Yash Ananta Zode

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SUMMARY

Software Engineer with 5+ years of hands-on experience building data-driven, AI, machine learning, and computer vision enabled backend systems and industrial automation solutions using Python, Java, Spring Boot, AWS, and CI/CD pipelines. Strong background in PLC-integrated systems leveraging OPCDA/OPCUA, real-time data exchange, scalable APIs, and production-grade deployments across enterprise and manufacturing environments

PROFESSIONAL EXPERIENCE

Software Engineer, *Integral Systems, Inc.* ***June 2025 - Present***

- Implemented computer vision based features using Python and deep learning models to analyze images and video data for automation and operational insights.
- Developed full-stack web and mobile applications using React, JavaScript, Python (Django/Flask), REST APIs, and SQL, supporting customer-facing and internal workflows.
- Worked on mobile parking management applications, integrating frontend interfaces with backend services and vision-driven components for real-time updates.
- Built and enhanced CRM tools for multiple customers, enabling customer onboarding, service tracking, internal notes, and operational reporting.
- Designed backend services to process structured and unstructured data, ensuring scalability, security, and maintainability.
- Utilized Databricks to process and analyze large datasets, supporting analytics and ML-driven features.
- Collaborated with product owners and cross-functional teams to deliver production-ready, end-to-end solutions.

Software Developer Intern, *Employ Milwaukee* ***July 2025 – Nov 2025***

- Built machine learning and AI agent systems using Python, CrewAI, and LangChain to automate internal workflows.
- Developed modular APIs and data services supporting analytics and operational decision-making.
- Implemented data processing pipelines and integrated ML outputs into backend systems.
- Applied MLOps-aligned practices, including model testing, monitoring, and pipeline debugging.
- Worked in Agile SDLC with analysts and program managers to deliver reliable, production-quality software.

Research Intern (Software Engineer), *University of Wisconsin-Milwaukee* ***Aug 2024 – May 2025***

- Developed and deployed a full-stack AI system that automated the extraction, summarization, and evaluation of graduate admission documents, significantly improving faculty review efficiency and workflow accuracy.
- Built end-to-end pipelines combining OCR, NLP models, and structured data transformation to convert scanned PDFs into actionable insights for academic decision-making.
- Created a secure Flask-based web application enabling faculty and staff to upload documents, review summaries, and access real-time predictions through a responsive, user-friendly interface.
- Designed data-processing logic that ensured accuracy, reliability, and proper handling of sensitive academic information throughout the system.
- Collaborated closely with faculty to understand requirements, document workflows, test model outputs, and enhance system usability based on user feedback.

Programmer Analyst, *Cognizant* ***Nov 2022 – Aug 2023***

- Developed a full-stack machine learning system to process large volumes of unstructured documents using OCR and NLP.
- Built end-to-end data pipelines for document ingestion, feature extraction, transformation, and prediction.
- Implemented statistical and machine learning models for classification and regression tasks.
- Deployed systems using Flask APIs and cloud-ready architectures.
- Ensured secure handling of sensitive data and produced technical documentation for maintenance and extension.

Junior Software Engineer, *Comau* ***Nov 2019 - Nov 2022***

- Developed Java-based monolithic and microservices applications using Spring Boot, delivering scalable RESTful APIs for large-scale industrial automation systems.
- Designed and implemented CI/CD pipelines with Jenkins and Docker, improving build stability, deployment efficiency, and release reliability.
- Built industrial automation software integrating PLCs via OPCDA and OPCUA using UA Expert for secure, real-time data exchange, while supporting real-time processing, monitoring, and production troubleshooting across distributed environments.
- Automated API and functional testing using Postman, Selenium, and Python, and deployed applications at client sites (Fiat and Mahindra), collaborating in an Agile (Scrum) environment to optimize performance and reliability.

Software Intern, ***Indeed Inspiring InfoTech*** ***Nov 2017 - June 2018***

- Implemented big data batch pipelines using Hadoop, improving large-scale data processing speed by 40%.
- Designed cloud infrastructure using OpenStack to support scalable computing environments.

PROJECT EXPERIENCE

Computer Vision–Based Milk Bottle Detection on Conveyor Belt

- Developed a computer vision system to detect milk bottles and caps on a moving conveyor belt, simulating real-world industrial production conditions.
- Used Autodistill with Grounded SAM to automatically label training data via a caption-based ontology, reducing manual annotation effort.
- Trained a YOLOv8 object detection model for accurate real-time detection, validating results with bounding boxes, masks, and labels.
- Performed video-based inference to generate annotated outputs, demonstrating readiness for manufacturing quality control and automation integration.

