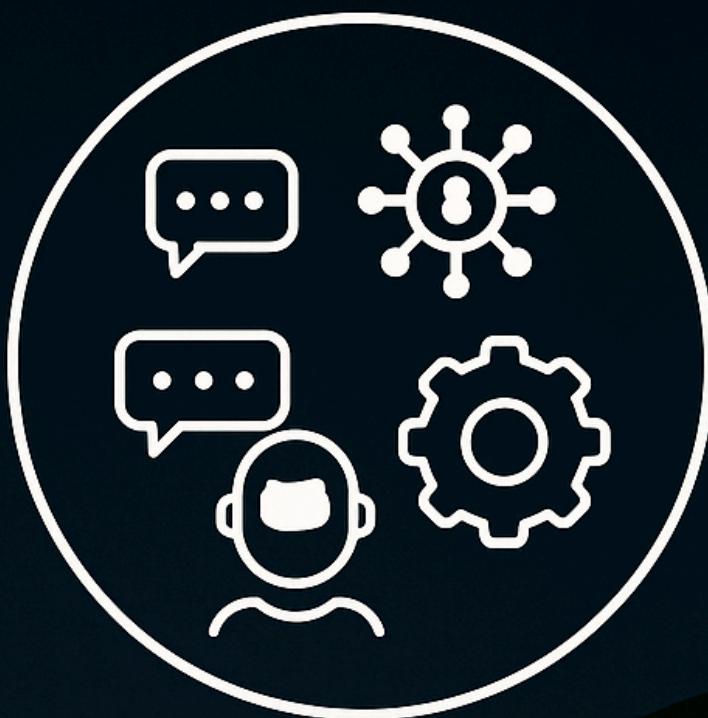


25 GITHUB REPOSITORIES FOR AI AGENT DEVELOPERS



SWIPE →



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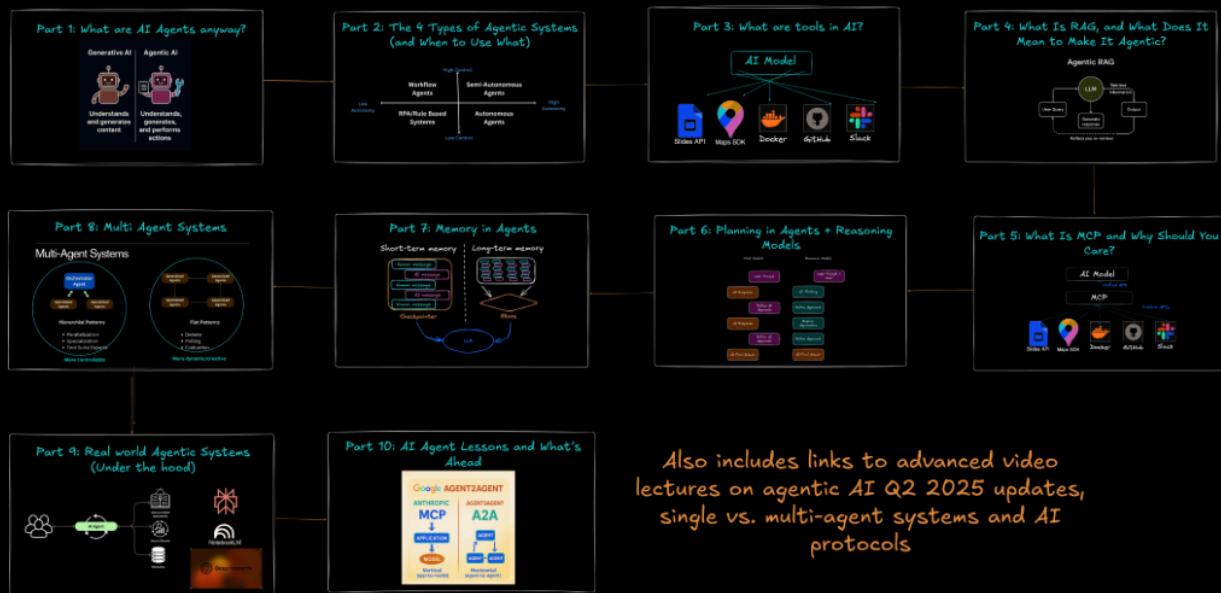
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2. **awesome-generative-ai**
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4. **AG_Techniques**
5. **GenAI_Agents**
6. **AI-ML-Roadmap-from-scratch**
7. **Hands-On-Large-Language-Models**
8. **Prompt-Engineering-Guide**
9. **Awesome MCP Servers**
10. **1000+ Pre-Built AI Agents**
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23. **Made-With-ML**
24. **Awesome LLM Apps**
25. **Awesome AI Apps**

