Joel Samuel Rhine

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Professional Experience:

The World Bank, Washington, DC

Technical Consultant   May 2024 – Present

Remote Sensing, GIS, Python, GCS, Sphinx, Jupyter Notebooks, Cross-Functional Team Collaboration, Automation, Data Analysis

- Developed automated pipeline integrated with GCS (Drive API and Desktop APP) to fetch 20m Sentinel-1 raster data at AM0-level for any country in Africa. Developed detailed guides to replicate automated process. Improved ADM0 processing time by 90% [mean 10 days -> 1 day]
  - o Docs - mosaicbuilder.rtfd.io
  - o GitHub - github.com/rhinejoel/dea-mosaic-builder
- Identified random seed location discrepancies and proposed methods to improve clustering algorithm outputs in ArcGIS.
- Automated and aggr. admin boundaries, agriculture, conflict, world pop data-fetch pipelines in python, reducing time required by 77% [27m to 6m]

Development Monitors LLC., Arlington, VA

Technical Project Manager   May 2019 – Apr 2024

Project Management – Agile, Scrum, Kanban, Risk Management, Stakeholder Management, Jira, Confluence, Asana, Trello

- Co-authored technical proposals resulting in 4 project awards (USD50 million), reporting directly to company leadership.
- Multiple stakeholder management - The World Bank, universities, ministries of India, Afghanistan and Yemen.
- Developed air-tight roadmaps for complete project lifecycle, from Inception to Delivery – scheduling Deliverables, creating Milestones, identifying KPIs, implementing Performance Metrics like Stakeholder Satisfaction Score, Project Completion Rate, Resource Utilization and Milestone Achievement.
- Spearheaded development of more than 6 end-to-end software products, implementing Agile methodologies – ensuring 100% on-time delivery. Applied Agile and Waterfall methodologies, managing cross-functional teams efficiently.

Software Development – React, Next, TypeScript, JavaScript, Node, Express Python, Flask, AWS, Docker, Git, HTML, CSS, JS, PostgreSQL, Machine Learning

- Architected and implemented georeferenced water-network asset management system in two pilot cities of Shimla and Aizawl (India) as part of a World Bank India project; resulting in instant city-wide monitoring-and-analysis
  - o Managed cross-functional teams consisting of software developers, data and GIS engineers and field data collectors
  - o Developed a standardized-scalable georeferenced database-schema in Postgres/PostGIS
- Led and managed development of 3D risk mapping application in ReactJS, ThreeJS with python backend improving stakeholder engagement by 40%
  - o Automated elevation, satellite-imagery and OSM data-fetch reducing manual time required by 94% [35m to 2m]
  - o Containerized and deployed using Docker on AWS EC2.
- Developed 2D flood-risk mapping application in ReactJS with python backend automating flood risk analysis in prone areas
  - o Integrated machine learning model to identify building footprints to use as vector intersection with flood data.
  - o Pilot tested in Blacksburg, VA, reducing manual analysis time by 93% [30m to 2m] with 78% mean accuracy.
- Managed enhancement of sentinel satellite imagery resolution using a trained model, achieving 55% increase in resolution [10 meter to 4.5 meter]
- Managed training of machine learning model to digitize Afghan roofs, achieving 80% IOU and resulting in 76% effective decrease in time [20m to 1m]
- Developed complete data-analysis pipeline from collection, validation, transformation, visualization and analysis with KoBoToolbox, Postgres, python and QGIS in Afghanistan and Yemen as part of respective World Bank projects.
  - o Implemented strict rules to automate validation, reducing approval time and increasing efficiency by 99% [5m to 2s]
- Developed drone inventory to keep track of in-house and commercial drones in PyQt5, improving org-wide efficiency.
- Automated flood risk analysis of 6 villages in Afghanistan as part of a World Bank project, reducing manual time by 95% [10m to 30s]

Relevant Projects

Tresses Salon DC, E-Commerce Website w/ Admin Panel – ReactJS, NodeJS, Typescript, MongoDB, Square for scheduling and payments (tresses.us)
YouTube Clone – NextJS, Express, Docker, Typescript, GCS: Cloud Run, Cloud Buckets, Pub-Sub, Firebase (github.com/rhinejoel/youtube-clone)
Personal Portfolio – HTML, CSS, JS (github.com/rhinejoel/portfolio)

Education:

George Washington University, Washington, DC. May 2019. (**GPA 3.52**) M.S. in Mechanical and Aerospace Engineering

University of Mumbai, Mumbai, India. April 2016. B.S. in Mechanical Engineering

Technical and Language Skills:

Project Management: Agile, Scrum, Kanban, Waterfall, Risk Management, Stakeholder Management, Prioritization, Jira, Asana, Trello
Development & Dev Ops: Python, HTML, CSS, JS, Typescript, NextJS, ReactJS, ThreeJS, Node, Express, AWS, GCS, Docker, Git
Spatial Analysis: PostgreSQL, ArcGIS (Pro, Online), QGIS, Mapbox, Google Earth Engine, KoBoToolbox, ODM
Languages: English (fluent), Hindi (fluent) **Certifications:** Part 107 Remote Pilot (Drone Pilot), Open towards PMP, if required.