Suvidha International After School GenAI Program: 2025 Schedule

Learn to Build Industrial Agents-Generative AI Curriculum for Schools

Funded by the City of Rancho Cordova's Community Enhancement & Investment Fund

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Program Overview & Highlights

Industrial GenAI Curriculum for Schools is a pioneering program introducing high school students to the latest in generative artificial intelligence. Blending foundational knowledge, practical skills, and real-world problem solving, the curriculum guides students from basic AI principles to building and deploying industrial GenAI solutions.

Through engaging, hands-on units, students learn programming, explore ethical issues, and use advanced AI tools like large language models. Structured into foundational, intermediate, and advanced levels, the program ensures progressive, accessible learning.

By the end, students will have the knowledge and skills to develop and apply GenAI solutions in real industrial contexts, preparing them for further study and careers in technology and engineering.

Key Features & Weightings

- Progressive learning from foundational to advanced GenAI concepts: **20%**
- Emphasis on practical, hands-on experience and project-based learning: **30%**
- Exposure to the latest industry tools and practices: 15%
- Focus on ethics, responsibility, and the societal impact of AI: **15%**
- Designed for 11th–12th grade high school students, with support for educators: **20%**

Learning Roadmap

Advanced Studies

- Business Cases
- Real-world Applications
- Use case Development
- Technology – Advanced

- Building Autonomous Industrial Agents
- Optimizing Industrial Processes with AI
- Reinforcement Learning for Agent Training
- Agent Decision-Making Frameworks
- Multi-Agent Systems for Industry
- Real-Time Data Processing for Industrial Agents
- Ensuring Agent Safety and Reliability
- Human-Agent Collaboration in Industrial Environments
- Deploying Agents to Production
- Capstone Project: End-to-End Industrial Agent Development

Intermediate Studies

- Algorithms
- Models
- Data Processing
- Technology

- Deep Learning Fundamentals
- Natural Language Processing (NLP) Techniques
- Computer Vision for Industry
- Advanced Prompt Engineering
- Fine-Tuning Pre-Trained Models
- API Integration with AI Models
- AI Project Planning & Management
- Data Collection and Preparation for Industrial AI
- Testing and Debugging AI Applications
- Multimodal AI Systems

Foundation Studies

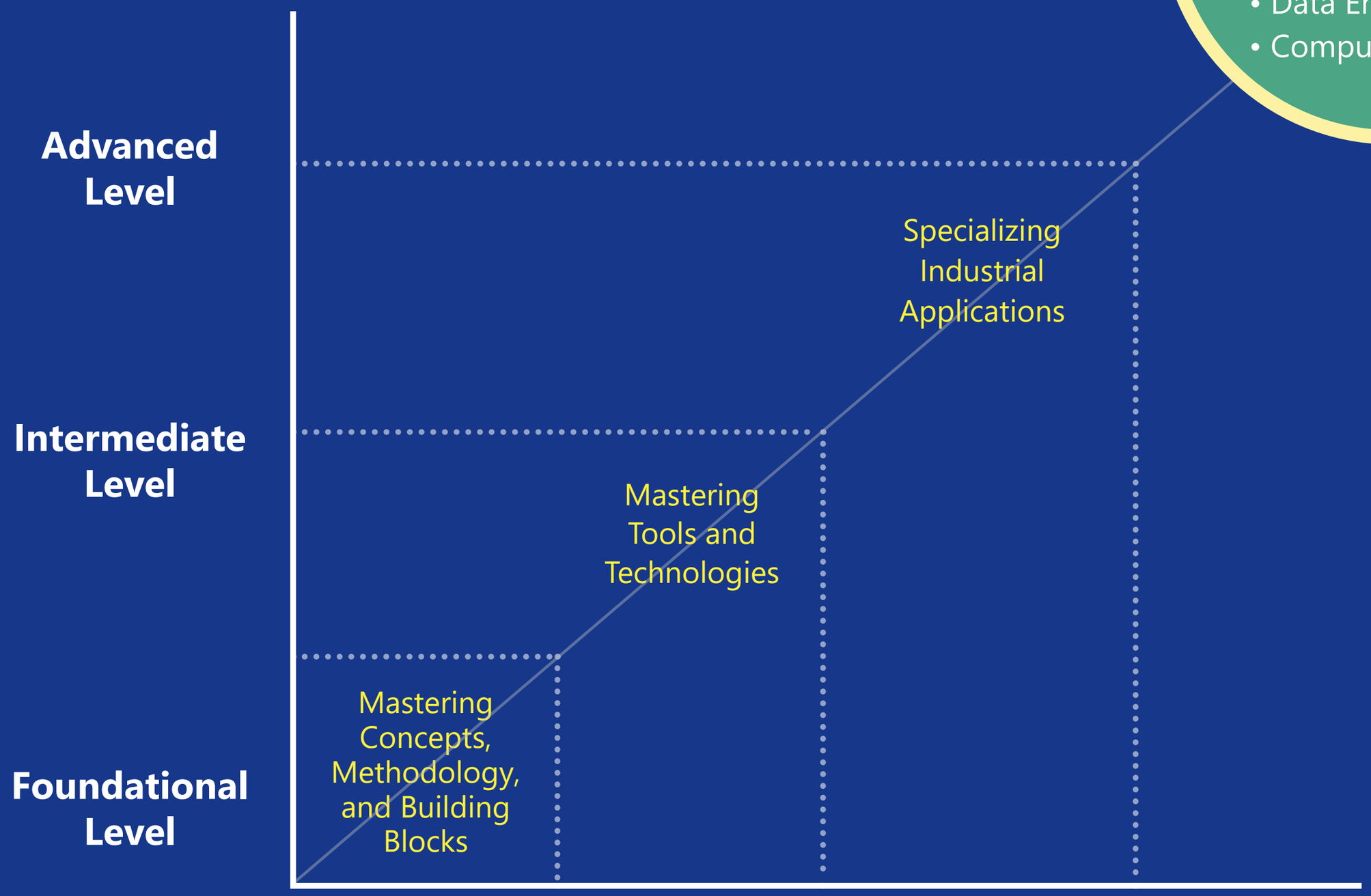
- Concepts
- Terminologies
- System Demos
- Programming
- Hands-on Learning

