JOHN SOLLY

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LEAD SOFTWARE ENGINEER

A strategic and dedicated Senior Software Engineer with a demonstrated history of working with geospatial applications and complex data solutions. A proven leader and mentor with a passion for maintaining the highest code quality standards. Expertise in developing bespoke geospatial applications, owning product implementations, and driving engineering leadership. Well-regarded for documenting well, showing ownership, and excelling as a tech lead with a comprehensive background in software development, databases, web development, and DevOps.

AREAS OF EXPERTISE

Software Engineering │ Geospatial Technologies & Analytics │ Database Management │ SQL Performance Tuning │ Web Development │ Automation │ DevOps │ Cloud Computing │ Serverless Architecture │ Agile │ Big Data │ Data Warehousing and Star Schema │ Test-Driven Development (TDD) │ Paired Programming │ Unit Testing │ Technical Writing │ Continuous Integration & Continuous Delivery (CI/CD) │ Rapid Prototyping │ Cross-Functional Leadership Technical Mentorship │ ETL Pipeline Architecture │ RESTful, SOAP, and JavaScript APIs │ Security & Production Issue Resolution Migration & Upgrade Planning │ User Authentication & Profile Management │ Large Language Models (LLM) │ Advanced Algorithm Development │ Visualization Tools & Libraries │ Quality Assurance │ Release Coordination

Languages: Python │ TypeScript │ JavaScript │ Golang │ SQL/NoSQL │ Shell/Bash │ SQL │ Java
Geospatial: PostGIS │ GeoPandas │ SQLalchemy │ GDAL │ Dask │ ArcGIS │ Mapbox GL │ Turf.js │ Deck GL │ OpenLayers │ Leaflet
Databases RDS │ Postgres │ MongoDB │ DynamoDB │ SQLite │ MSSQL │ MySQL │ IPFS
Web Development: Vue│ Svelte │ React │ Django │ Cloudflare │ GitHub Actions │ Bootstrap │ Vite │ TailwindCSS
DevOps & Cloud: Docker │ Terraform │ GitHub Actions │ S3 │ Lambda │ EC2 │ RDS │ IAM │ CloudWatch

PERFORMANCE HIGHLIGHTS

- **Increased Efficiency:** Reduced manual testing from 240 to 100 hours each quarter for offshore teams at Esri, achieving a 58% reduction in testing time and improving overall productivity by 140 hours quarterly.
- **Innovation:** Created bespoke web applications at New Light Technologies and the University of Maryland, managing over 300TB of COG and ZARR data, and innovating cache and retrieval methods for significant savings on infrastructure costs.
- **Leadership:** Led architecture standards and code quality guidelines for various teams of up to 4 engineers, mentoring and driving innovation and excellence within decentralized cyberinfrastructure development.
- **Open-Source Contributions:** Developed and maintained open-source projects such as 'web3-geo-dashboard' and 'ipfs-stac' utilizing technologies such as TypeScript, MongoDB, and serverless functions; leveraged GitHub Actions CI/CD pipeline for automated testing and deployment.
- **Academic Achievements:** Achieved second place in a Python-based semantic analysis competition; orchestrated and led numerous workshops, mapathons, and competitions, including an ASPRS funded HOTOSM mapathon event attended by over 100 participants.

PROFESSIONAL EXPERIENCE

SENIOR SOFTWARE ENGINEER   SEPT 2023 — PRESENT
New Light Technologies │ Washington D.C. (remote)

- Guide software decision-making, standardizing Amazon cloud services for deployments, adopting Vue for reactive front-ends, and implementing a uniform UI component library across all projects.
- Led a major government project, architecting a serverless solution with Amazon services for data-driven decision-making. Emphasized high coding standards, effective CI/CD, and agile development.
- Assumed technical leadership in my first week at NLT, rescuing a delayed project. Implemented a turnaround strategy, focusing on refactoring for performance optimization and reconfiguring the cloud deployment using Terraform CDK, ultimately delivering a successful solution to a satisfied customer.

