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Summary

Data Scientist and AI Developer with a strong focus on AI research and practical applications in machine learning, deep learning, and cloud computing. Specialized in developing scalable AI solutions, synthetic data generation, and innovative projects using cutting-edge technologies. Skilled in building user-centric applications and backend services. Certified AWS Cloud Practitioner, Solutions Architect, Google TensorFlow Developer, and Red Hat Developer. Eager to contribute to impactful AI R&D projects in production environments.

Education

Education	**B.Tech in Computer Science and Engineering**, *KL University, Hyderabad, India*, August 2021 – May 2025, GPA: 9.65.

Experience

2024 – Present	**Founder and AI Developer**, *Zynthetix*.
	○ Revolutionizing synthetic data generation with advanced machine learning and deep learning techniques.
	○ Developed scalable solutions to enhance machine learning model training and robustness.
May – Nov 2024	**Trainee Intern**, *IIIT Hyderabad, India*.
	○ Engaging in advanced AI and machine learning research projects.
	○ Collaborating with professors and researchers on innovative solutions.
Jan – Apr 2024	**Data Analyst**, *XtraLeap, Hyderabad, India*.
	○ Developed a dynamic JSON update service, improving data synchronization across services.
	○ Built a comprehensive business intelligence dashboard that improved decision-making efficiency.

Skills

Programming	C, C++, Python, Java, R, HTML, CSS, JavaScript, TypeScript
Frontend	React.js, React Native, Next.js, Vue.js, Vite.js, Expo, Tailwind CSS, Shadcn UI, Aceternity UI, MUI
Backend	FastAPI, Node.js, Express.js, PHP
Databases	Supabase, Firebase, PostgreSQL, MongoDB, SQL
AI/ML Tools	TensorFlow, PyTorch, Hugging Face Transformers, Gradio, Streamlit, LangChain, RAG
Cloud Services	AWS, Google Cloud, Vercel
Data Analysis	Pandas, NumPy, Matplotlib, Seaborn, Tableau, OpenCV
DevOps	Docker, Git, CI/CD, Firebase Authentication
Authentication	Firebase, Clerk Authentication, Auth0

Projects

Website (`https://visionaryapp.vercel.app`):

- **Frontend:** Developed using Next.js for server-side rendering, TailwindCSS for responsive design, and TypeScript for type-safe code.

- **Backend:** Utilized MySQL database with Prisma ORM for efficient data management and type-safe database queries.

- **Authentication:** Integrated Clerk for secure and customizable user authentication flows.

- **Payments:** Implemented Stripe for handling subscription-based payments and one-time purchases.

- **Features:**
  - AI-powered image generation: Allows users to create custom images from text descriptions.
  - Video generation: Enables creation of short video clips based on user prompts.
  - Music generation: Produces original music compositions from text inputs.
  - Code generation: Assists in writing code snippets and functions based on natural language descriptions.
  - Conversational AI: Provides an interactive chatbot for user assistance and general queries.

Mobile App:

- **Technology:** Built with React Native and Expo for cross-platform compatibility, ensuring a native feel on both iOS and Android devices.

- **Backend:** Leveraged Supabase for real-time database functionality, authentication, and storage solutions.

- **Features:**
  - Implemented in-app purchases for premium features and content.
  - Designed an intuitive and responsive user interface for seamless user experience across different device sizes.
  - Integrated push notifications for user engagement and updates.

AI Models:

- **Stable Diffusion:** Implemented for text-to-image generation, allowing users to create high-quality images from textual descriptions.

- **Vision Transformer (ViT):** Utilized for image classification tasks, capable of categorizing images into predefined classes with high accuracy.

- **BLIP (Bootstrapping Language-Image Pre-training):** Integrated for image captioning, generating descriptive text for uploaded images.

- **Llama 2:** Employed for advanced question answering and problem-solving tasks, providing detailed and contextually relevant responses.

- **DistilRoBERTa:** Implemented for emotion detection in text, analyzing and categorizing the emotional content of user inputs.

- **MarianMT:** Utilized for multi-language translation, supporting real-time translation between various language pairs.