1

Agentic AI Crash Course

Everything you need to know about agentic AI in the real world

Aishwarya Reganti & Kiriti Badam



Everything you need to know about agentic AI in the real world

Created by Aishwarya Reganti & Kiriti Badam

 Course Parts

Part 1: What Are AI Agents Anyway?

Understanding the fundamental differences between generative AI and agentic AI, core capabilities, and real-world applications.

Part 2: The 4 Types of Agentic Systems (and When to Use What)

Explore workflow agents, semi-autonomous agents, rule-based systems, and autonomous agents with decision frameworks.

Part 3: What Are Tools in AI?

Learn about AI model integration, API connections, tool ecosystems, and custom tool development.

Part 4: What Is RAG, and What Does It Mean to Make It Agentic?

Deep dive into Retrieval-Augmented Generation, traditional vs agentic RAG, and implementation patterns.

Part 5: What Is MCP and Why Should You Care?

Understanding Model Context Protocol, AI model integration strategies, and enterprise implementation.

Part 6: Planning in Agents + Reasoning Models

Agent planning strategies, reasoning model integration, and advanced reasoning capabilities

Also includes links to advanced video lectures on agentic AI Q2 2025 updates, single vs. multi-agent systems and AI protocols

Most current GenAI list: courses, tools, and papers by recency.

Awesome Generative AI



A curated list of Generative AI projects, tools, artworks, and models

- [Generative AI Area](#)
 - [Generative AI history, timelines, maps, and definitions](#)
 - [Ethics, Philosophical questions and Discussions about Generative AI](#)
 - [Critical Views about Generative AI](#)
 - [Generative AI Processes and Artifacts](#)
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- [Code and Programming](#)
 - [Vibe Coding](#)
 - [AI-Powered Code Generation](#)
- [Text](#)
 - [Everything to Markdown to LLMs](#)
 - [Small Language Models](#)
 - [Large Language Models \(LLMs\)](#)
 - [Model Context Protocol](#)
 - [Programming Frameworks for LLMs](#)
 - [Prompt Engineering](#)
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 - [Prompt Engineering for Text-to-image](#)
 - [Mamba](#)
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 - [Embeddings and Semantic Search](#)
 - [Autonomous LLM Agents](#)
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 - [LLM Evaluation](#)
 - [LLMOps](#)
 - [AI Engineering](#)

3

Jump into agentic systems with a free course.

AI Agents for Beginners - A Course

Intro to Agents

AI Agent Frameworks

Agentic Design Patterns

AI Agents

For Beginners

Tool Use

Agentic RAG

Trustworthy
AI Agents

Planning Design
Pattern

Multi-Agents

Metacognition

AI Agents in
Production

aka.ms/ai-agents-beginners

11 Lessons teaching everything you need to know to start building AI Agents

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🌐 Multi-Language Support

Supported via GitHub Action (Automated & Always Up-to-Date)

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Chinese Hong Kong French Japanese Korean Portuguese Brazilian Spanish German

Persian Polish Hindi

Watch 278 Fork 7.7k Star 28k

Azure AI Foundry 27350 MEMBERS

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Repost

Understand the bones of RAG and become a retrieval master.

Advanced RAG Techniques: Elevating Your Retrieval-Augmented Generation Systems 🚀

Welcome to one of the most comprehensive and dynamic collections of Retrieval-Augmented Generation (RAG) tutorials available today. This repository serves as a hub for cutting-edge techniques aimed at enhancing the accuracy, efficiency, and contextual richness of RAG systems.

Stay Updated!



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Join over 20,000 of AI enthusiasts getting unique cutting-edge insights and free tutorials! Plus, subscribers get exclusive early access and special 33% discounts to my book and the upcoming RAG Techniques course!

