SHREYASH KAWALKAR

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PROFESSIONAL EXPERIENCE

Principal Architect / AI Engineer / Lead Software Developer

Datadecode.ai Pvt Ltd <https://datadecode.ai/> January 2022 - Present, Bangalore, IN

• **Architected** and executed **AI-as-a-Service Products** in sectors- Healthcare, Fintech, Cosmetics, and Software Hyper-Automation.

• **Fusion AI®:** An AI-powered solution to optimize organizations' product growth cycle, from MVP to Prod1.0 and beyond.

* **Designed** System to incorporate prewritten abstracts of code modules which when plugged-in together to form business workflows, enabling businesses to focus only on writing their business logics to the system.
* Developed python scripts/classes to structurize the abstraction and reusability of codes modules.

• **Intelligent Hyper Automation®:** A remarkable suite of AI-powered hyper-automation platforms, designed to cater to various use cases, revolutionizing the way businesses operate by enhancing efficiency and productivity.

* Launched 3 large-scale products for overseas clients, leading to increased revenue and an 85% improvement in business efficiency.
* **Developed** core algorithmic modules in Python, emphasizing code optimization, parallel processing, data streaming across distributed servers, data frame operations & query handling for analytics.

• **Driverless AI®:** Platform that accelerates AI products efficiently, leveraging advanced automation to complete critical ML tasks swiftly.

* **Engineered** cloud and network infrastructure internally and across client premises, ensuring seamless AI models deployment and usage. Built AI models and AI infra lifecycle for the platform, allowing clients to stay ahead of the curve in the competitive landscape.

• **Headed** cross-functional teams of backend developers, DevOps, frontend, and R&D teams, with a team size of 20-25 members.

• **Partners/ Clients of Datadecode.ai & Roles:**

1. AI Product Architect / Lead AI Engineer / AI Researcher

Productdev Edge Pvt Ltd <https://productdevedge.com/>

• **Headed** the development of **Patented “Formulation AI” Application**, based on concept- Most Advanced Yet Acceptable (MAYA).

* An end-to-end Cosmetic Products development Accelerator and Virtual Prototyping application software.
* Collaborated with researchers to formulate new cosmetic products using AI, resulting in **reduced no of iterations and costs for R&D.**

• **Researched on AI** and provided significant contributions to the **patented** software.

* Structured the **complexity & variability of data** involved in formulating cosmetics products - ingredients & chemical properties into the AI.
* Conducted research and experiments in various domains of AI - natural language processing, deep neural networks, neural recommendation systems, associative systems, ranking models, and other ML models, to design the proposed AI Expert System.

• **Architected** **the Hybrid - AI solution on Cloud** to address the project requirements.

* Designed the AI expert system, facilitating **ensembled learning** to incorporate **multiple stakeholders’ interests** within the system.
* Led a team of developers in developing the AI models and **AI Infra Lifecycle,** successfully integrating it to the platform.

• **Engineered** and **deployed** AI models.

* Conducted Exploratory Data Analysis **(EDA)** using Tableau, providing insights to the research team & enabling data-driven decisions.
* **Modeled and re-engineered** Neural Recommendation Systems to tailor it to “Formulation AI”. Deployed models with apt AI Infra.
* Leveraged **Explainable AI** to AI models (eg: reestablishing Feature Importance across ingredients data) & for discovering **features**.

1. Product Architect / Consultant / Lead Software Developer

Provenio.ai <https://provenio.ai/>

• Collaborated with overseas clients **to Architect** and implement various architectural frameworks for their Finance business products.

* Proposed architectures for various grades of products - Microservices, Event-Driven, SOA, Hybrid 3-tier, serverless architecture.
* Contributed as a core member in **business intelligence & planning** meetings to ensure alignment of technology strategies with business goals.
* Partnered with CXOs to re-architect products 3 times in 15 months, led to 300% jump in annual revenue & massive customer acquisition.

• **Led** a technical team of 10-15 people, building large-scale **AI powered Automation SAAS platforms**.

* Conducted code reviews, mentored junior developers, and implemented best practices to improve code quality and maintainability.
* Practiced Agile methodology over **3 product development cycles**, with each cycle ensuring improved timely delivery and quality of product.
* Enabling business automation across organizations (within clients) and increasing speed by 30%.

• **Developed and deployed** smart solutions in response to challenging segments of the product architectures.

* Implemented one for many reusability techniques to lay **CI/CD pipelines** using AWS CDKs for the whole **product line**, resulting in a 70% reduction in deployment time, a 20% reduction in production errors and 4-time reusability of pipelines.
* Built encrypted **Site-to-Site VPNs** connecting cloud-infras across organizations, thus secured communication and data-transfer.
* Wrote **core business logics & complex exception handling scripts** for seamless operations, 30% more efficiency & 20% less errors.

