PracticAI

LIVE COURSE / STUDENT CURRICULUM

AI Engineer Bootcamp

Build with Python. Engineer AI agents.
Ship production-minded applications.

16 weeks
4-month learning journey

2 hours
Live sessions, Mon-Fri

Weekends
Doubt sessions

YOUR LEARNING JOURNEY

01 **Programming & AI foundations**

02 **LLM applications & AI agents**

03 **Advanced agentic systems**

04 **Production & capstone**

MEET YOUR INSTRUCTORS



MAIN INSTRUCTOR

Pulkit Tyagi

Senior Gen-AI Engineer | AI Automation Consultant
N8N & Agentic AI Workflows | AI Educator



INSTRUCTOR

Bharath Reddy

AI/ML Engineer

Agentic AI & multi-agent systems;
MLOps & AI observability.



INSTRUCTOR

Naresh Edagotti

AI Engineer at BPMLinks

Creator at PracticAI;
LLMs, RAG & AI agents.

Programming and AI Foundations

THIS MONTH YOU WILL

- Build confidence with Python, developer workflows, APIs and databases.
- Understand LLM fundamentals.
- Create a first AI-powered application.

W01 Python Programming Basics

- Developer environment and terminal
- variables and data types
- conditionals and loops
- collections
- functions, modules and debugging

WEEKEND Doubt sessions

W02 Practical Python and Developer Tools

- File handling and JSON/CSV
- object-oriented programming
- virtual environments and packages
- Git and GitHub
- type hints, validation and unit testing
- Python decorators and generators

WEEKEND Doubt sessions

Programming and AI Foundations

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- Build confidence with Python, developer workflows, APIs and databases.
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W03 APIs, Backend Development and Data

- HTTP and REST concepts
- external API integration
- authentication and error handling
- FastAPI fundamentals
- SQL, SQLite and CRUD operations
- API testing
- Python async/await and concurrency

WEEKEND Doubt sessions

W04 Generative AI and LLM Fundamentals

- AI, ML and generative AI overview
- transformers and tokens
- model capabilities and limitations
- LLM APIs
- prompt and context basics
- structured outputs
- simple AI interfaces
- LLM internals: attention and tokenization
- Decoding, temperature, top-p and KV cache

WEEKEND Doubt sessions

LLM Applications and AI Agents

THIS MONTH YOU WILL

- Engineer reliable LLM applications.
- Build retrieval systems.
- Create agents that use tools and interact with external systems.

W05 LLM Application Engineering

- Context engineering and prompt design
- conversation history
- structured data extraction
- streaming and caching
- model selection, cost and latency
- tool/function calling
- LangChain fundamentals and LCEL
- Redis, caching strategies and semantic caching

WEEKEND Doubt sessions

W06 Retrieval-Augmented Generation

- Embeddings and semantic search
- document parsing and chunking
- vector databases
- retrieval pipelines
- hybrid retrieval and reranking
- citations and RAG evaluation
- LangChain integrations
- Advanced RAG: query rewriting and multi-query retrieval
- Contextual retrieval and parent-child retrieval
- RAG failure analysis: faithfulness, context precision, recall and answer relevancy

WEEKEND Doubt sessions

LLM Applications and AI Agents

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- Engineer reliable LLM applications.
- Build retrieval systems.
- Create agents that use tools and interact with external systems.

W07 Building AI Agents from Scratch

- Workflows versus agents
- agent execution loops
- planning and tool selection
- custom tool definitions
- state and termination rules
- OpenAI Agents SDK and tracing

WEEKEND Doubt sessions

W08 MCP and Agent Integrations

- Model Context Protocol architecture
- MCP clients and servers
- exposing Python tools
- tool discovery and validation
- external API integrations
- credentials, approvals and auditability
- Agent-to-Agent (A2A) protocol fundamentals

WEEKEND Doubt sessions

Advanced Agentic System Engineering

THIS MONTH YOU WILL

- Design stateful and multi-agent workflows.
- Add persistence and human oversight.
- Apply evaluation and robust security practices.