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The top 0.1% newsletter for staying ahead in AI, uncovering the latest techniques, breakthroughs, insights, and unique tutorials.

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DiamantAI

Nir Diamant - Founder

5

Learn how to build GenAI agents including tools and APIs.

GenAI Agents: Comprehensive Repository for Development and Implementation



Welcome to one of the most extensive and dynamic collections of Generative AI (GenAI) agent tutorials and implementations available today. This repository serves as a comprehensive resource for learning, building, and sharing GenAI agents, ranging from simple conversational bots to complex, multi-agent systems.

Stay Updated!

	Cutting-edge Updates		Expert Insights		Top 0.1% Content
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Join over 20,000 of AI enthusiasts getting unique cutting-edge insights and free tutorials! Plus, subscribers get exclusive early access and special 33% discounts to my book and the upcoming RAG Techniques course!

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Repost

Free AI and Machine Learning Roadmap with Resources

 Become skilled in Artificial Intelligence, Machine Learning, Generative AI, Deep Learning, Data Science, Natural Language Processing, Reinforcement Learning and more with this complete 0 to 100 repository.

 You can follow these modules simultaneously as well as in order given below. The modules are ranked in increasing order of difficulty. Content with a  are highly recommended.

 These are a collection of the best free resources from YouTube and online courses, as well as other popular blogs and websites.

Contents

Learning Pathway Modules

- [Module 0](#) - Before You Start
- [Module 1](#) - The Math Behind It All
- [Module 2](#) - Building Your Foundation
- [Module 3](#) - Data Science
- [Module 4](#) - Machine Learning
- [Module 5](#) - Computer Vision
- [Module 6](#) - Deep Learning Neural Network
- [Module 7](#) - Generative AI
 - [Sub-Module 7A](#) - Retrieval Augmented Generation (RAG)
- [Module 8](#) - Natural Language Processing
- [Module 9](#) - Reinforcement Learning
- [Module 10](#) - Agentic AI
- [Bonus Module](#) - Advanced Learning Pathway Courses

Additional Cool Stuff

- [PROJECTS!](#)
- [Interesting Websites to Visit](#)
- [AI Newsletters](#)
- [AI Blogs](#)
- [Contribute](#)



Understand LLMs from the ground up with really well curated notebooks

Hands-On Large Language Models

[Follow Jay](#) [Follow Maarten](#) [!\[\]\(5ebcf382a6ee952d6c5b8b948415801e_img.jpg\) DeepLearning.AI Course](#) NEW!

Welcome! In this repository you will find the code for all examples throughout the book [Hands-On Large Language Models](#) written by [Jay Alammar](#) and [Maarten Grootendorst](#) which we playfully dubbed:

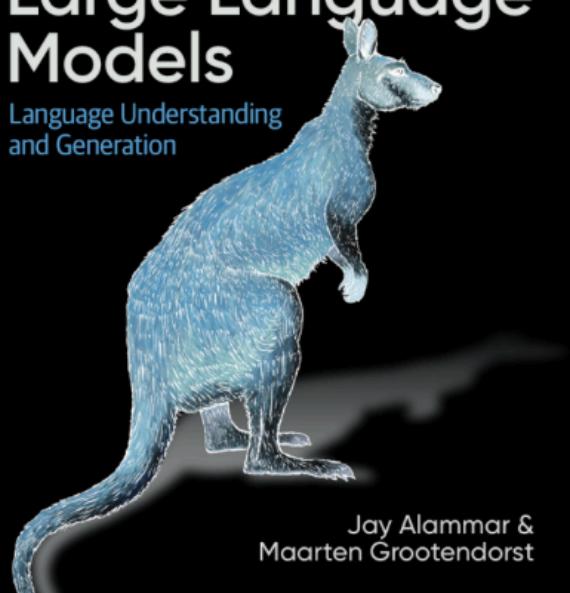
"The Illustrated LLM Book"

Through the visually educational nature of this book and with **almost 300 custom made figures**, learn the practical tools and concepts you need to use Large Language Models today!

