JINGYI LI

Geospatial Analytics & Data Engineering | GIS | Cloud Distributed Database

+1 (610) 938-7161 | jyljingyili@gmail.com

Website Linkedin

SUMMARY OF QUALIFICATION

Geospatial Analytics & GIS:

- GIS web development, GIS software development, ArcGIS Online
- Geospatial Relational & NoSQL Database, Geospatial Data Analytics, Vector & Raster Data Analysis (ArcGIS Pro)

Data Engineering:

- ETL, Cloud Database, Geospatial Cloud Computing, Data Visualization, Dashboard, Interactive Web Map

Design & Planning

- Design/Planning Data Visualization, Cultural Resource Management, Preservation Planning, Digital Heritage

Computer Science & Software Development:

- Distributed Systems, Frontend & Full-Stack Development, Automated Testing, SQL Query Optimization
- Automated Testing, Debugging & Troubleshoot, DevOps, Product Engineering

SKILLSET HIGHLIGHT

Geographic Information System: ESRI ArcGIS Pro, ESRI ArcGIS Online, ArcGIS Storymap, HEC-RAS, HEC-HMS
Programming Language : C/C++, Python, Java, Javascript, PostgreSQL , SQL, MySQL, YML, Bash
Database: Relational Database (SQL) **,** MongoDB (NoSQL), Key-Value Store
Cloud Platforms: Google Cloud Platform, Azure
Computer Aided Design: Sketchup, AutoCAD, Rhino, Grasshopper, Vray, Lumion
Miscellaneous: Qt Creator, Docker, VMware, Git & Github, Microsoft Office Suite, Adobe Creative Suite

EDUCATION

University of Pennsylvania, Stuart Weitzman School of Design, Philadelphia, PA Aug 2023 (Expected)
Master of Science in Historic Preservation, Preservation Planning

- **Courses in Engineering**: **CIS5050** Software Systems | **CIS5480** Operating Systems Design and Implementation | ***CIS5530*** Networks Systems | **CIS5800** Machine Perception | **CIS560** Interactive Computer Graphics | **CIT590** Program Languages and Techniques | **MUSA611** Javascript Programming for Planners and Designers | **ENVS570** Modeling Geographic Space
- **Courses in Planning & Design**: **HSPV660** Documentation, Research, Recording | **HSPV625** Preservation Economics | **HSPV7010** Historic Preservation Studio

Harbin Institute of Technology, School of Architecture, Harbin, China Jun 2020
Bachelor of Engineering in Architecture (Architecture Portfolio)

- **Courses in Engineering & Science**: Advanced ***Algebra*** I and II | ***Mathematical Analysis*** I and II | Analytical ***Geometry*** | Elementary Number Theory | Single Variable Analysis | ***Probability*** Theory and Mathematical ***Statistics***

PREVIOUS EMPLOYMENT

Department of City Planning, Stuart Weitzman School of Design, UPenn , Philadelphia, PA
Machine Learning & NLP Research Assistant for Professor Elizabeth Delmelle (Ongoing) Present

- I am developing a typology for using machine learning and NLP approaches to map the longitudinal pathways of neighborhood changes.
  (ArcGIS Online, ArcGIS Pro, Python, Postgres, PostGIS, Natural Language Processing)

Teaching Assistant for MUSA5090 Geospatial Cloud Computing & Visualization (2023 Spring) Jan 2023 - May 2023
Teaching Assistant for MUSA611 Javascript Programming for Planners and Designers (2022 Fall) Aug 2023 - Dec 2023

- I use my knowledge in full-stack development, geospatial data engineering and cloud computing to hold office hours to assist students with querying Geospatial databases, building scripts with Python/Javascript, developing automated and cloud-based data pipelines, and visualizing geospatial data.
- I conducted DevOps and product management tasks for in-class collaborative projects. I deployed Docker on GCP using Cloud Run to generate vector and raster tiles.
- I wrote automated tests for PostgreSQL queries, sets up PostgreSQL linter for assignments and review codes from pull requests. I also wrote bash scripts to automate the workflow of downloading, transforming and loading data into PostgreSQL Server
  (PostgreSQL, PostGIS, GCP Big Query, Python, Javascript, Node.js, Git & Github, Jest, Sqlfluff, Leaflet, Mapbox, Google Earth Engine, CSS, Turf.js, Carto

Department of Computer & Information Science, Penn Engineering , Philadelphia, PA
Summer Research Intern at NetDB@Penn (for Professor Boon Thau Loo) Present

- My research focuses on the SQL query optimization for cloud-native distributed relational database. I am currently

working on designing and implementing tests for queries to estimate its computational resource consumption.

