

Xinhuiyu (Huiyu) Liu

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Experience

Dyneti Technologies (fintech startup)

Jun 2026 – Jul 2026

Software Engineer

San Mateo, CA

- Designed and shipped an end-to-end asynchronous processing workflow across a Java/Kotlin Android SDK, Node.js backend, and AWS RDS, reducing user-facing latency by over 75% by decoupling ML inference from the synchronous request path
- Designed database schemas, API contracts, state transitions, and failure/pending-state handling for a server-to-server decision API, preserving backward compatibility across mobile, backend, and partner integrations
- Owned delivery from system design through implementation and validation, shipping SDK and backend releases through GitHub Actions CI/CD with automated API tests and multi-device end-to-end testing

IBSS Corp

Sep 2025 – May 2026

Software Engineer Intern

Remote, US

- Built TerraPrecise, a Python/FastAPI data platform that ingested and processed forecast, station, and terrain datasets, stored gridded outputs in AWS S3, and served location-specific weather risk products to React/Leaflet applications and automated alerting workflows
- Implemented the data layer with PostgreSQL/PostGIS for subscriber, location, spatial, and forecast metadata; TimescaleDB for location-level forecast and observation time series; and AWS S3 for large gridded weather outputs
- Built reproducible processing and validation workflows integrating HRRR forecasts, station observations, terrain, and high-resolution model outputs, with automated quality evaluation against independent ground observations
- Designed and deployed a Dockerized microservice architecture on AWS, isolating GPU-based weather downscaling model inference from lightweight API and alerting services through shared data contracts, with AWS Lambda supporting event-driven data ingestion
- Designed a cloud-native geospatial serving architecture using eoAPI, STAC, COG, and TiTiler to enable gridded weather datasets to be discovered, queried, and served as scalable map layers through standardized APIs

TGS (leading energy data analytics company)

May 2024 – Aug 2024

Software Engineer Intern

Houston, TX

- Built Python data pipelines for a renewable energy analytics platform, ingesting and processing hundreds of GB of numerical weather predictions and offshore lidar observations used for wind resource assessment on GCP
- Developed data-quality and ML-based bias-correction workflows combining model forecasts with observational data, improving wind speed RMSE by 15% and producing calibrated datasets for downstream energy analytics and visualization
- Reduced data processing time by 70% by optimizing Zarr and Parquet storage layouts and chunking strategies, enabling analytics workflows to process larger datasets without exceeding memory constraints

University of Virginia

Aug 2019 – May 2025

PhD Researcher (Funded by NASA)

Charlottesville, VA

- Wrote reusable Python pipelines using Xarray and Dask for data ingestion, quality control, and feature extraction across 100+ TB of satellite, reanalysis, and model-derived geospatial data
- Built a lightweight web interface using HTML/JS and Leaflet to visualize spatiotemporal analysis results from NetCDF datasets, enabling interactive exploration of geospatial patterns across time and location

Skills

Languages: Python, TypeScript/JavaScript, SQL, Java

Backend & Frontend: FastAPI, React, Node.js, Express, REST APIs, Leaflet

Cloud & Infrastructure: AWS (EC2, S3, Lambda, RDS, Elastic Beanstalk, CloudWatch), GCP, Docker, GitHub Actions, Linux, Git

Geospatial & Data: STAC, COG, TiTiler, eoAPI, PostgreSQL/PostGIS, TimescaleDB, Xarray, Dask, Parquet, Zarr

Machine Learning: PyTorch, TensorFlow, scikit-learn, production ML inference

Education

Georgia Institute of Technology, M.S. in Computer Science

Expected Dec 2026

- **Coursework:** Software Development Process, Operating Systems, Graduate Algorithms, Machine Learning, Data & Visual Analytics

University of Virginia, Ph.D. in Environmental Sciences

Aug 2019 – May 2025