Sandeep Kumar Rudhravaram

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SUMMARY

Software engineer with 7 years of experience in cloud computing, machine learning, and full-stack development. Led end-to-end development of applications and built scalable APIs and distributed systems that improved operational efficiency. Designed innovative solutions such as a Python-based tool for accessibility analysis while collaborating in agile environments to drive impactful product enhancements.

PROFESSIONAL EXPERIENCE

University of North Texas   **Sep 2023 - May 2025**
Teaching Assistant(Backend / Python Developer)

- Engineered A11yPDF, a Python-based tool that analyzed PDFs for accessibility issues across 10+ criteria (contrast, font size/type, alt text, link quality, captions, etc.) using WCAG 2.0 standards, achieving 95% feature coverage compared to legacy tools
- Processed 100+ PDF documents using automated parsing and machine learning techniques (image processing, LSA summarization) to identify and report accessibility violations with >90% accuracy.
- Developed a robust license plate recognition system by integrating TensorFlow, EasyOCR, OpenCV, and PyTorch; fine-tuned SSD-MobileNet (pretrained on COCO) for real-time and static image detection under challenging conditions, achieving 92% precision and strong generalization across diverse real-world datasets, paving the way for potential smart traffic deployment
- Improved the event platform by integrating Python and SQL, orchestrated survey campaigns, facilitated real-time engagement visibility, and increased response rates by 20% through design.

iAssist Innovations Labs   **Dec 2022 - Jun 2023**
Senior Product Developer

- Led the end-to-end development of three full-scale applications, working closely with product managers, testers, and developers to speed up delivery by 35% using agile workflows.
- Designed and integrated a computer vision ICR module with 95% accuracy, improving data extraction reliability and enabling advanced analytics via enriched datasets and validation pipelines.
- Engineered 12+ RESTful APIs to drive a claims automation platform featuring modular components, facilitating smooth scaling to 500+ hospitals without any customization requirements.
- Provisioned and configured AWS EC2 VMs for hosting production services, including load balancing and firewall settings, ensuring 99.9% uptime post-launch.
- Implemented CI/CD pipelines using Jenkins and Docker for 5+ applications, reducing deployment time by 60% and improving release frequency by 3x through automation.
- Deployed Python-based (scikit-learn) ML models for classifying insurance claims, achieving 90% accuracy in risk assessments shortened claim lifecycle, leading to significant operational efficiencies.

iAssist Innovations Labs   **Apr 2021 - Nov 2022**
Product Developer

- Championed backend architecture for five key projects, accelerated feature delivery by 50% using Agile methodologies, and improved iteration cycles, resulting in increased customer satisfaction scores
- Architected and implemented Python-based ETL workflows, achieving 40% faster queries by integrating NoSQL for scalable data access.
- Automated 40% of repetitive file-handling tasks using custom Python scripts, freeing up team bandwidth and improving operational flow.
- Created robust SQL-based data cleansing routines that handled DST shifts, time zone normalization, and complex exclusion logic leading to a 15% drop in data-related errors.
- Conducted 50+ vulnerability assessments and penetration tests, leading to remediation of security flaws and improving cloud app resilience by 35%.

iAssist Innovations Labs   **Oct 2020 - Mar 2021**
UX Product Developer

- Collaborated on UI/UX design and implementation, helping boost product efficiency from 40% to 85% by creating cleaner, more user-friendly interfaces based on real user feedback.
- Devised and implemented robust validations across frontend and backend layers, reducing errors by 75% and enhancing user experience.
- Integrated advanced OCR and ICR technologies for automated extraction, producing a 90% gain in data accuracy and reduced processing time for multilingual legal documents by 90% within three months.
- Pioneered a multilingual legal document classification engine capable of processing diverse formats, using OCR and NLP to ensure compliance and drive a 90% increase in client satisfaction.