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Hands-On Large Language Models

Language Understanding
and Generation



The book is available on:

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- [Shroff Publishers \(India\)](#)
- [O'Reilly](#)
- [Kindle](#)
- [Barnes and Noble](#)
- [Goodreads](#)

Everything prompt-engineering under the sun in one place.

Prompt Engineering Guide

Prompt engineering is a relatively new discipline for developing and optimizing prompts to efficiently use language models (LMs) for a wide variety of applications and research topics. Prompt engineering skills help to better understand the capabilities and limitations of large language models (LLMs). Researchers use prompt engineering to improve the capacity of LLMs on a wide range of common and complex tasks such as question answering and arithmetic reasoning. Developers use prompt engineering to design robust and effective prompting techniques that interface with LLMs and other tools.

Motivated by the high interest in developing with LLMs, we have created this new prompt engineering guide that contains all the latest papers, learning guides, lectures, references, and tools related to prompt engineering for LLMs.

 [Prompt Engineering Guide \(Web Version\)](#)

 We are excited to launch our brand new prompt engineering courses under the DAIR.AI Academy. [Join Now!](#)

Use code PROMPTING20 to get an extra 20% off.

Happy Prompting!

Announcements / Updates

- 🎓 We now offer self-paced prompt engineering courses under our DAIR.AI Academy. [Join Now!](#)
- 🎓 New course on Prompt Engineering for LLMs announced! [Enroll here!](#)
- 💻 We now offer several [services](#) like corporate training, consulting, and talks.
- 🌐 We now support 13 languages! Welcoming more translations.
- 👤 We crossed 3 million learners in January 2024!
- 🌐 We have launched a new web version of the guide [here](#)
- 🔥 We reached #1 on Hacker News on 21 Feb 2023
- 🌐 The First Prompt Engineering Lecture went live [here](#)

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Awesome MCP servers

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[discord](#) 1.4k online | [subreddit](#) 61k

A curated list of awesome Model Context Protocol (MCP) servers.

- [What is MCP?](#)
- [Clients](#)
- [Tutorials](#)
- [Community](#)
- [Legend](#)
- [Server Implementations](#)
- [Frameworks](#)
- [Tips & Tricks](#)

What is MCP?

[MCP](#) is an open protocol that enables AI models to securely interact with local and remote resources through standardized server implementations. This list focuses on production-ready and experimental MCP servers that extend AI capabilities through file access, database connections, API integrations, and other contextual services.

Clients

Checkout [awesome-mcp-clients](#) and [glama.ai/mcp/clients](#).

💡 Tip

[Glama Chat](#) is a multi-modal AI client with MCP support & [AI gateway](#).

Tutorials

- [Model Context Protocol \(MCP\) Quickstart](#)
- [Setup Claude Desktop App to Use a SQLite Database](#)

Community

- [r/mcp Reddit](#)
- [Discord Server](#)

Legend

-  – official implementation
- programming language
 -  – Python codebase
 -  – TypeScript (or JavaScript) codebase
 -  – Go codebase



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10

1000+ Pre-Built AI Agents

n8n-workflows / workflows / ⌂

Name	Last commit message
..	
Activecampaign	feat: add folder support for workflows (fixes #70)
Acuityscheduling	feat: add folder support for workflows (fixes #70)
Affinity	feat: add folder support for workflows (fixes #70)
Aggregate	feat: add folder support for workflows (fixes #70)
Airtable	feat: add folder support for workflows (fixes #70)
Airtabletool	feat: add folder support for workflows (fixes #70)
Airptool	feat: add folder support for workflows (fixes #70)
Amqp	feat: add folder support for workflows (fixes #70)
Apitemplateio	feat: add folder support for workflows (fixes #70)
Asana	feat: add folder support for workflows (fixes #70)
Automate	feat: add folder support for workflows (fixes #70)
Automation	feat: add folder support for workflows (fixes #70)
Autopilot	feat: add folder support for workflows (fixes #70)
Awsrekognition	feat: add folder support for workflows (fixes #70)
Awss3	feat: add folder support for workflows (fixes #70)
Awssns	feat: add folder support for workflows (fixes #70)
Awstextract	feat: add folder support for workflows (fixes #70)
Bannerbear	feat: add folder support for workflows (fixes #70)
Baserow	feat: add folder support for workflows (fixes #70)
Beeminder	feat: add folder support for workflows (fixes #70)
Bitbucket	feat: add folder support for workflows (fixes #70)
Bitly	feat: add folder support for workflows (fixes #70)
Bitwarden	feat: add folder support for workflows (fixes #70)
Box	feat: add folder support for workflows (fixes #70)
Calendly	feat: add folder support for workflows (fixes #70)
Chargebee	feat: add folder support for workflows (fixes #70)
Clickup	feat: add folder support for workflows (fixes #70)
Clockify	feat: add folder support for workflows (fixes #70)
Code	feat: add folder support for workflows (fixes #70)
Coingecko	feat: add folder support for workflows (fixes #70)
Comparedatasets	feat: add folder support for workflows (fixes #70)
Compression	feat: add folder support for workflows (fixes #70)
Convertkit	feat: add folder support for workflows (fixes #70)
Converttofile	feat: add folder support for workflows (fixes #70)

