AI, ML & Software Engineering

Building Intelligent Systems in Practice

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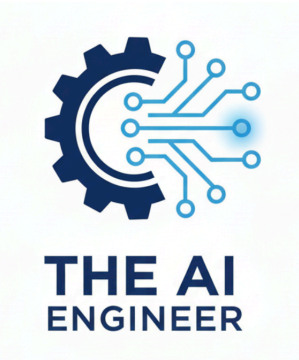

[1]Get in touch: https://linktr.ee/dyjh. Web page: https://theaiengineer.dev. Research, structuring, drafting, and visualizations were assisted by GPT 5.x as a co-writing tool under human direction. Comments and feedback are welcome.

Preface

This book is about building. We focus on the engineering habits and minimal tooling that let you move from a promising idea to a dependable system—one you can run, explain, and improve. Each concept is grounded in code you can execute locally or in the cloud, favoring clarity over ceremony with deterministic seeds, concise logs, and tiny tests.

Why These Topics Matter

We emphasise a handful of themes that show up in every system you ship.

- Software engineering for AI — without disciplined packaging, CLIs, and tests, good ideas remain one-offs. We establish habits that keep your work portable and reviewable.
- The ML lifecycle — configuration, tracking, and simple pipelines turn experiments into reproducible runs you can compare and ship.
- AI engineering beyond models — real applications combine retrieval, generation, and orchestration. You will learn to ground outputs with your own data, chain tools and steps, and balance latency, cost, and reliability.
- Responsible AI — ethics, trust, and governance are integrated from the start with safety checks and evaluation patterns.

How to Use This Book

You can read linearly or dip into the workflows you need today; every chapter is paired with runnable code.

- Every chapter links to a runnable notebook and small Python modules in the companion repository. Start with the notebook to explore concepts, then adopt the scripts in your own projects.
- Use a local virtual environment or open the notebooks in Google Colab. Each example is designed to run on a laptop with modest resources.
- Treat outputs as contracts: we print verifiable, copy-pastable results so you can test quickly and catch regressions.

Technical & Legal Note

This book and its code are provided for educational purposes only. Examples are simplified and may omit edge cases; verify results and assumptions for your context, especially in safety-, medical-, or financial-critical settings. The author and publisher provide the material "as is" without warranties and are not liable for losses arising from use; external dependencies and links can change over time.

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