AI-Powered Knowledge Base with Dynamic Answer Generation

Technologies*: Hugging Face Transformers, FAISS, Elasticsearch, Python, Flask, Docker*

- Developed an AI-driven question-answering system for automated customer support using Retrieval-Augmented Generation (RAG), combining document retrieval and natural language generation to provide accurate and dynamic responses.
- Implemented FAISS for efficient document retrieval by encoding documents and queries into vector embeddings and performing similarity searches to retrieve contextually relevant documents.
- Used T5 (Text-to-Text Transfer Transformer) to generate context-aware answers by converting the question and retrieved context into a text format for fluent, human-readable responses.
- Deployed with Flask, providing a REST API for seamless interaction, enabling real-time query processing and automating customer support tasks.
- ***G*ithub**: https://github.com/YashZode/AI-Powered-Knowledge-Base-with-Dynamic-Answer-Generation

Machine Learning-based Automated Admission Recommendation System

Technologies*: Python, Scikit-learn, PyMuPDF, Tesseract OCR, Hugging Face Transformers, Flask*

- Developed a Flask-based web application that predicts graduate admission chances by extracting and analyzing scanned SOP and LOR PDFs using OCR and NLP techniques.
- Engineered a complete ML pipeline integrating document summarization, keyword extraction, and sentiment analysis using Hugging Face Transformers.
- Trained and evaluated a Linear Regression model on the Kaggle "Graduate Admissions" dataset, achieving an MAE of 0.05 and R^2 of 0.82, outperforming a residual neural network baseline.
- Implemented keyword-based scoring and flag extraction (e.g., research, internships) to transform qualitative content into structured numerical features.
- Deployed an end-to-end system with document upload, real-time prediction, and structured output summaries through a responsive web interface.
- **Github**: https://github.com/YashZode/Machine-Learning-based-Automated-Admission-Recommendation-System

CloudEduTrack: Accessible Online Quiz Platform

Technologies*: Angular, JavaScript, Spring Boot, AWS, Azure, Docker, Kubernetes*

- Led the design and development of a voice-activated quiz platform using Angular, JavaScript and Spring Boot, significantly improving accessibility (95%) for visually and motor-impaired users.
- Increased user engagement by 40% by implementing adaptive UI themes and advanced speech recognition using JavaScript-based APIs
- Managed platform scalability and reliability by deploying services on AWS and Azure using Docker and Kubernetes.
- **Link**: https://www.uwm-cloudblog.net/general/cloudedutrack-an-integrated-cloud-based-quiz-examination-system/

IOT Web platform for Plant Control and Monitor

Technologies*: Java Spring Boot, REST APIs, MongoDB, PostgreSQL*

- Improved manufacturing efficiency by 40% through development of microservices-based MES platform with real-time monitoring using Java Spring Boot and REST APIs.
- Enhanced data storage efficiency by 25% through MongoDB and PostgreSQL integration.
- Facilitated seamless system integration by directly collaborating with customers, resolving 90% of issues during deployment

Data Accessor | ***Technologies****: Python programming.*

- Implemented monolithic application which monitors and extra production data of welding points of parts from OPCUA/ OPCDA server through PLC tags and saves to file for client review.

TECHNICAL SKILLS

- **Programming Languages**: Java, Python, JavaScript
- **AI & Machine Learning:** Retrieval-Augmented Generation (RAG), OCR, NLP, PyTorch
- **Frameworks & Libraries**: Spring Boot, Flask, Angular, React Native , Hugging Face Transformers, Django, Scikit-learn
- **Cloud & DevOps**: AWS, Azure, Docker, Kubernetes, Jenkins, CI/CD
- **Databases & Messaging**: SQL, PostgreSQL, MongoDB, MySQL, Kafka, RabbitMQ, Microsoft SQL
- **Monitoring & Observability**: Prometheus, Grafana
- **Testing & Development Practices**: REST APIs, Test-Driven Development, Git, GitHub, Agile Methodology, Maven, Gradle
- **Tools & Practices**: Scrum, Agile, Daily Standups, Jira, Confluence, Unix/Linux, SOAP Web Services, JMS (RabbitMQ), Platform Integration

CERTIFICATIONS AND PUBLICATIONS

- Databricks Certified Generative AI Engineer Associate
- Databricks Certified Data Engineer Professional
- Databricks Certified Data Engineer Associate
- API's and Microservices developer certification
- Building Scalable Java Microservices with Spring Boot and Spring Cloud certification.
- Certified Red Hat System Administrator (RHCSA)
- **Copyright**: EXAMINATION PAPER SETTER AUTOMATION SYSTEM (Registration Number: SW-12888/2019)
- **Research paper**: Card Payment Using Three-Way Security, Published in JETIR, February 2020 (https://www.jetir.org/view?paper=JETIR2002408)

EDUCATION

Master of Science, Computer Science, *University of Wisconsin-Milwaukee* ***May 2025***

- **Relevant Coursework:** Data Structures & Algorithms, Object-Oriented Programming, Machine Learning
- **Achievements:** Graduate Teaching Assistant, Awarded the Chancellor's Graduate Student Award.

AWARDS & ACHIEVEMENTS

- **People's Choice Award: Hackreation (Hackathon) by Mitobyte, 2025:** Won the People's Choice Award at the Hackathon for outstanding performance and innovation.
  Link: https://www.linkedin.com/feed/update/urn:li:activity:7322687650975404033/
- **Implemented Retrieval-Augmented Generation (RAG) with Azure OpenAI Service:** Earned a badge for successfully implementing RAG using Azure OpenAI Service, demonstrating expertise in AI technologies and document retrieval systems.
  Link: **https://learn.microsoft.com/api/achievements/share/en-us/yashzode/XQMF3FBY?sharingId=5AAB7F38D62DAF2**

References

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