- **DETR (Detection Transformer):** Integrated for object detection in images and videos, identifying and localizing multiple objects in visual content.

- **Gemini AI:** Leveraged for generating complete HTML/CSS code based on user descriptions, facilitating rapid prototyping of web designs.

- **Custom PDF Chatbot:** Developed a specialized model for querying PDF content, allowing users to ask questions and receive answers based on the information contained in uploaded PDF documents.

FASTAPI Chat App Developed a full-fledged chat application using FastAPI, featuring:

- **Backend:** Built with FastAPI for high-performance, easy-to-use REST API endpoints.
- **Real-time Communication:** Implemented WebSocket for instant message delivery and updates.
- **Database:** Utilized MongoDB for efficient storage and retrieval of chat messages and user data.
- **Authentication:** Implemented secure user authentication and authorization using JWT tokens.
- **Features:**
  - One-on-one and group chat functionality
  - Message read receipts and online status indicators
  - File sharing capabilities
  - Message search and chat history

Blog Manager (FarmStack) Created a comprehensive blog website with full CRUD operations using the FARM (FastAPI, React, MongoDB) stack:

- **Backend:** Developed RESTful API endpoints using FastAPI for efficient data handling.
- **Frontend:** Built an interactive UI with React, implementing state management with Redux.
- **Database:** Utilized MongoDB for flexible and scalable data storage.
- **Features:**
  - User authentication and authorization system
  - Rich text editing for blog post creation and editing
  - Commenting system with nested replies
  - Tag-based categorization and search functionality
  - Responsive design for mobile and desktop viewing

Jarvis: AI Assistant Developed an NLP-based AI assistant to enhance productivity and automate tasks:

- **Core Technology:** Utilized advanced NLP techniques and machine learning models for natural language understanding and generation.
- **Speech Recognition:** Integrated speech-to-text functionality for hands-free operation.
- **Text-to-Speech:** Implemented text-to-speech for audible responses and instructions.
- **Features:**
  - Task scheduling and reminders
  - Email drafting and sending
  - Web searches and information retrieval
  - Smart home device control integration
  - Personalized recommendations based on user preferences and behavior

Gesture-Based Mouse Control
Created a system for controlling computer mouse functions through hand gestures:

- **Technologies:** Utilized MediaPipe for hand tracking, OpenCV for image processing, and PyAutoGUI for mouse control.
- **Features:**
  - Real-time hand tracking and gesture recognition
  - Mouse movement control through hand motions
  - Click, right-click, and scroll functionalities mapped to specific gestures
  - Customizable gesture mappings for personalized control
- **Applications:** Enhances accessibility for users with mobility impairments and enables touchless computer interaction in various environments.

Hugging Face Practices
Conducted extensive experiments with Hugging Face's Transformers library:

- **Focus Areas:**
  - Fine-tuning pre-trained models for specific NLP tasks
  - Sentiment analysis on various datasets
  - Named Entity Recognition (NER) for information extraction
  - Text summarization for content condensation
- **Models Explored:** BERT, RoBERTa, GPT-2, T5
- **Techniques:** Transfer learning, few-shot learning, zero-shot learning
- **Evaluation:** Implemented comprehensive evaluation metrics and error analysis

Email Spam Detection
Developed a machine learning project for classifying emails as spam or ham:

- **Technology Stack:** Utilized R programming language and the quanteda package for text analysis.
- **Data Preprocessing:** Implemented advanced text cleaning and normalization techniques.
- **Feature Extraction:** Applied TF-IDF vectorization and n-gram analysis for effective feature representation.
- **Model Development:**
  - Implemented and compared multiple classification algorithms including Naive Bayes, Random Forest, and SVM.
  - Conducted hyperparameter tuning using grid search and cross-validation.
- **Evaluation:** Performed comprehensive model evaluation using metrics such as accuracy, precision, recall, and F1-score.

