

# Madhav Manoj

## Summary

Full-stack developer with 6 years of experience in building web platforms, processing pipelines and mobile applications. Successfully worn multiple hats, as a UX Designer & Product Manager to build intuitive and engaging experiences. Skilled in development using React, Typescript, Rust, Python and experienced with both GCP and AWS. Interested in building well-designed products and understanding business motivations.

## Details

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## Experience

AspecScire

June 2017 - March 2023

### Founding Engineer

- Owned multiple features end-to-end, from wireframes to APIs & UI, and finally user documentation, with a focus on usability
- Picked up domain-specific skills & knowledge to better understand user requirements and build a better product
  - Geospatial Data Processing via GDAL, QGIS, SAGA, etc.
  - Coordinate Systems, Transformations and EPSG codes
- Provided customer & production support to ensure SLAs were met and custom requirements were handled
  - Handled adhoc requests from clients, documented the required process, and later integrated features into the product
  - Methodically investigated production bugs and ways to improve performance
- Worked as a Product Manager & UX Designer to establish processes, understand user requirements and build a product roadmap
  - Created a product roadmap and a process (Kanban) to prioritize action items based on business needs, for an entirely remote team
  - Created wireframes (Mockflow) and prototypes (Figma) to help understand user requirements and iterate on the required functionality
- Provisioned and setup VMs for the service team with the appropriate software and access, using GCP Compute and AWS EC2.
- Used Docker to containerize various services, and Docker Compose to orchestrate them locally.
  - Used Docker image to create cross-platform utilities for the service team
- Wrote python scripts to address adhoc requirements and orchestrate processing
  - Drone flight plan generation so that the data collected ensures accurate outputs
  - Async processing automation (Dataset Creation to Secondary Output Generation) using open-source and third party tools.
  - Geospatial Dataset Manipulation (Raster & Vector Dataset), ensuring appropriate coordinate systems for accurate geo-referencing using GDAL & SAGA.
  - Data upload to a 3rd party platform for tiling and visualization
- Wrote & maintained the APIs for the web platform Vimana
  - Migrated the initial Python Django APIs from Python2 to Python3
  - Supplemented the Django APIs with Python Flask API microservices to add additional functionality
  - Added APIs to support mobile apps for on-site data collection & output visualization
  - Re-architected & moved the APIs to a Java Spring Boot application to improve performance
  - Moved all the APIs to a Rust monorepo to improve performance and maintainability
- Owned, re-designed & re-architected our user-facing web platform Vimana
  - Owned the entire front-end codebase and most user-facing functionality, first in Angular and later in React
  - Helped with the database design & implemented it translated requirements to a Database Design, and helped implement it.
  - Started a staged migration of the codebase from class components to functional components in React 17
  - Used Redux for global state management, react-joyride for user tutorials, and react-router for routing
- Updated the UI codebases to use modern versions of the required packages, to improve developer experience
  - Updated core packages like React & Webpack, while ensuring functionality was maintained
  - Integrated WASM modules written in Rust, to move some complex processing to the client side, improving perceived performance and usability
- Helped with the database design for a NoSQL database using Google Cloud Datastore
  - Migrated the database from Google Cloud Datastore to PostgreSQL for better maintainability
- Helped change the codebase so that it can be deployed on-premise for clients as required
  - Removed dependencies on Cloud Platform specific services
  - Replaced Google Maps with Openlayers & OpenStreetMaps
  - Replaced Mapbox with our own internal tile server & Openlayers for visualization

Protium

April 2021 - March 2022

### Full-stack Developer

- Backend development
  - Integrated custom functionality on top of an open-source Process Orchestration Platform
  - Handled basic custom authentication using an open-source Identity & Access Management Platform
- Front-end Development
  - Developed a prototype web application, a mobile application, and custom forms using Formio, React, and React-Native

Dune

January 2017 - May 2017

### Back-end Developer

- Implemented custom video filters using OpenGL in C++
- Exposed python APIs for these features, using Boost

## Education

National Institute of Technology, Calicut

June 2013 - May 2017

GPA: 8.18 / 10

## Skills

### Languages & Frameworks

- Front-end:** Javascript & Typescript, React, Redux, React-Router, NodeJS, Webpack, Esbuild, Jest, Testing Library, React Joyride
- Back-end / Scripting:** Rust, Python, Java
- Design:** Figma, Penpot, Mockflow

### Tools & Infrastructure

- Containers & Orchestration:**Docker, Kubernetes, Docker Compose, Jenkins
- Databases:**PostgreSQL, Google Cloud Datastore, NoSQL
- Tools & Cloud Platforms:**GCP, AWS, Git