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Agents towards Production

The open-source playbook for turning AI agents into real-world products.

Agents Towards Production is your go-to resource for building production-ready GenAI agents that scale from prototype to enterprise. Tutorials cover stateful workflows, vector memory, real-time web search APIs, Docker deployment, FastAPI endpoints, security guardrails, GPU scaling, browser automation, fine-tuning, multi-agent coordination, observability, evaluation, and UI development.

★ If you find value in this project, PLEASE STAR IT to help others discover these tutorials!

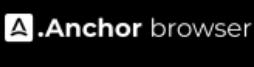
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A regular click on "Visit Site" leaves the repo (use Ctrl-/⌘-click to keep this page open).

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Hands-On AI Engineering

 Sumanth077	Merge pull request #7	0af4d4f · last week	⌚ 22 Commits
 Financial analyst using agno an...	Files doc update for better readability	2 weeks ago	
 agentic_rag_with_o-3-mini_an...	Improved Streamlit UI and made changes...	3 months ago	
 agentic_rag_with_qwen_and_fi...	Improved Streamlit UI and made changes...	3 months ago	
 multi_agent_financial_analyst	docs: updated readme	5 months ago	
 vision_rag	Added Vision-Rag	2 months ago	
 .DS_Store	doc update	2 weeks ago	
 README.md	Update README.md	2 months ago	

README



Hands-On AI Engineering

A curated repository of AI-powered applications and agentic systems showcasing practical use cases of Large Language Models (LLMs) from providers like Google, Anthropic, OpenAI, and self-hosted open-source models.

What's Inside?

-  **AI Agents & Use Cases** – Explore a variety of agent-based AI applications.
-  **RAG (Retrieval-Augmented Generation)** – Implementations of knowledge-enhanced AI models.
-  **Scalable AI Solutions** – Best practices for building production-ready AI applications.

Contributing

We welcome contributions! If you have an AI app, agent, or enhancement to share, check the **Issues** section and submit a pull request.



License

This repository is licensed under the **MIT License**. See the [LICENSE](#) file for details.

The LLM course is divided into three parts:

1. **LLM Fundamentals** is optional and covers fundamental knowledge about mathematics, Python, and neural networks.
2. **The LLM Scientist** focuses on building the best possible LLMs using the latest techniques.
3. **The LLM Engineer** focuses on creating LLM-based applications and deploying them.

Note

Based on this course, I wrote the [LLM Engineer's Handbook](#) with Paul Iuzstain. It's a hands-on and detailed book that covers an end-to-end LLM application from design to deployment. The LLM course will always stay free but feel free to support my work by purchasing the book.



For an interactive version of this course, I created an LLM assistant that will answer questions and test your knowledge in a personalized way on [HuggingChat](#) or [ChatGPT](#).



Notebooks

A list of notebooks and articles I wrote about LLMs.

