

Swetna Annette Tribhuvan

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🌐 [Portfolio](#)

🌐 [swetna-tribhuvan](#)

👤 [Swetna](#)

Versatile Backend Software Engineer with 2+ years expertise in Python, Java, cloud computing, API development and database optimization, delivering scalable and high-performance solutions.

Technical Capabilities

- **Languages:** Python, Java, JavaScript, TypeScript, Kotlin, C#, SQL, PHP, HTML, CSS, R
- **Frontend:** React.js, Vue.js, API Integration
- **Backend:** Pytest, Laravel, Node.js, Spring Boot, Django, Flask, Distributed Architecture, JUnit
- **Machine Learning:** TensorFlow, Scikit-learn, OpenCV, Predictive Modeling, Geospatial Modeling
- **Data Management:** PostgreSQL, MongoDB, MySQL, ETL Processes, Spatial Data Analysis, QGIS
- **Cloud Infrastructure:** AWS, Google Cloud Platform, Docker, Kubernetes, Git Actions, Deployment Automation

Professional Experience

Backend Software Developer — *PolicyEngine, Rochester, NY*

Feb 2025 – Present

- Developed **25+ Pytest** test cases, boosting **code coverage** by 18% and cutting **production bugs** by 12%.
- Resolved **GCP deployment** issues in 3 environments, reducing **deployment time** by **22%** through improved **configurations** and **error handling**.
- Optimized **GitHub Actions** workflows, cutting **CI/CD runtime** by **25%** and improving **build reliability**.
- Assisted teammates by **troubleshooting** 3–5 issues per sprint, keeping **development** on track.

Software Engineer — *Information and Technology Services - RIT, Rochester, NY*

May 2023 – Dec 2024

- Crafted a real-time monitoring dashboard with **PostgreSQL** and **Grafana**, improving operational efficiency by **25%**
- Engineered robust backend **APIs** & services using **Java**, **C#**, enhancing system integration and reducing processing time by **15%**
- Secured **95% system uptime** through **Kubernetes** infrastructure implementation and strategic redundancy planning
- Optimized front-end architecture using **JavaScript** and **Vue.js**, decreasing page load times by **40%**
- Created content management solutions with **Laravel** and **Drupal**, supporting enterprise-wide web initiatives
- Led **Agile** and **Scrum** methodologies using **Jira** and **Trello**, increasing team velocity by **20%** and reducing delivery time

Web Developer Intern — *Covid India National Taskforce, Mumbai, India*

May 2021 – Jul 2021

- Revamped web platform's **information architecture**, enhancing user comprehension by **22%**
- Optimized data retrieval by **11%** through refined **MySQL** and **PHP** database interactions
- Facilitated **35%** faster real-time data synchronization through expanded **API integration**
- Spearheaded collaboration with three regional teams to deliver key **web development** projects ahead of schedule

Projects

AI-Driven Traffic Flow Optimization

GitHub: [Swetna/TrafficFlowAI](#)

- Pioneered adaptive traffic management system using **SUMO** and **Google Maps API**, reducing urban congestion by **15%**
- Devised **machine learning signal control algorithms** responding to **50,000+** real-time traffic conditions
- Orchestrated application using **Docker** and **AWS** cloud infrastructure for consistent performance

Technologies: Python, TensorFlow, SUMO, Google Maps API, Docker, Jenkins, AWS

Groundwater Prediction and Quality Analysis

GitHub: [Swetna/MahabhujalApp](#)

- Constructed a web-based dashboard using **React** and **TypeScript** to display water quality data from **30+ monitoring stations**
- Utilized **QGIS** to analyze groundwater depletion patterns, generating **3 interactive map layers** showing contamination risk zones
- Created **R statistical models** predicting seasonal water table fluctuations with **85% accuracy**, and automated **Node.js** data services with **Git Actions**, reducing deployment time by **35%**

Technologies: JavaScript, TypeScript, React, Node.js, QGIS, R, Git Actions

Poison Ivy Detection Mechanism

GitHub: [Swetna/PoisonIvyDetection](#)

- Attained **91% diagnostic precision** with **computer vision model** through advanced **feature extraction**
- Assembled **5,000+ image datasets**, heightening model accuracy by reducing training noise by **25%**

Technologies: Python, OpenCV, Scikit-learn, TensorFlow, NumPy, Pandas, Matlab

Full-Stack Hotel Reservation Platform

GitHub: [Swetna/HotelBookingApp](#)

- Reinforced **authentication ecosystem**, eliminating unauthorized access by **72%** through **multi-layer security protocols**
- Redesigned **user interface** for mobile responsiveness, driving **digital engagement** by **40%**
- Deployed **cloud-native infrastructure** enabling continuous system availability above **90%** of the time

Technologies: MongoDB, Express.js, React.js, Node.js, JWT, AWS

Academic Background

Master of Science in Computer Science

Aug 2021 – Dec 2024

Rochester Institute of Technology, Rochester, NY

Bachelor of Science in Information Technology

Jun 2017 – Jun 2021

University of Mumbai, Mumbai, India

Professional Certification

AWS Certified Developer Associate (Dec 2024), AWS Certified Cloud Practitioner (Apr 2024), Introduction to Generative AI by Google Cloud (July 2023)