- Introduction to Artificial Intelligence & Machine Learning
- Programming Fundamentals for AI (Python)
- Data Types and Structures for AI Applications
- Basic Probability and Statistics for AI
- Introduction to Neural Networks
- Ethics in AI Development
- Understanding Large Language Models (LLMs)
- Setting Up AI Tools and Environments
- Basic Prompt Engineering
- Overview of Industrial AI Applications

Our Generative AI Program's Measurable Values

Generative AI Subject Matter Resources

- Agents
- Business Applications
- Machine Learning
- Data Engineering
- Computing



"Jothi...Ultimately, the Artificial Intelligence workshop gave the students a new vision about their future as adult leaders and productive citizens with AI in the center of a new digital era..."

Fiona Ma
State Treasurer
California Treasurer's Office
California, USA

Objectives, Outcomes, and Audience

1

Objectives

- To introduce students to the core concepts of industrial generative AI, equipping them with foundational knowledge, hands-on skills, and an understanding of real-world applications in various industries.

2

Audience

- 11th–12th grade high school students, especially thos interested in STEM, technology, or engineering.
- Students with basic computer literacy or introductoryprogramming experience.
- Educators/facilitators looking to implement GenAI in school-based curricula.

3

Outcomes

Students will be able to:

- Explain the principles of generative AI and its industrial relevance.
- Use basic programming and prompt engineering to interact with GenAI tools.
- Complete lab assignments and apply learned concepts to solveindustrial problems.
- Demonstrate understanding through both written and practical assessments.

4

Key Takeaways

- Understanding the role and impact of GenAI in industry.
- Practical experience in programming, prompt engineering, and building simple AI models.
- Awareness of ethical considerations and best practices in GenAI.
- The ability to analyze, create, and improve AI-driven industrial solutions.

Participant Rewards & Program Support

Participants will receive a free laptop to support their work throughout the program. Cash prizes are awarded to top performers, recognizing outstanding achievements. All members enjoy complimentary meals and transportation assistance, ensuring a smooth and comfortable experience.

Free Laptop

Laptops will be provisioned to needy families.Participants successfully completing the program, assigned projects, and qualifying criteria can retain their assigned laptop for personal use.

Cash Prize

Cash prizes will be awarded to the top three performers, in addition to other program benefits.

Complimentary Snacks

From 3:30 PM to 4:00 PM, participants will be served snacks, and beverages during each session.

Transportation Assistance

The program has some options for needy participants' transportation based on service availability.

