JOHN SOLLY

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SENIOR SOFTWARE ENGINEER

Senior Software Engineer with over ten years of experience building cloud-native geospatial solutions. Adept at architecting geospatial infrastructures, implementing geospatial algorithms, and leading full-stack development. Experienced in collaborating with cross-functional teams to deliver mission-critical capabilities and driving technical decisions and best practices.

Certifications

- **AWS Certifications:** Solutions Architect Associate, Developer Associate, Data Engineer Associate, Machine Learning Engineer Associate, ML Specialty
- **Certified Cloud Security Professional (CCSP)**
- **HashiCorp Certified: Terraform Associate**
- **Docker Certified Associate (DCA)**

Professional Experience

Software Engineer — Mar 2025 — Present

Redacted | United States (on-site)

Contributing to a high-impact skunkworks project at a major organization, leveraging expertise in data processing and cloud infrastructure to drive innovative solutions.

- Design and implement data pipelines using SQL and ETL processes, optimizing data workflows for performance and scalability in a cloud-native environment.
- Collaborate on a confidential initiative, applying advanced cloud architecture skills to support mission-critical objectives, with further details to be disclosed upon project completion.

Backend Geospatial Developer (API Engineer) — July 2024 — Mar 2025

HazardHub (A Guidewire Offering) | San Mateo (remote)

HazardHub's APIs leverage over 1,400 risk factors to help insurers underwrite faster, more accurately, and improve pricing for any U.S. address.

- Manage and scale API requests, processing millions of dollars and supporting 80% of US insurance companies, using AWS services like Lambda, EC2, and RDS.

- Process terabytes of data through ETL workflows, ingesting formats like CSVs, geopackages, and shapefiles, transforming them into low-cost object storage, NoSQL, and SQL databases.
- Own several end-to-end features in a Ruby on Rails monolith, following test-driven development (TDD) and collaborating within an agile team to release code regularly.

Senior Software Engineer — Sept 2023 — July 2024

New Light Technologies | Washington D.C. (remote)

New Light Technologies (NLT) is an integrated IT, scientific, and consulting service provider. Specializing in cloud-native AI/ML data analytics and geospatial solutions, NLT supports critical missions across public safety, utilities, and other fields for government and commercial clients.

- Led New Light Technologies' strategic adoption of a cloud-native tech stack, standardizing Amazon cloud services and infrastructure automation with Terraform to support scalable geospatial solutions across projects.
- For the Vietnam Low Carbon Emissions Planner, built a serverless application transforming complex Excel data into an interactive platform, enabling dynamic model outputs and admin functionality with AWS Cognito, enhancing user engagement, and visualizing carbon reduction strategies.
- In the U.S. Government Spending Application for the U.S. Census Bureau, developed a responsive Vue.js dashboard and implemented Python Lambda functions for backend ETL, converting census data into vector tiles and streamlining data access with Amazon API Gateway and S3 integration.

Senior Geospatial Developer — Sept 2022 — Sept 2023

EASIER Data Initiative | College Park, MD (Remote)

The EASIER Data Initiative, a research lab within the University of Maryland (UMD), develops decentralized cyberinfrastructure for efficiently onloading, analyzing, and extracting large amounts of geospatial data onto blockchain-managed storage systems such as Filecoin and IPFS.

- Led the adoption of decentralized, cloud-native infrastructure at UMD's EASIER Data Initiative, leading a team of four engineers in building geospatial data solutions on blockchain-managed systems like Filecoin and IPFS to support efficient, scalable data storage.
- Developed the ipfs-stac Python package, writing 45% of the code to integrate STAC (SpatioTemporal Asset Catalog) with IPFS, allowing for seamless data access via native Python objects and enhancing interoperability with GIS tools like QGIS and ArcPro.
- Designed and implemented an ETL pipeline managing 300TB+ of COG and ZARR geospatial data, automating transformations into CAR files for decentralized storage on IPFS and Filecoin, significantly improving data accessibility, security, and cost-efficiency.
- Built the Web3 Geospatial Dashboard with a multi-tiered storage system (Hot: S3, Warm: IPFS, Cold: Filecoin), enabling researchers to view, analyze, and transact imagery with integrated crypto wallet functionality, making data readily accessible for diverse user needs.

Integration Consultant — May 2021 — Feb 2022

Yellowfin Business Intelligence | Boise, ID (Remote)

Yellowfin is an enterprise analytics platform that helps organizations extract value from their data through action-based dashboards, automated discovery, and data storytelling, enabling secure and governed data sharing across the enterprise.