SENIOR GEOSPATIAL DEVELOPER   SEPT 2022 — SEPT 2023
EASIER Data Initiative │ College Park, MD (Remote)

- Led a skilled team of 4 engineers in agile/kanban development, focusing on decentralized cyberinfrastructure and technical growth.

- Designed and executed ETL pipelines for large-scale data management, skillfully handling over 300TB+ of COG and ZARR data using decentralized storage systems like Filecoin and IPFS.
- Contributed to open-source projects 'ipfs-stac' and 'web3-geo-dashboard' on GitHub, enhancing geospatial data integration with GIS applications like QGIS and ArcPro.
- Authored and presented Python Jupyter notebooks at key industry events, including Consensus 2023 and the Compute Over Data summit, educating the developer community on advanced geospatial tools.

INTEGRATION CONSULTANT   MAY 2021 — FEB 2022
Yellowfin Business Intelligence │ Boise, ID (Remote)

- Acted as a trusted technical advisor, leading post-sales consulting engagements with major clients, enhancing developer experiences and solution effectiveness.
- Designed and implemented innovative data solutions using Yellowfin's REST, SOAP, and JavaScript APIs.
- Addressed and resolved complex L3 production issues across cloud, on-premise, and hybrid deployments.
- Authored a comprehensive best practices consultant playbook, guiding on-premise deployments for Yellowfin, setting industry standards.

SOFTWARE PRODUCT ENGINEER   MAY 2017 — MAY 2021
Environmental Research Institute (Esri) │ Redlands, CA

- Over four years, I successfully managed numerous 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 QA, localization, internationalization, and release teams.
- Innovated a dockerized automated regression testing harness using Python, Selenium, and Jenkins, resulting in a remarkable reduction of manual testing hours from 240 to 100 per quarter, a 58% efficiency gain.
- Authored and led the execution of ArcGIS Dashboard's sanity test plan, identifying hundreds of defects, and guided QA for various authentication methods, including SAML, LDAP, OAuth, and PKI.
- Spearheaded Right-to-Left (RTL) language support in ArcGIS Dashboards, overseeing testing and edge case research. Coordinated with internationalization and localization teams for accurate implementation while leveraging Python for strategic customer analytics.

SOFTWARE PRODUCT ENGINEER INTERN   JUNE 2016 — AUG 2016

- Led the development of impactful story maps and web applications used by state governors and constituents and showcased advanced JavaScript mapping solutions at Esri UC to an audience of 14,000 industry professionals.

ADDITIONAL EXPERIENCE & OPEN-SOURCE PROJECTS

GRADUATE RESEARCH & TEACHING ASSISTANT │ GEORGE MASON UNIVERSITY

- Investigated spatiotemporal patterns in "Team Spatial Cognition," funded by the Army Research Institute; presented findings at the AAG conference.
- Utilized Python for semantic analysis and surface classification; achieved second place in a related competition.
- Collaborated with faculty and organizations, including ASPRS and Mason Mappers, to support and engage students.

DASHBOARD MAPPING APPLICATION

- Developed a dashboard mapping application integrating Vue, Open Layers, Postgres, and PMTiles. Facilitated deployment in an Amazon cloud environment, utilizing S3, Lambda, DynamoDB, and Serverless Stack (SST) for efficient cloud-based operations.

WEB3 GEOSPATIAL DASHBOARD │ WEB3-GEO-DASHBOARD

- A web mapping application using Mapbox GL and Svelte to show Landsat scenes and IPFS+ Filecoin metadata.

DECARBONIZATION DATA ANALYSIS APPLICATION

- Enhanced a Vue-based decarbonization data analysis tool, phasing out Excel dependency to enable non-technical users to conduct analyses and generate reports with ease.

IPFS-STAC

- Contributed to the 'ipfs-stac' GitHub repository, a project integrating STAC (SpatioTemporal Asset Catalog) with IPFS (InterPlanetary File System) to enhance decentralized and efficient geospatial data sharing and retrieval.

EDUCATION

Master of Science, Geospatial Intelligence │ *George Mason University*

Bachelor of Arts, Geoinformation Science │ *University of California, Santa Barbara*

Bachelor of Science, Computer Science (In Progress) │ *Open Source Society University (OSSU)*