GenAI Curriculum: Program Blueprint

Industrial Skills Learning Plan

Unit #	Unit Name	Learning Topics	Level	Duration	Unit Duration	Number of Assignment	Number of Quiz	Number of Lab & Use Case	Delivery Mode
1	Introduction to Artificial Intelligence	• What is AI? • Examples in everyday life • AI vs. traditional programming	Foundation	20 Hours (Duration is for in-class instruction; extra time needed for assignments and labs.)	2	Two	Two	N/A	Instructor-Led
2	Programming Fundamentals for AI (Python)	• Variables, data types • Logic, control flow • Simple data structures	Foundation		4	Two	Two	• Lab: 15 • Use Case: 1	
3	Data and Ethics in AI	• Types of data: text, numbers, images • Data privacy and ethics • Responsible use of AI	Foundation		2	Two	Two	• Lab: 15 • Use Case: 1	
4	Machine Learning Basics	• What is machine learning? • Training and testing data • Simple predictions with models	Foundation		4	Two	Two	• Lab: 10 • Use Case: 2	
5	Neural Networks and Deep Learning	• Understanding neural networks • How computers “learn” patterns • Hands-on with simple neural networks	Intermediate		4	Two	Two	N/A	

Assessment: Theory & Practical

6	Natural Language Processing (NLP)	• How AI understands language • Basic text analysis • Chatbots & language models	Intermediate	20 Hours (Duration is for in-class instruction; extra time needed for assignments and labs.)	4	Two	Two	• Lab: 5 • Use Case: 2	Instructor-Led
7	Prompt Engineering and Human-AI Interaction	• Techniques for crafting effective prompts • Human-in-the-loop systems • Responsible prompt use	Intermediate		4	Two	Two	• Lab: 5 • Use Case: 2	
8	Generative AI and Large Language Models (LLMs)	• What is generative AI? • LLMs like ChatGPT/Llama • Prompt engineering basics	Advanced		4	Two	Two	• Lab: 5 • Use Case: 2	
9	Building Industrial AI Agents	• What is an AI agent? • Multi-step task automation • Real-world applications in industry	Advanced		6	Two	Two	• Lab: 5 • Use Case: 2	
10	Capstone Project: Real-World Problem Solving with GenAI	• Students choose an industrial problem • Design, build, and present a simple GenAI solution • Reflect on ethics, teamwork, and innovation	Advanced		6	Two	Two	• Lab: 1 • Use Case: 1	

Planned Schedule for 2025

Week	Session 1 (Wednesday)	Session 2 (Friday/Monday)	Unit	Hours
1	Sept 3	Sept 5	Unit 1: Introduction to AI	3:30 PM-6:00 PM PST
2	Sept 10	Sept 12	Unit 2: Programming Fundamentals (Python)	3:30 PM-6:00 PM PST
3	Sept 17	Sept 19	Unit 3: Data & Ethics in AI	3:30 PM-6:00 PM PST
4	Sept 24	Sept 26	Unit 4: Machine Learning Basics	3:30 PM-6:00 PM PST
5	Oct 1	Oct 3	Unit 5: Neural Networks & Deep Learning	3:30 PM-6:00 PM PST
6	Oct 8	Oct 10	Unit 6: Natural Language Processing	3:30 PM-6:00 PM PST
7	Oct 15	Oct 17	Unit 7: Prompt Engineering & Human-AI Interaction	3:30 PM-6:00 PM PST
8	Oct 22	Oct 24	Unit 8: Generative AI & LLMs	3:30 PM-6:00 PM PST
9	Oct 29	Nov 3 Monday	Unit 9: Building Industrial AI Agents	3:30 PM-6:00 PM PST
10	Nov 5	Nov 7	Unit 10: Capstone Project & Presentations	3:30 PM-6:00 PM PST

The table above outlines a proposed schedule for the 10-unit GenAI curriculum, including session dates, durations, and recommended weightage for each unit. Please note that this schedule is tentative and may be adjusted as needed based on program requirements, student progress, or instructor input.

Industrial Use Cases

As part of our Generative AI digital lab, we provide 50+ industry-specific use cases and implementation code on GitHub for large language models and business applications. These use cases provide learners with a deeper understanding of problem statements, model selection, model optimization, user interfaces, data functions, and data strategies. Developing these use cases end-to-end will enable learners to gain industry expertise in their respective industries and become Generative AI industry experts.