W09 Stateful Agent Orchestration

- LangGraph concepts
- nodes, edges and state
- conditional routing
- checkpointing and durable execution
- human-in-the-loop interrupts
- recovery and workflow testing

WEEKEND Doubt sessions

W10 Multi-Agent System Design

- Single-agent versus multi-agent architectures
- specialist roles and handoffs
- supervisors and delegation
- shared versus isolated context
- parallel tasks
- coordination and cost trade-offs
- A2A interoperability for multi-agent systems

WEEKEND Doubt sessions

Advanced Agentic System Engineering

THIS MONTH YOU WILL

- Design stateful and multi-agent workflows.
- Add persistence and human oversight.
- Apply evaluation and robust security practices.

W11 Memory and Long-Running Agents

- Short-term and long-term memory
- persistent memory stores
- summarization and retrieval
- background jobs and queues
- scheduling and webhooks
- sandboxed skills
- resumable execution

WEEKEND Doubt sessions

W12 Evaluation, Observability and Safety

- Evaluation datasets and metrics
- model and tool-use assessments
- tracing and telemetry
- prompt injection and untrusted input
- least-privilege tools
- guardrails, regression tests and incident handling
- RAG failure analysis: faithfulness, context precision, recall and answer relevancy
- LLMOps: prompt versioning and model versioning
- AI security: PII protection, data leakage and output validation

WEEKEND Doubt sessions

Production Applications and Capstone

THIS MONTH YOU WILL

- Integrate agents into full-stack products.
- Deploy and monitor applications.
- Demonstrate a production-minded, end-to-end capstone.

W13 Production Backend and Deployment

- Agent APIs with FastAPI
- asynchronous execution and streaming
- Docker and Compose
- PostgreSQL migrations
- environment and secret management
- cloud deployment and CI/CD
- LLMOps: deployment and rollback
- AI system design and scalability
- Redis and production caching strategies
- LLM inference optimization: batching, quantization and vLLM
- AWS/Azure deployment, storage and managed databases

WEEKEND Doubt sessions

W14 Full-Stack AI Products and Operations

- Agent user experience
- Streamlit and frontend integration
- file upload and progress tracking
- authentication and authorization
- rate limits
- monitoring, cost controls and end-to-end tests
- Scalable AI system design
- AWS/Azure application deployment and operations
- Load testing, performance benchmarking and scaling

WEEKEND Doubt sessions

Production Applications and Capstone

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W15 Capstone Development

- Problem definition and requirements
- architecture and data flow design
- agent workflows and integrations
- retrieval and persistence where appropriate
- user interface
- iterative code review
- AI Engineer interview preparation

WEEKEND Doubt sessions

W16 Reliability, Final Delivery and Presentation

- Security and reliability improvements
- evaluation and performance review
- documentation and architecture diagrams
- final deployment
- product demonstration
- technical presentation and portfolio readiness
- AI system design interviews

WEEKEND Doubt sessions

PracticAI

BOOTCAMP FEE & COURSE ACCESS

Your AI engineering journey starts here

Live learning, practical skills and a capstone you can show.

AI ENGINEER BOOTCAMP

Rs. 9,999

The complete 16-week live bootcamp.

WHAT IS INCLUDED

- 80 live sessions over 16 weeks, two hours each.
- Live classes from Monday to Friday.
- Weekend doubt sessions.
- Recordings of all classes.
- Instructor notes to support learning and revision.
- A capstone you build, deploy and present.
- Certificate of completion after completing the capstone.

AN EVOLVING CURRICULUM

AI engineering evolves rapidly, with new developments emerging weekly. The curriculum may be updated to reflect relevant advances and changing industry needs.

12 MONTHS OF LIVE-COURSE ACCESS

Students receive 12 months of access to the live-course content and recordings of all classes.

Live teaching follows the 16-week batch schedule.

Explore the bootcamp at practicai.tech