***Skills***:***Software Architecture, AI Research, Artificial Intelligence, Machine Learning, NLP, AI Models (Transformers, BERT, XLNET, Collaborative Filtering, Ranking models, LLMs), Torch, TensorFlow, Keras, Cloud (AWS, Azure), AI Infrastructure, Distributed Systems, Kubernetes, Docker, RESTful APIs, Python, Big Data Analytics, Serverless, Microservices, DevOps, ReactJs, Network Automations, Azure Power Apps, Airflow, Apache Spark, Shell Scripting, VPNs.***

Vidrona Ltd <https://vidrona.tech/> December 2019 - December 2021, London, UK

Product Architect

• Led **Product Ownership & Architected** cloud-based innovative Energy products to meet business needs, ensuring scalability & efficiency.   
• **Product vNautilus®:** An advanced AI Big Data product, utilizing a 3-tier hybrid cloud architecture to perform Asset Management.

* Designed the system to processes GBs of data using bigdata pipelines and to incorporates precision predictive AI solution & analytical scripts on images captured by drones, helicopters, and UAVs enabling the customers to reduce the cost by up to 50%.
* Wrote numerous Rest APIs with computational scripts to perform Asset Management in a broader spectrum- Health monitoring, Life expectancy, Maintenance, Inventory management, Geoinformatics.
* Built downstream data pipelines and ETLs to process weather data and satellite data, enabling real-time asset health monitoring.

• **Product vProbe®:** Providing multi-level authentic auditory platforms to government regulatory boards, and power companies

* Built and deployed microservices enabling them to file their audits and manage their assets efficiently without manual inspection.
* Designed database schemas for read optimized timestamp based OLAP application, handling multidimensional database.

• **Product vSL®:** A smart street light product for energy conservation.

* Designed the system and developed APIs to accommodate on-screen street lights health analysis, monitoring, and live operational features, along with advanced power-saving algorithms and an embedded CCMS system.
* Built dockerized AI models over monolithic, streamlining the development process and accelerating deployment by 6 folds.

• Strategically supervised AI/ML, application development and UI design teams, ensuring seamless collaboration & timely delivery of products.

Software Developer

* **Architected** and designed vNautilus, an advanced AI Big Data product that enabled heavy AI applications across multiple regions.
* Developed the vNautilus Architecture Framework, which incorporates best practices across five pillars of software architecture: availability, reliability, security, efficiency, and cost-effectiveness. Utilized a range of cloud deployment services from AWS.
* Incorporated NoSQL databases (MongoDB, Apache HBase, RRD, and Hive), as well as Big Data tools (Yarn, Apache Spark, Kafka, Airflow, DASK, and Ray) understanding architectural trade-offs of vNautilus.

***Skills: Software Architecture, Machine Learning, Computer Vision NLP, Models, Cloud (AWS), Distributed Systems, Kubernetes, RESTfull APIs, Python, ReactJs***

INTERNSHIPS

Big Data Analytics & Cloud Intern

Vidrona Ltd <https://vidrona.tech/> December 2018 - July 2019 (5 mths), London, UK

* Utilized big data tools and technologies such as Apache Kafka, Spark, and Apache HBase on AWS platform to analyze and visualize unstructured data empowering platform process high volume of data from Electric Power Supply components & assets.
* Performed stream and batched analytics using Spark data frames and stored results in HBase big data database.
* Gained expertise in cloud computing concepts such as SAAS, resource pooling, cloud storage, data streaming, messaging techniques, distributed systems, and parallel distributed computing. Proficient in AWS, Azure services and features.
* Conducted **Server and DB management**, scripted bootstrap files & OS images. Deployed multi-region VPCs using Boto3. Developed an auto-scalable **software systems lifecycle** processes: await-bootstrap, in-service, and await-terminate.

Machine Learning Intern

Vidrona Ltd <https://vidrona.tech/> June 2018 - July 2018, London, UK

* Developed 10 plus **Precision Predictive AI Python scripts** to detect **Asset faults and anomalies** in high-resolution images of Transmission & Distribution Power lines, enabling 10% increase in fault detections usually goes undetected by conventional logics.
* Implemented pre-processing, filters, trees and various ML algos, utilizing OpenCV, scikit-learn, and Keras(RNN, GRU, LSTM, YOLO).
* Implemented innovative**, first-principle based algorithmic approach** to accurately detect and identify asset faults.

Software Development Intern

Oil and Natural Gas Corporation Ltd <https://ongcindia.com/> May 2018 - June 2018, Ahmedabad, IN

* + Developed an **"Automatized Field System Monitoring"** in a team of three, to efficiently monitor and perform data mining over the field data from oil fields. Built simple ML prediction models for oil-water pressure layers and Dashboards to visualize the oil field.

ACHIEVEMENTS & INVOLVEMENTS

Diamond Winner: India Smart Grid Innovation Awards - 2021

• Contributed to Vidrona's ISUW2021 award for "The Best Smartgrid Project in India" with BSES Delhi, showcasing our AI technologies.

Presentation at ISUW – 2020: India Smart Utility Week.