Tools

Notebook	Description	Notebook
LLM AutoEval	Automatically evaluate your LLMs using RunPod	Open in Colab
LazyMergekit	Easily merge models using MergeKit in one click.	Open in Colab
LazyAxolotl	Fine-tune models in the cloud using Axolotl in one click.	Open in Colab
AutoQuant	Quantize LLMs in GGUF, GPTQ, EXL2, AWQ, and HQQ formats in one click.	Open in Colab
Model Family Tree	Visualize the family tree of merged models.	Open in Colab
ZeroSpace	Automatically create a Gradio chat interface using a free ZeroGPU.	Open in Colab
AutoAbliteration	Automatically abliteration models with custom datasets.	Open in Colab
AutoDedup	Automatically deduplicate datasets using the Rensa library.	Open in Colab



Follow [OM NALINDE](#) to learn more about AI Agents

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500+ Real Life AI Agent Use-Cases



A curated collection of AI agent use cases across industries, showcasing practical applications and linking to open-source projects for implementation. Explore how AI agents are transforming industries like healthcare, finance, education, and more! 🤖✨

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- [Industry UseCase](#)
- [Use Case Table](#)
- [Framework Wise UseCase](#)
 - [CrewAI UseCase](#)
 - [AutoGen UseCase](#)
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- [License](#)

💡 Introduction

Artificial Intelligence (AI) agents are revolutionizing the way industries operate. From personalized learning to financial trading bots, AI agents bring efficiency, innovation, and scalability. This repository provides:

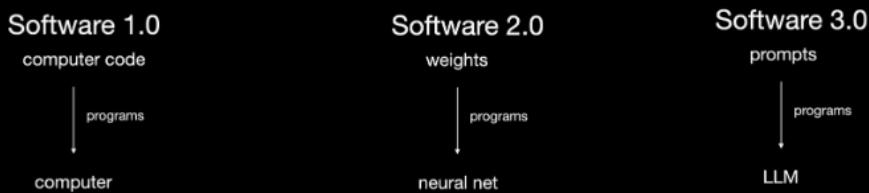
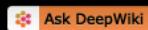
- A categorized list of industries where AI agents are making an impact.
- Detailed use cases with links to open-source projects for implementation.

Whether you're a developer, researcher, or business enthusiast, this repository is your go-to resource for AI agent inspiration and learning.

Context Engineering A to Z

"Context engineering is the delicate art and science of filling the context window with just the right information for the next step." — [Andrej Karpathy](#)

[Software Is Changing \(Again\) Talk @YC AI Startup School](#)



DeepGraph

Chat with NotebookLM + Podcast Deep Dive

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Comprehensive Course Under Construction

[Context Engineering Survey-Review of 1400 Research Papers](#)

[Awesome Context Engineering Repo](#)

Operationalizing the Latest Research on Context With First Principles & Visuals — July 2025 from ICML, IBM, NeurIPS, OHBM, and more

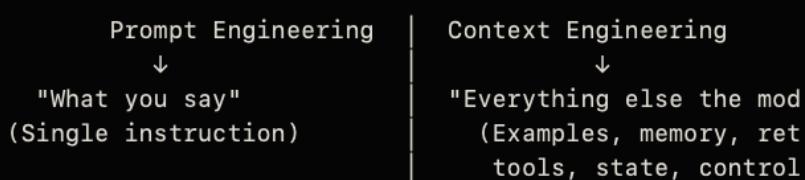
"Providing "cognitive tools" to GPT-4.1 increases its pass@1 performance on AIME2024 from 26.7% to 43.3%, bringing it very close to the performance of o1-preview." — [IBM Zurich](#)

Agent Commands

Support for [Claude Code](#) | [OpenCode](#) | [Amp](#) | [Kiro](#) | [Codex](#) | [Gemini CLI](#)

[Context Engineering Survey-Review of 1400 Research Papers](#) | [Context Rot](#) | [IBM Zurich](#) | [Quantum Semantics](#) | [Emergent Symbolics](#) ICML Princeton | MEM1 Singapore-MIT | LLM Attractors Shanghai AI | MemOS Shanghai | Latent Reasoning | Dynamic Recursive Depths

A frontier, first-principles handbook for moving beyond prompt engineering to the wider discipline of context design, orchestration, and optimization.



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12-week curriculum. Classic ML. Project-based. Quiz-backed.