Teaching Assistant for CIS5050 Software Systems (2023 Spring) Jan 2023 - May 2023

- I use my knowledge in distributed systems and currency programming to hold office hours and tutorials.
- I am the Lead TA for a group of four on developing a distributed system (PennCloud) that provides webmail and cloud storage services.

Center for Architectural Conservation, Philadelphia, PA Apr 2022 - May 2023

Digital Technology Intern for Pennsylvania Hospital CMP & Wupatki National Monument

- I conducted GIS, hydrology analysis and Geospatial data visualization for Wupatki National Monument.
- I created a website, with interactive maps and visualized 3D Geospatial data for the Pennsylvania Hospital Conservation Management Plan Project (CMP). (Website)
- I created a digital database for the stabilization records of WUPA since 1900.
  (ArcGIS pro, HEC-RAS, HEC-HMS, Front-end Development, Javascript, Mapbox, Leaflet, HTML, CSS, CesiumJS)

Astoria AI Inc, New York, NY Jun 2022 - Aug 2022

Software Developer Engineer & Data Analysis Intern (Remote)

- I developed a prototype for customer service chatbot for online recruiting platforms using Natural Language Processing algorithms and deployed applications on Azure.

China Architecture Design and Research Group, Beijing, China Nov 2019 - Mar 2020

Intern Architect, Ju Atelier Department

- I completed conceptual design, 3D modeling and architectural drawings of a boutique hotel project.
- I conducted site research, analytical diagram drawings and construction drawings for an industrial park competition located in Henan, China. The proposal was nominated as one of the finalists for the competition.
  (AutoCAD, Sketchup, Revit, Adobe Creative Suite, Rhino, Visualization of Design Concept and Design)

ACADEMIC PROJECT

Geographic Information System (GIS) & Geospatial Analytics

- **Mapping the Flood Susceptibility for Historic Properties and Districts in Philadelphia (Report)**
  (ArcGIS Pro, Model Builder, Raster Calculation, Public-Sourced Data, Hydrology Analysis)
- **Mapping Pre/Post-war Larissa, Greece - Geo-referencing and Digitization using ArcGIS (Report)**
- **Grading System of Locating a Community Garden in Rio de Janeiro, Brazil (Report)**
  (ArcGIS Pro, Raster Data Classification and Calculation)
  - I normalized and classified raster data to understand population, water, transportation, topography and land use.

Geospatial Web Development (Frontend/Full-Stack) & Geospatial Cloud Computing

- **Philadelphia Computer-Assisted Mass Appraisal - A Data-Centric Cloud Computing Full-Stack App(Github)**
  (PostgreSQL, PostGIS, ETL, Docker, Geospatial Database Engineering, Data Pipelining, Big Query, Python, Javascript)
  - This is an in-class collaboration project. I worked on the Devops; project management; scripts for ETL, creating vector tiles, deployment, and vector tiles visualization on the front end.
- **Full-Stack App: Crowd-Sourcing Geospatial Data for Community-Centered Preservation of 7th Ward in Philadelphia (Github)**
  (Javascript, RESTful API, Node.js, Express, HTML, CSS, JQuery, MongoDB, Geospatial Cloud Database, DOM, Bootstrap)
  - Full-stack web programming and API development, and working with cloud databases.
  - I used NodeJS to write server-side JavaScript, NPM to install package and deploy applications on the cloud.
- **Frontend Web App: Filtering Preservation Geodatabase of Philadelphia (Github)**
  (Javascript, Leaflet, HTML, CSS)
  - The app was for historic preservation researchers to efficiently locate a historic assets in its Geospatial context
  - I loaded, processed and visualized GeoJSON data from public data sources

Cloud-Native Cloud Database Programming

- **Penn Cloud - A Cloud Platform Supporting Webmail and Storage Services Based on Distributed Key-value Store**:
  (C/C++, Distributed/Software Systems, gRPC, Cloud-native Application Development, High Availability and Low Latency Server Design, Distributed Data Management, NoSQL Database, VMware)
  - I programmed a scalable distributed key-value pair database (3 groups of servers, 3-node replication per group).
  - I collaborated with other three students and implemented load balancing, data partition, replication, fault tolerance, scalability, consistency and leader election among nodes.

ACTIVITIES & LEADERSHIP

The Penn Preservation Student Association (PPSA)

- We advocate on behalf of students' interests, meaningfully engage with faculty, and foster a sense of community among students and focus on three main areas: curriculum development and faculty relations; career planning and professional development; and social events and outreach.
- We hold regular meetings, bringing speakers to campus, and organizing events.