• Supported Vidrona’s CEO, Dr. Ashutosh Natraj, share the company vision on "AI Inspired Precision Predictive Analytics on T&D Lines".

Business meet with Adani Enterprises Ltd • 2020

• Facilitated a high-level business meeting between the founder of Vidrona Ltd. & the COO of Adani Energy sector at Adani’s Headquarters. • Provided a compelling presentation & showcasing my skills to align business projects between the two companies.

Spokesperson at iCASIC - 2020: International Conference on Automation, Signal Processing, Instrumentation and Control

• Introduced by Vidrona CEO and VIT University at a conference showcasing automation industry leader.  
• Delivered a concise speech and Networked with esteemed companies and researchers, exchanging visions for future innovation.

All India Rank # 1398 • VITEEE 2016 • 2020

• Received a tuition fee waiver on Scholarship.

Google Devfest .Tech Winner • 2019

• Developed an award-winning AR video conferencing app using React and OpenGL, resulting in a cash prize and certificates.

SKILLS

Languages: Proficient in Python; Intermediate in Bash, C++, SQL, and Frontend (JavaScript, React.js, Node.js, D3.js)

Libraries & Algorithms: Expertise in Keras (CNN, RNN, GRU, LSTM, YOLO), Supervised, Semi-Supervised, Unsupervised AI

Cloud Deployment: Proficient in Amazon Web Services (AWS) and Azure , DevOps, MLOps, Kubernetes, Docker, Infrastructure.

Databases: Hands-on in NoSQL, MongoDB, Apache HBase, RRD, SQL, Hadoop, DocumentDB, and Hive

Big Data Tools: Experience in Yarn, Apache Spark, Apache Kafka, Airflow, pyspark, Dask and Livy. AWS EMR.

Technologies: Artificial Intelligence, Software Architecture, System Designs, Cloud, Big Data, Research, DevOps, RPA, IoT.

EDUCATION

Bachelor of Technology, Computer Science and Engineering

Vellore Institute of Technology, Vellore, IN – 2020 • CGPA: 8.57  (Completed 4-year courses in 3 years.)

PROJECTS & CONTRACTS

Virtual Earth: Natural Calamities Resilience

Inspiration, Open-Source (earth.nullschool) • June 2020 - August 2020

• Developed a real-time Natural Calamity monitoring system that streams data from sources: NOAA, NASA, & other weather stations.  
• Implemented real-time Asset Exposure reports on AWS for Natural Calamities: Tsunamis, Hurricanes, Earthquakes, and Lightning.

Full Automation: Athletes Performance & Gait Analysis

Sports Athlete Platform (contract)

• Led a Full Automation project for Athletes' Performance & Gait Analysis using the OpenPose algorithm from DeepMind.  
• Researched in making of shoes for Athletes in different sports categories to avoid ACL injuries. Also analyzed Athletes' performance.

Hyper-Automation: Comparative Justice

Educational Platform (contract)

• Implemented a Hyper Automation system based on Comparative Justice, using AI LSTM attention models and BERT models.

• RPA+AI to process huge multilingual Invoices - OCR, mapping, validation, & ratification. Built on Azure & Automation Anywhere.

• AI evaluating answers provided by students for an esteemed educational institute.

Healthcare: Scheduled Appointments No Show Predictions

DataDecode • August 2020 - December 2020

• Built XGBoost model on AWS to predict the likelihood of no-shows for scheduled appointments with a Likelihood AUC of 94.7%.

• Featured batch predictions with CalendarUI & data viz. using Google Charts.js. **Enabled approx. 12% ad-hoc appointments weekly**.

Healthcare: Diabetes Readmission Predictions

Datadecode • August 2020 - December 2020

• Developed an Xgboost model with an accuracy of 81.2% to predict the Readmission of Diabetic patients to hospitals.  
• Created user-friendly Tabular UI for batch prediction models with data visualization using Google charts.js, deployed on AWS cloud.

Grid System: Converting High Order Algorithms into One degree based on Geoinformatics.

Power Grid Management platform • December 2019 - February 2020

• Implemented hexagonal grid layers with varying grid dimensions that wrap around the earth in a **parent-child hierarchy**.   
• Assigned encoded keys to all geoinformatics data of a **Hexa-Grid**, simplifying algorithms like clustering, KNN, etc.

Auto scalable - Apache Kafka Module on Distributed Systems in Production

Distributed Server with High Availability • March 2019 - May 2019

• Deployed Auto-Scalable Kafka cluster on distributed servers, with dynamic of zookeeper nodes, scalable Kafka brokers and schema registry (AVRO message), and a shareable storage unit with Kafka-Connect for a common data pool.   
• Developed a monitoring script to ensure stable cluster component performance, enabling **high Availability with low SLAs**.

Emotion Recognition: DNN with TimeDistributed and bidirectional-LSTM on the Fly Recognition

***Google Summer of Code*** • September 2018 - November 2018

• Developed a deep neural network using above tech, for on-the-fly composite emotions, enabling **Human Robot Interactions**.