Gokul Prathin Asamani

Software Engineer

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Summary

Gained experience in Web Development, Automation & Machine Learning, including, but not limited to ReactJS, Node.js,Next.js, Django, Flask, Keras, Spring Boot, Puppeteer. Curious about new technologies and I love fast servers.

Education

George Mason University **08/2022 - 05/2024**
Computer and Information Sciences, General Master's degree
https://www.gmu.edu/

GITAM Deemed University **01/2017 - 06/2021**
Computer Science Bachelor of Technology - BTech
https://www.gitam.edu/

Experience

George Mason University - College of Science **02/2023 - 05/2024**
Research Assistant Virginia, United States
https://science.gmu.edu/

- Worked under Prof. Ziheng Sun (Center for Spatial Information Science and Systems) on Geoweaver Project (https://geobrain.csiss.gmu.edu/Geoweaver), a open-source project for workflow management funded by NASA (https://github.com/ESIPFed/Geoweaver).
- Responsible for maintaining the existing codebase and implementing new features for workflow management.
- Assisted Professor in writing research papers on “Pygeoweaver Tangible Workflows” & “A Review of Practical AI for Remote Sensing in Earth Sciences”
- Created a open-source Python bindings library for Geoweaver called Pygeoweaver (https://github.com/ESIPFed/pygeoweaver)
- Worked on Snow Water Equivalent workflow for predicting water in snow for entire Western US using SRTM DEM and Gridmet.

Marvin (fka Userfocus) **06/2021 - 08/2022**
Software Engineer Telangana, India
https://heymarvin.com

- Worked as a Full-stack Developer — Django, Flask, AWS, Elastic Search, Postgres, Heroku, React, Redux and Webpack.
- Closely worked with product team to create dashboards on Retool for analysis and gathering insights on how user’s interact with the platform for laying down future roadmap for the company.
- Worked on Zoom integration into the existing codebase and completely built a end to end pipeline to record and analyse calls that occur outside zoom such as MS Teams & Google Meet and automated the recording process with Selenium, FFmpeg & Chrome headless

Offerly **12/2019 - 05/2021**
Associate Software Engineer Hyderabad, India
https://www.heybandi.com/

- Worked on building a full stack E-Commerce application. Built a functional administration panel for active monitoring of customers and order details.
- Gained experience on React, Redux Postgres, AWS, Nodejs and Sentry while building the application and was able to implement business requirement features in production.
- Was responsible for migrating the project from React to Next’s for better performance and server side rendering

Projects

Geoweaver **02/2023 - Till Date**

Boost data pipeline's tangibility, enhance research productivity, reduce work anxiety

http://github.com/ESIPFed/Geoweaver

Geoweaver is an in-browser software allowing users to easily compose and execute full-stack data processing workflows via taking advantage of online spatial data facilities, high-performance computation platforms, and open-source deep learning libraries. It provides all-in-one capacity covering server management, code repository, workflow orchestration software, and history recorder.

docker, workflow management, earth science, jupyter hub, scientific computing

Pygeoweaver **02/23 - Till Date**

A python binding for geoweaver.

https://pypi.org/project/pygeoweaver/

This package is a Python wrapper of the GeoWeaver app which was written in Java. This package is designed for Jupyter users to be able to directly use Geoweaver in Python, Jupyter notebook or JupyterLab (JupyterHub).

Documentation: https://pygeoweaver.readthedocs.io/

python, geoweaver, workflow management

Snowcast **05/23 - 03/24**

Predict snow across western united states

https://geobrain.csiss.gmu.edu/swe_site/

SWE workflow leverages Geoweaver, a powerful tool that helps scientists create, manage, and share seamless and efficient computational frameworks effortlessly. By using Python and Shell scripts to collect the GridMET meteorology data, we trained an AI-based model with a daily temporal scale and 4-Km spatial resolution across the western United States. The core of the AI-based workflow centers on preparing historical training and near-real-time prediction inputs from various data sources dynamically for machine learning algorithms, such as random forest and deep learning methods. The integration of these techniques enables the model to capture complex spatiotemporal patterns in SWE dynamics, incorporating non-linear relationships and interactions between various meteorological variables.

snow, forecast, geoweaver, gridmet, amse, climatologylab, terrian features, scikit-learn, numpy, pandas

Codenames **04/23 - 02/24**

A interactive browser based multiplayer game.

https://github.com/gokulprathin8/codenames

Challenges players to guess words based on clues, enhancing strategic thinking and teamwork. Implemented game mechanics, user interface, and scoring system for an engaging and interactive experience. Uses FastAPI for the backend, Remix for the frontend, and Tailwind CSS for styling. Implemented robust game logic, real-time interactions, and a responsive user interface to provide a seamless and engaging gaming experience.

codenames, game, react, remix, fastapi, python, javascript

Natours

A MERN stack application

A tour booking application using the MERN stack (MongoDB, Express.js, React/Redux, Node.js). With user authentication with JWT, role-based access control, and secure password management. Google Maps API for geolocation services, allowing users to view and book tours based on location. Developed dynamic, interactive front-end components with React and Redux for state management. Deployed the application on Heroku.

mongodb, react, nodejs, redux, express, jwt, authentication

Landing Page - Geoweaver

https://geoweaver.dev

Publications

Actionable Science for Snow Monitoring and Response 01/2023
Springer
https://link.springer.com/chapter/10.1007/978-3-031-41758-0_9

Integrated advanced technologies, collaborative partnerships, and community engagement in snow monitoring to improve snow management practices. Leveraged remote sensing, ground-based measurements, and citizen science initiatives for accurate data analysis and risk prediction, enhancing the resilience and sustainability of snow-dependent communities.

Actionable Science for Greenhouse Gas Emission Reduction 04/2023
Springer
https://link.springer.com/chapter/10.1007/978-3-031-41758-0_4

Developed practical strategies for reducing greenhouse gas emissions by translating scientific knowledge into actionable solutions. Emphasized interdisciplinary approaches and stakeholder involvement to enhance the effectiveness of emission control measures, fostering collaboration among scientists, policymakers, and individuals.

A Review of Practical AI for Remote Sensing in Earth Sciences 8/2023
MDPI
https://www.mdpi.com/2072-4292/15/16/4112

Synthesized and analyzed AI methodologies and outcomes in remote sensing, identifying research gaps and emerging trends. Explored diverse applications including image classification, land cover mapping, and data fusion, while addressing challenges like data quality and model interpretability. Provided comprehensive insights for researchers and decision makers to advance AI integration in Earth sciences.

Certifications

Microsoft Power BI Desktop for Business Intelligence 09/23
Maven Analytics

Python Geospatial Navigation System 06/18
ISRO

Geographic Information Services Professional (GIS) 03/19
ISRO

Python Data Structures 12/2020
Coursera