Public Services

Health

Consumer

EdTech

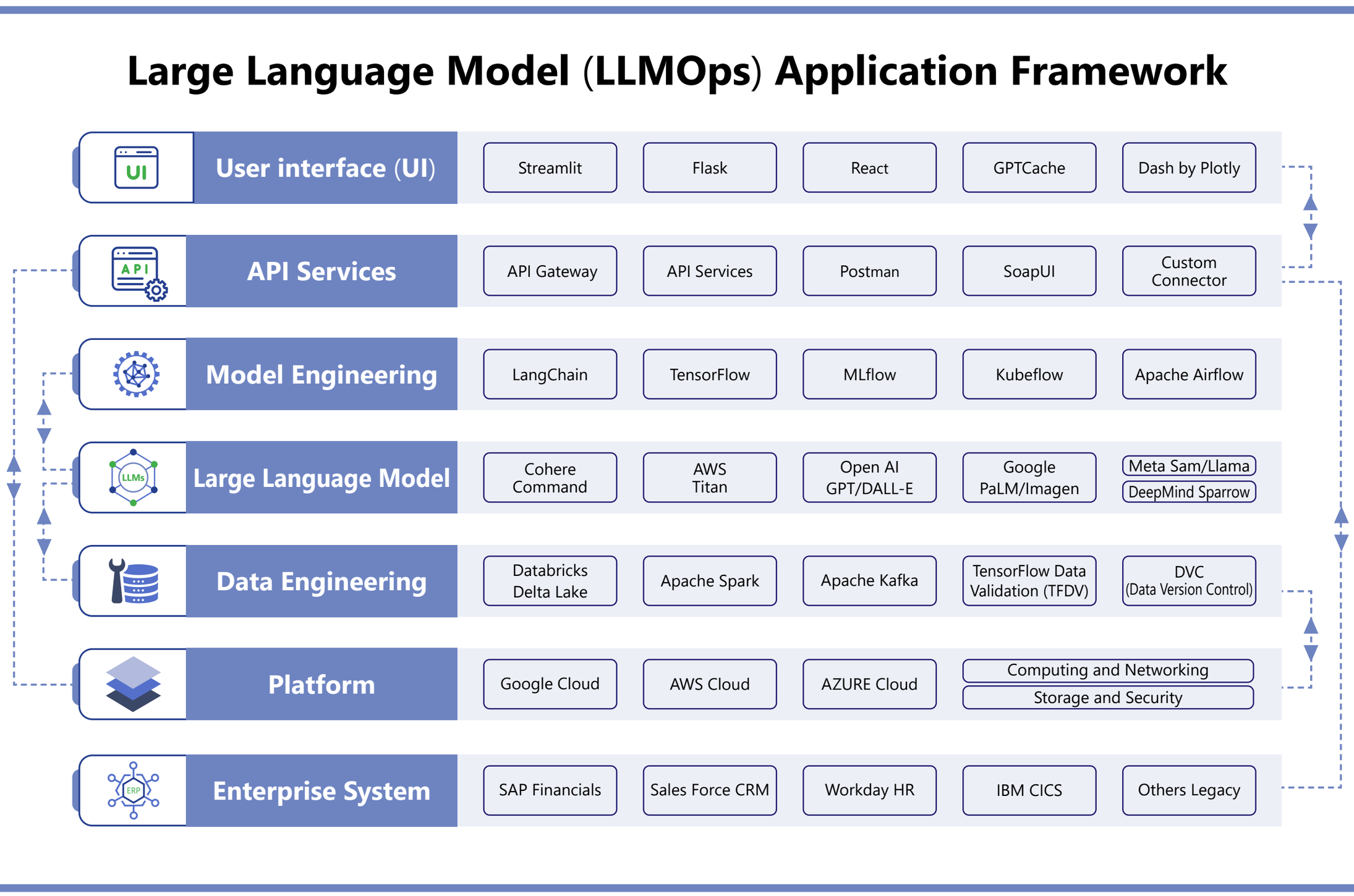
Energy

Generative AI Digital Lab

The development of large language models for business applications involves several interoperable components, including enterprise systems, platforms, data functions, and model engineering. LLM at Scale.AI developed an application framework for simplifying and accelerating large language models (LLMOps). We provide a framework that brings all industry-standard LLM models under one umbrella for application developers to pick and choose the models they want to use and compare the model results to select the most effective model. As part of our framework, we also provide tools, processes, and utilities that can be used to train and optimize the LLM model for several business scenarios. Furthermore, the LLM outcome is integrated into business processes and provided to the business in real-time for operational efficiency and strategic decisions.

Generative AI Research & Innovation Lab

Large Language Model (LLMOps) Application Framework



Sathvika (Sadie) Jothi

Learning Facilitator

Founder Deep science AI foundation

12th grade IBMYP Student

Nonprofit organization

https://dsaifoundation.org/

Jothi Periasamy

Chief Learning Facilitator

Chief Data Scientist
Published Author and Teacher
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Bhaskar Vempati

Program Administrator

Founder
Suvidha International Foundation

Thank You