Agility E-Services Pvt. Ltd   **Aug 2019 - Sep 2020**
JR Software Engineer

- Spearheaded the design and coding of 5 core modules within uCustoms, a national customs platform utilized by 1,000+ officers, streamlining declaration processing times by 30%.
- Delivered 10+ new features in ASP.NET MVC and C#, incorporating both client- and server-side validations, which reduced form-related errors by 25%.
- Wrote and optimized 15+ SQL Server stored procedures, improving report generation speeds by 15-20% for high-volume transaction data.
- Conducted 100+ unit tests and peer code reviews using TFS, catching critical issues early and improving deployment success rate to 98%+.
- Implemented an HS Code search feature that returned the top 3 most relevant matches based on user input, improving HS code selection accuracy and reducing selection time by 30% during record creation.

Boven Technologies   **Apr 2018 - Jul 2019**
Associate Software Engineer
- Developed a .NET online testing platform featuring adaptive assessments and role-based permissions, accelerating test creation and grading workflows by 50% while enhancing instructor satisfaction by 25%
- Integrated real-time analytics dashboards to help instructors track student progress, enabling targeted interventions and boosting learning outcomes by 25%.
- Automated NTPC's MGPS visitor process, achieving a 99.9% system uptime and processing 500+ visitor requests weekly, ensuring seamless access and maintaining stringent security protocols.
- Spearheaded development of secure access controls, optimized module dependencies, and introduced validation layers for sensitive user flows enhancing overall system integrity and usability.

EDUCATION

UNIVERSITY OF NORTH TEXAS   **Aug 2023 - May 2025**
Master's, Computer Science
- **Coursework:** Comp Algorithms, Fundamentals of DB, Software Engineering, Machine Learning, Data Mining, Software Testing, Information Retrieval, Wireless Networks, Big Data, Computer Networks

OSMANIA UNIVERSITY, HYDERABAD   **Sep 2014 - Jun 2018**
Bachelor's, Computer Science

TECHNICAL SKILLS

- **Cloud Technologies**: AWS (EC2, S3, ELB, ASG, IAM, Account Management, Billing & Support, Amazon Rekognition), Azure (VM provisioning, SSH/RDP setup, Resource Management), GCP (Core Services, VM Instances, Deployment Workflows), Virtual Machines, Load Balancing, Serverless Architecture, Cloud Security, CloudFormation, Terraform
- **Machine Learning & Data Science**: Pandas, NumPy, Scikit-learn, TensorFlow, PyTorch, OpenCV, EasyOCR, Deep Learning, Image Processing, Statistical Modeling, LSA Summarization, NLP, Computer Vision, Data Mining
- **Backend Development**: RESTful APIs, ETL Pipelines, Microservices Architecture, Django, Django REST Framework, Flask, Spring Boot (basic), Node.js
- **Frontend Development**: React, HTML, CSS, jQuery, Bootstrap
- **Programming**: Java, Python, C, C++, C#, JavaScript, SQL, Shell Scripting
- **Databases**: SQL Server, MySQL, MongoDB, NoSQL
- **DevOps & CI/CD**: GitHub Actions, Bash Scripting, Docker, Containerization, Deployment Automation, Terraform
- **Security**: Vulnerability Assessment, Penetration Testing, Secure Coding Practices, Incident Response, Firewall Configuration, OWASP, Threat Modeling, Network Security, Cryptography, Security Auditing
- **Software Engineering**: Agile Methodologies, SDLC, Version Control (Git, GitHub, TFS), Code Review, Unit Testing, Integration Testing, Design Patterns, Data Structures, Algorithms

Academic projects

A11yPDF – Accessible PDF Analyzer
- Developed a Python-based tool to detect accessibility issues in PDFs using WCAG 2.0 standards and machine learning. Published at Web4All 2024 with over 90% accuracy.

License Plate Recognition System
- Designed a real-time/static license plate detection system using SSD-MobileNet, OpenCV, and OCR tools, achieving 92% precision in varied conditions.

Event Sphere – Custom Event Analytics Platform
- Built a secure, role-based platform for dynamic event creation, participant tracking, and automated notifications with full lifecycle analytics using Python and SQL.

CERTIFICATIONS & ACHIEVEMENTS

- Our paper "A11yPDF: Bridging the Gap to Inclusive PDFs", co-authored with Dr. Wajdi Aljedaani, was accepted as a tool paper at Web4All 2024.
- Won the "Best Use of AI in Education" category by Major League Hacking at HackUNT, held on November 11–12, 2023.