RAJ KIRAN P

I Design and Implement Cutting-Edge Backend Systems

- Passionate **senior software developer** with over **5 years** startup-honed expertise in designing and delivering high-performance, scalable solutions.
- Deployed **over 10+ web applications** with **ML**, recognized for pioneering **patent pending solutions** adopted by industry leaders like Pfizer and Janssen.
- Proficient in **microservices architecture**, RESTful API design, structuring databases and cloud platforms like Azure and AWS.
- Led cross-functional teams, optimized development workflows and **grew the team size by 2 fold** from 9 to 18 members with zero attrition.
- Collected requirements and converted market insights into actionable **product plans** and **robust architecture** ensuring to attain product goals.

CONTACT

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SKILL SET

PROGRAMMING LANGUAGE
- Python (Advanced)
- Java, C, C++ (Basic)
- HTML, CSS, JavaScript (Basic)

TOOLS & SOFTWARE
- Git, DVC, Docker, Kubernetes
- PostgreSQL, Mongo, Neo4j, Redis
- RabbitMQ, Kafka, Celery, Ngnix
- Elasticsearch, Logstash, Kibana
- Jira, Confluence, Gitlab CI
- Azure, Amazon Web Service

PYTHON PACKAGES
- FastAPI, Flask, SQLAlchemy, Alembic
- Pyenv, Pipenv, Pre-Commit, Pytest
- Py2Neo, Streamlit, Xlsxwriter
- Black, Mypy, Pydantic, Pandera
- Numpy, Pandas, Scikit-Learn, Keras
- Matplotlib, Seaborn, Tesseract
- PyTorch, Transformers
- NLTK, Spacy, OpenCV, Pillow
- Requests, BeautifulSoup, Scrapy
- PDFPlumber, Camelot, Tabula

WORK EXPERIENCE

SOFTWARE ENGINEER
Freelancer via Upwork Global Inc   2023 Aug - Present

- Engineered **"PDFParser"**, a web application tailored for Ireland's leading wholesale distributor, optimizing sales and quotation workflows by extracting key information from documents in emails, leading to a **70% reduction in manual data entry time**.
- Incorporated **document AI** for data extraction and implemented a resilient fallback mechanism utilizing **Computer Vision** algorithms.
- Implemented **Server-Sent Events** for real-time user notifications, **JWT-based authentication** for secure API access, **ORM** for database interaction, Alembic for efficient **database migrations**, orchestrated **Celery workers** for asynchronous data-intensive tasks.
- Utilized **Natural Language Processing** to develop the **"IntelliMerge"**, a Streamlit application designed to map data from various sources.

TECHNICAL ARCHITECT
Genpro Research, Kerala, India   2022 May – 2023 Jul

- Successfully navigated all phases of product development, from requirement gathering through deployment, while specializing in **scalable architectural design**, technical design documentation, **database design**, and **API specifications**.
- Led the development of web app "**CARS**", incorporating **ML** to automate the insertion of tables and figures from various RTF files into specific document section, resulting in a **40% reduction in manual editing time.**
- Managed a cross-functional team in developing 4 sub-projects for the **"Constellation"** initiative at a leading pharmaceutical company.
- **Generated a knowledge graph** with Neo4j, from documents such as Clinical Study Reports (CSR) and Protocols, integrating with GDMS for automated document retrieval and parsing relevant sections.
- Developed a **visualization tool** with **question-answering** support for the above graph database and streamlined the automation of Study Design Specification (SDS) document generation from graph.
- Directed the full team in the creation of "**MAIA for RWE**" an **AI-assisted** authoring platform for pharmaceutical companies, resulting in a **3-4 week reduction in authoring time** and **cost savings of up to 50%.**
- Implemented Pubmed integration with Eutils API, automated document **scraping**, **active learning** strategies, **Elasticsearch** based search support, incorporated **entity extraction**,, and enhanced QC process.
- Piloted the team and developed the Publication authoring application **"MAIA for Publication"**, features include integration with ClinicalTrials, incorporating **WebSocket** and collaborative editor support.

RESEARCH ENGINEER

Genpro Research, Kerala, India   2021 May - 2022 Apr

- Led and contribute to research projects in **machine learning**, focusing on developing **state-of-the-art algorithms** and models for pharma domain.
- **Researched** and built a PDF parser that uses computer vision to extract relevant information such as tables, text, and figures using **layout detection** and **reading order**.
- Contributed to "**AutoCSR**", an table-to-text generation **microservice**.
- Directed integration of advanced **sentence embedding** techniques and executed fine-tuning on **transformer-based machine learning** models.
- Integrating application seamlessly with the **Microsoft single sign-on (SSO)** solution and **Google reCAPTCHA** functionality into the authentication process.
- Designed and implemented a specialized application aimed at aiding users in the **creation of custom datasets**.
- Conducted **exploratory data analysis** on internal datasets, extracting actionable insights to inform strategic decision-making processes.
- Researched different **paraphrasing** and **summarization** ML models and analyzed performance on a custom dataset.
- Implemented document generator and convertor module for formats such as DOCX, HTML, XML, CSV, RTF, and Excel.
- Served as a **product manager**, responsible for **requirements gathering**, prioritization, **roadmap planning**, wireframing, design reviews, and guiding the team towards achieving business objectives.
- Implemented **user experience improvements** based on usability studies and feedback, leading to a **15% increase** in user satisfaction.
- **Functioned as a project manager**, overseeing the creation and **management of sprints**, handling change and risk management, and facilitating daily stand-up meetings.
- Revised the hiring process for quickly filtering ideal candidates and conducted most of the **technical interviews** for the product team.
- Conducted more than **50% of code reviews**.
- Introduced a buddy system to mentor junior developers, rapid design process with breadboards and bi-weekly sessions for **sharing knowledge** and new tech updates, improving team's overall skill set.

MACHINE LEARNING ENGINEER

CLAP Research, Kerala, India   2018 Jul – 2021 Apr

- Developed web application "**Voody**" an enterprise search product which won Huddle Kerala (All India Startup Pitch) and NASSCOM Emerge 50.
- Developed "**Quantico**" a **Natural Language Question Answering System for Graph,** involving path planning, traversal and intelligent guessing for nodes and relationships.
- Designed NLP pipelines, developed **Document Ranking** and **Question Classification** models and implemented a personalized question **recommendation system** leveraging user search history.
- Designed the **data pipeline** for the extraction of drugs, diseases, genes, and the relation between them from research papers.
- Engineered RESTful APIs with ORM for **CRUD** operations, optimized data retrieval with **Redis caching**, and enhanced system robustness through the implementation of comprehensive **tests**, **logging**, and **mailing services. Containerized** applications with **docker**, and created **CI/CD pipelines** in Gitlab.

EDUCATION

BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE

Rajadhani Institute of Engineering & Tech   2014 - 2018

- Kerala University, **First Class with Distinction** (CGPA: 8.6/10)