3](#) > [AWS](#)

Manuka Honey Management Tool

2013–2020

Lat37 Ltd. (New Zealand) · direct · private · sole builder

Spatial web app for New Zealand's largest Manuka-honey producer: real-time field data (Fulcrum / RFID) into cloud PostGIS, large hive inventories on a D3 / Leaflet map with tiered auth and email / text alerts, and a Node.js / Express REST API driving 30+ live reports.

[Node.js/Express](#) [PostGIS](#) [AWS](#) [Fulcrum](#) [GeoServer](#) [QGIS](#) [D3](#) [Leaflet](#)

Keewai — Offline Crayfish Field-Data PWA

2017–2023

Keewai / Lat37 (New Zealand) · direct · private

Offline-capable crayfish field-data PWA tracking thousands of ponds with sync-on-reconnect; a CRUD REST API with PostgreSQL modelling and Python / cron automation, plus server security hardening.

[PWA](#) [Node.js](#) [PostgreSQL](#) [Python](#) [Leaflet](#) [Turf](#) [D3](#)

National Telecom Coverage Mapping — Namibia · Malawi · Uganda · South Sudan

2018–2024

Research ICT Solutions · international · subcontract

National telecom coverage-mapping apps (Svelte / Leaflet / MapLibre, GeoServer / PostGIS on AWS) and zonal-statistics analyses (Python GeoPandas / rasterstats over H3 grids) informing Universal Service Fund broadband subsidies for MACRA (Malawi), NITA-U (Uganda), and CRAN (Namibia).

[Svelte](#) [MapLibre](#) [GeoServer](#) [PostGIS](#) [Python](#) [H3](#) [AWS](#)

DataBC Data Mashup Framework, Geocoder Widget & KML Migration

2011–2017

DataBC / BC Ministry of Advanced Education · direct · web-mapping developer

Data Mashup Framework web-map apps against BC corporate data layers (e.g. the ChildCare map) with KML output; a reusable drag-and-drop Geocoder Widget over the provincial Geocoder API; and migration of KML map services to GeoServer with Git / Jenkins CI.

[JavaScript](#) [Perl](#) [Python](#) [PostGIS](#) [Oracle](#) [GeoServer](#) [KML](#)

Regional Framework for Nature-Based Solutions (SW BC)

2024

BC Conservation Foundation · direct · 72 hrs

Merged multiple municipal and regional GIS datasets into a harmonized layer in QGIS, resolving projection mismatches and producing a standardized GeoPackage.

[QGIS](#) [GeoPackage](#) [SQL](#)

Cowichan Lake Sensitive Species Map

~2016

BC Conservation Foundation · direct · ~64 hrs

Interactive public web map of sensitive-species data used by the community, the CVRD, and industry experts.

[JavaScript](#) [D3](#) [Bootstrap](#) [Gulp/NPM](#) [Amazon S3](#)

Forest Fire Application (map-edit UI)

2017

Vivid Solutions Inc. · subcontract · frontend

Map-edit UI interactions — edit-button transitions, a coordinate-editing menu, and an attribute-editing modal — for a wildfire mapping application.

[Angular](#) [JavaScript](#) [CSS](#) [Git](#)

Also — Smaller BC direct contracts (2016–2018): Mines Information To Go, BC Fossil Web Map, Cumulative Effects cartography, an Ecosystem-Based Management data-delivery portal, a Maa-nulth Watershed StoryMap, and a High-Elevation Weather-Stations data pipeline; plus Lat37 (NZ) engagements — Lobster Series Manager, Mataitai reserve coastline analysis, Manuka Oil, and Gowanlea Gold (2017–2022).

EARLIER NATURAL-RESOURCE GIS & GEOMATICS · 1997–2011

Integrated Land Management Bureau / GeoBC — GIS analysis & web-mapping

2003–2011

LRMP / Land-Use-Plan analysis in SQL / AML / Perl / Python on UNIX; AML-automated ArcMap / ArcPlot production; later online mapping (JavaScript / OpenLayers); the BC Cabinet “Mashup” tool (2008–09); Spatial Overlay Engine and tile-cache production for GeoBC and the Oil & Gas Commission; ARCLIB → Oracle SDE migration. Invoiced records document 40+ discrete task contracts (e.g. Nanaimo GIS Support, 1,434 hrs).

Wildlife & habitat spatial modelling — BC MoE / BCCF / First Nations

2007–2011

Elk, Marbled Murrelet, and deer winter-range habitat models with associated web mashups.

iMap BC corporate application support — DataBC

2005–2008

Enhancement and defect tracking, manual and automated UAT, and statistical log reporting for the iMap BC spatial web resource.

Queen Charlotte Islands (Haida Gwaii) Land Use Plan — BC MSRM

2002–2004

Master AML scripts producing ~40 themed maps and a published planning atlas; Northern Goshawk Territories mapping.

CIT · Land & Water BC · Landscape Unit Plans · IDMI · CCLRMP · Toquart — BC MSRM / MELP

2000–2004

Land-use spatial analysis and cartography, AML basemap generators, complex Oracle SQL for socio-economic and ecosystem statistics, and regional GIS data-management standards.

Qualified GIS Supplier — RFQ SATP-073 · MSRM / Solutions BC

2004

Listed as a qualified supplier across five GIS data-service areas.

■ EARLY EMPLOYMENT · 1997–2000

GIS Analyst — Ministry of Sustainable Resource Management

2000–2004

GIS Analyst — Land & Water British Columbia Inc.

2001–2003

Software & Data QC Technician — BC Ministry of Forests

2000

Remote-Sensing Analyst — LGL Ltd.

1999–2000

Geomatics Contractor / Technician — Canadian Hydrographic Service · DFO

1997; 1999–2000

GIS Technician — BC Ministry of Fisheries

1998–1999

■ EDUCATION

BSc, Geography & Biology

University of Victoria · 1995–1999

Diploma of Technology, Environmental Science

Camosun College · 1993–1995

■ PROFESSIONAL & COMMUNITY

Technical Author, Linux Journal (2010–2011) · Linux user & administrator since 1998 · Karate — black belt (since 1994) · Lantzville Parks & Recreation Commission (2007–2010)

References available on request — BC Government project leads, executive sponsors, and international private-sector clients.