TensorFlow Assignments Completed a series of deep learning projects using TensorFlow:

- **Image Classification:** Built and trained convolutional neural networks (CNNs) for multi-class image classification tasks.
- **Natural Language Processing:** Implemented recurrent neural networks (RNNs) and transformers for text classification and generation.
- **Time Series Forecasting:** Developed LSTM models for predicting future values in time series data.
- **Transfer Learning:** Applied transfer learning techniques to leverage pre-trained models for custom tasks.
- **Model Optimization:** Explored techniques for model compression and quantization to improve inference speed.

E-commerce Website Developed a full-featured online store using Java technologies:

- **Backend:** Built with Java EE, utilizing Servlets and JSPs for dynamic content generation.
- **Database:** Implemented MySQL for product, user, and order data storage.
- **Features:**
  - User authentication and profile management
  - Product catalog with search and filter functionalities
  - Shopping cart implementation
  - Order processing and tracking
  - Secure payment integration (PayPal API)
  - Admin panel for inventory and order management
- **Security:** Implemented SSL encryption and input validation to ensure data protection.

Gallery App (AWS) Created a cloud-based photo storage and sharing application:

- **Frontend:** Developed using React.js with TypeScript for type-safe code.
- **Backend:** Leveraged AWS Amplify for seamless integration with various AWS services.
- **Storage:** Utilized Amazon S3 for scalable and secure photo storage.
- **Authentication:** Implemented AWS Cognito for user authentication and access control.
- **Database:** Used Amazon DynamoDB for metadata storage and quick retrieval.
- **Features:**
  - User-friendly interface for photo uploads and organization
  - Album creation and management
  - Photo sharing capabilities with customizable privacy settings
  - Image processing for thumbnails and optimized viewing
  - Search functionality based on metadata and tags
  - Responsive design for both desktop and mobile devices

Sentiment Analysis Tool

Developed a Python-based sentiment analysis tool for text analysis:

- **Core Technology:** Implemented Natural Language Processing techniques using NLTK and spaCy libraries.

- **Sentiment Analysis:** Utilized a combination of rule-based and machine learning approaches for robust sentiment detection.

- **Features:**

  - Text preprocessing including tokenization, stemming, and lemmatization
  - Sentiment classification (positive, negative, neutral)
  - Sentiment intensity scoring
  - Aspect-based sentiment analysis for identifying sentiments towards specific aspects of a product or service
  - Visualization of sentiment trends and distributions

- **Applications:** Suitable for analyzing customer reviews, social media comments, and survey responses.

Dynamic JSON Updater

Created a system for automatic JSON file updates based on database changes:

- **Backend:** Developed using Node.js for efficient server-side processing.

- **Database Integration:** Implemented listeners for various database systems including PostgreSQL and MongoDB.

- **JSON Processing:** Utilized efficient JSON parsing and manipulation libraries for handling large datasets.

- **Features:**

  - Real-time monitoring of database changes
  - Configurable mapping between database fields and JSON structures
  - Support for complex JSON transformations and nested structures
  - Batch processing for handling high-volume updates
  - Logging and error handling for reliable operation

- **Applications:** Ideal for maintaining synchronized data representations across different services and applications.

Ivarna Website

Designed and developed an interactive website for a college fest:

- **Frontend:** Built using React.js for a dynamic and interactive user interface.
- **Backend:** Implemented Node.js with Express for handling server-side logic and API endpoints.
- **Database:** Utilized MongoDB for storing event details, registrations, and user data.
- **Features:**
  - Interactive event timeline with smooth animations
  - Online registration system for various events
  - Real-time updates on event schedules and announcements
  - Gallery section for showcasing past events and highlights
  - Integration with social media platforms for wider reach
  - Responsive design ensuring compatibility across devices
- **Performance:** Implemented lazy loading and code splitting for optimal load times.
- **Analytics:** Integrated Google Analytics for tracking user engagement and popular events.