- Expertly designed and implemented innovative data solutions leveraging Yellowfin's REST, SOAP, and JavaScript APIs. Successfully orchestrated a major two-version upgrade for Yellowfin's largest ISV, enhancing system capabilities and performance.
- Addressed and resolved dozens of complex level-three production issues in cloud, on-premise, and hybrid environments, diligently maintaining Yellowfin's uptime and availability within the bounds of our Service Level Agreements (SLAs).

Software Product Engineer — May 2017 — May 2021

Environmental Research Institute (Esri) | Redlands, CA

ArcGIS Dashboards presents location-based analytics through interactive, real-time visualizations, enabling organizations to make informed decisions, monitor trends, and engage their communities.

- Over four years, I successfully managed numerous ArcGIS Dashboard releases as release manager and scrum master for a nine-engineer team. My role involved ensuring consistent, high-quality releases and effectively coordinating with internal product management, QA, localization, internationalization, and release teams.
- Implemented a dockerized automated regression testing harness, reducing manual testing hours by 58%.

Software Product Engineer Intern — June 2016 — Aug 2016

Environmental Research Institute (Esri) | Redlands, CA

- Developed impactful story maps and web applications used by state governors and constituents and showcased a JavaScript mapping solution at Esri UC to an audience of 14,000 industry professionals.

Relevant Projects

U.S. Government Spending Application

- This serverless Vue.js dashboard, used by the U.S. Census Bureau, empowers non-technical decision-makers by streamlining demographic and geospatial data analysis. I led the development of Vue.js components, creating responsive UI elements for easy data visualization. On the backend, I implemented Python Lambda functions for ETL processes, converting census shapefiles into PMTILES vector tiles. Additionally, I set up Amazon API Gateway to proxy API requests to third-party and internal APIs, with internal APIs connected to S3 for efficient data retrieval and storage.

Web3 Geospatial Dashboard

- Web3-geo-dashboard is a web3 mapping application that provides an intuitive 'at a glance' view of geospatial data stored in Filecoin deals. This platform is engineered with a multi-tiered storage solution, utilizing Hot (Amazon S3), Warm (IPFS), and Cold (Filecoin) data storage layers to serve data efficiently and cost-effectively. Users can easily access, analyze, and download diverse datasets, with the added capability to securely conduct imagery transactions using integrated crypto wallet features.

Vietnam Low Carbon Emissions Planner

- A serverless application deployed on Amazon services using Terraform, I was crucial in developing dynamic model output functionality and adding Admin CRUD operations via AWS Cognito. I focused on transforming complex Excel data into an engaging, interactive web platform. This significantly enhanced user interaction and understanding, effectively visualizing Vietnam's strategies for carbon emission reduction.

IPFS-stac

- Wrote 45% of the code for ipfs-stac, a Python package that seamlessly integrates STAC (SpatioTemporal Asset Catalog) with IPFS (InterPlanetary File System). This integration facilitates interaction with IPFS assets stored on STAC servers through native Python objects, enhancing accessibility and usability of geospatial data within the web3 ecosystem.

Additional Areas of Expertise

Languages: Python, TypeScript, JavaScript, Golang, SQL/NoSQL, Shell/Bash, Java

Web Development: Vue, Svelte, Astro, React, Django, Node.js, Tailwind, IPFS, SQLAlchemy

DevOps & Cloud: AWS (CloudFormation, AWS Bedrock, Serverless Architecture), Terraform, GitHub Actions, Docker, MongoDB, PostgreSQL, Cloud Computing, Automation, CI/CD

AI & Machine Learning: TensorFlow, PyTorch, Scikit-learn, OpenAI, Large Language Models (LLM), Geospatial Algorithm Development

Geospatial Technologies: Esri, ArcGIS, Mapbox, GDAL, GeoPandas, PostGIS, GeoServer, Dask, Turf.js, Deck.gl, OpenLayers, Leaflet, Visualization Tools & Libraries

Software Engineering & Practices: Test-Driven Development (TDD), Pair Programming, Unit Testing, Agile, Rapid Prototyping, Quality Assurance, Release Coordination, Technical Writing, Cross-Functional Leadership, Technical Mentorship

Database Management & ETL: SQL Performance Tuning, Database Management, Data Warehousing (Star Schema), ETL Pipeline Architecture, Migration & Upgrade Planning

API Development & Security: RESTful APIs, SOAP, JavaScript APIs, Security & Production Issue Resolution, User Authentication & Profile Management

Education

- **Master of Science in Geospatial Intelligence**
  George Mason University — 2015-2017 — GPA: 3.93
- **Bachelor of Arts in Geoinformation Science**
  University of California, Santa Barbara — 2013-2015 — GPA: 3.85
- **Bachelor of Science in Computer Science** (In Progress)
  Open Source Society University (OSSU)