Hackathon Website

Developed a website for a hackathon event, featuring an AI chatbot for Alzheimer's patients:

- **Website Development:**
  - Frontend: Built with React.js and styled using Tailwind CSS for a modern, responsive design.
  - Backend: Implemented using Node.js and Express.js for efficient server-side operations.
  - Database: Utilized MongoDB for storing participant information and project submissions.
- **AI Chatbot for Alzheimer's Patients:**
  - Core Technology: Developed using Python with the Rasa framework for natural language understanding and dialogue management.
  - Features:
    - Personalized responses based on patient's medical history and preferences
    - Memory exercises and cognitive stimulation activities
    - Medication reminders and daily routine assistance
    - Emotion recognition and appropriate conversational responses
    - Integration with caregiver monitoring systems
  - NLP Integration: Utilized advanced NLP techniques for context understanding and maintaining coherent conversations.
  - Security: Implemented robust data encryption and privacy measures to protect sensitive medical information.
- **Website Features:**
  - Online registration portal for hackathon participants
  - Real-time leaderboard and project showcase section
  - Integration of the AI chatbot demo for visitors to interact with
  - Resources section with documentation and datasets for participants
  - Live streaming capability for opening and closing ceremonies

Dietfit Created a personalized diet planning website using web technologies:

- **Frontend:** Developed using HTML5, CSS3, and JavaScript for an interactive user interface.
- **Backend:** Implemented PHP for server-side logic and MySQL for database management.
- **Key Features:**
  - User profile creation with personal health metrics and dietary preferences
  - Customized meal plan generation based on nutritional needs and goals
  - Recipe database with filtering options for dietary restrictions (vegan, gluten-free, etc.)
  - Calorie and macronutrient tracking functionality
  - Integration with fitness trackers for activity-based calorie adjustment
  - Progress tracking with visual charts and graphs
  - Educational content on nutrition and healthy eating habits
- **Algorithm:** Developed a sophisticated algorithm for meal planning that considers nutritional balance, user preferences, and dietary restrictions.
- **User Experience:** Implemented an intuitive drag-and-drop interface for meal customization.
- **Mobile Responsiveness:** Ensured the website is fully functional and visually appealing on various mobile devices.

Publications

March 2024 "Enhancing Neural Network Performance in Image Classification through Grayscale Preprocessing: A Comparative Study"

- Conducted extensive research on the impact of grayscale preprocessing on various neural network architectures for image classification tasks.
- Analyzed performance metrics including accuracy, computational efficiency, and model complexity across different datasets.
- Demonstrated significant improvements in both classification accuracy and processing speed for certain network architectures when using grayscale preprocessing.
- Proposed a novel preprocessing pipeline that combines grayscale conversion with adaptive histogram equalization for enhanced feature extraction.

Certifications

AWS

- Cloud Practitioner: Comprehensive understanding of AWS Cloud concepts, services, security, architecture, pricing, and support.
- Solutions Architect: Advanced knowledge in designing distributed systems and deploying applications on AWS platforms.

Google TensorFlow Developer: Proficiency in building and training neural networks using TensorFlow, covering computer vision, NLP, and time series analysis.

Red Hat Certified Enterprise Application Developer: Expertise in developing Java EE applications for Red Hat JBoss Enterprise Application Platform.

Oracle

- Cloud Infrastructure 2024 Generative AI Certified Professional: Specialized knowledge in implementing and managing generative AI solutions on Oracle Cloud Infrastructure.

- 2023 Certified Architect Associate: Proficiency in designing and implementing solutions using Oracle Cloud Infrastructure services.

Awards & Achievements

Competitions

- 1st prize in Technical Expo: Developed an innovative AI-driven solution for real-time sign language translation.

- 1st prize in Webathon: Created a highly accessible and responsive web application for community resource sharing.

Leadership Executive Council Member of Student Activity Center: Organized tech workshops, coding competitions, and industry interaction sessions.

Recognition Award for contributions to the Student Activity Center: Acknowledged for initiatives in promoting tech literacy and innovation among students.

Sports Participated in state-level and national-level tennis tournaments, demonstrating discipline, teamwork, and competitive spirit.

Interests

- Playing Tennis: Regularly participate in local tournaments and college team.

- Exploring AI tools: Constantly experimenting with new AI technologies and their practical applications.

- Fitness: Committed to daily workouts and promoting a healthy lifestyle.

- Traveling: Enthusiast for exploring diverse cultures and natural landscapes.

Languages

English (Fluent), Telugu (Native), Hindi (Fluent)