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Machine Learning for Beginners - A Curriculum

Travel around the world as we explore Machine Learning by means of world cultures

Cloud Advocates at Microsoft are pleased to offer a 12-week, 26-lesson curriculum all about **Machine Learning**. In this curriculum, you will learn about what is sometimes called **classic machine learning**, using primarily Scikit-learn as a library and avoiding deep learning, which is covered in our [AI for Beginners' curriculum](#). Pair these lessons with our ['Data Science for Beginners' curriculum](#), as well!

Travel with us around the world as we apply these classic techniques to data from many areas of the world. Each lesson includes pre- and post-lesson quizzes, written instructions to complete the lesson, a solution, an assignment, and more. Our project-based pedagogy allows you to learn while building, a proven way for new skills to 'stick'.

Hearty thanks to our authors Jen Looper, Stephen Howell, Francesca Lazzeri, Tomomi Imura, Cassie Breviu, Dmitry Soshnikov, Chris Noring, Anirban Mukherjee, Ornella Altunyan, Ruth Yakubu and Amy Boyd

Thanks as well to our illustrators Tomomi Imura, Dasani Madipalli, and Jen Looper

Special thanks **to our Microsoft Student Ambassador authors, reviewers, and content contributors**, notably Rishit Dagli, Muhammad Sakib Khan Inan, Rohan Raj, Alexandru Petrescu, Abhishek Jaiswal, Nawrin Tabassum, Ioan Samuila, and Snigdha Agarwal

Extra gratitude to Microsoft Student Ambassadors Eric Wanjau, Jasleen Sondhi, and Vidushi Gupta for our R lessons!

Neural Networks: Zero to Hero

A course on neural networks that starts all the way at the basics. The course is a series of YouTube videos where we code and train neural networks together. The Jupyter notebooks we build in the videos are then captured here inside the [lectures](#) directory. Every lecture also has a set of exercises included in the video description. (This may grow into something more respectable).

Lecture 1: The spelled-out intro to neural networks and backpropagation: building micrograd

Backpropagation and training of neural networks. Assumes basic knowledge of Python and a vague recollection of calculus from high school.

- [YouTube video lecture](#)
 - [Jupyter notebook files](#)
 - [micrograd Github repo](#)
-

Lecture 2: The spelled-out intro to language modeling: building makemode

We implement a bigram character-level language model, which we will further complexify in followup videos into a modern Transformer language model, like GPT. In this video, the focus is on (1) introducing torch.Tensor and its subtleties and use in efficiently evaluating neural networks and (2) the overall framework of language modeling that includes model training, sampling, and the evaluation of a loss (e.g. the negative log likelihood for classification).

- [YouTube video lecture](#)
 - [Jupyter notebook files](#)
 - [makemode Github repo](#)
-

Lecture 3: Building makemode Part 2: MLP

We implement a multilayer perceptron (MLP) character-level language model. In this video we also introduce many basics of machine learning (e.g. model training, learning rate tuning, hyperparameters, evaluation, train/dev/test splits, under/overfitting, etc.).

The best CV collection: books, datasets, research tips, projects.

Awesome Computer Vision: awesome

A curated list of awesome computer vision resources, inspired by [awesome-php](#).

For a list people in computer vision listed with their academic genealogy, please visit [here](#)

Contributing

Please feel free to send me [pull requests](#) or email (jbhuang@vt.edu) to add links.

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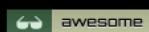
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From transformers to multilingual NLP tools, plus top courses.

awesome-nlp



A curated list of resources dedicated to Natural Language Processing



Read this in [English](#), [Traditional Chinese](#)

Please read the [contribution guidelines](#) before contributing. Please add your favourite NLP resource by raising a [pull request](#)

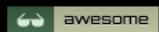
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The ultimate free resource list: books, courses, datasets, tools.

AWESOME DATA SCIENCE



An open-source Data Science repository to learn and apply towards solving real world problems.

This is a shortcut path to start studying Data Science. Just follow the steps to answer the questions, "What is Data Science and what should I study to learn Data Science?"

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All RL Algorithms from Scratch ✨

This repository is a collection of Python implementations of various Reinforcement Learning (RL) algorithms. The *primary goal* is **educational**: to get a deep and intuitive understanding of how these algorithms work under the hood. 🧠 Due to the recent explosion in the AI domain especially Large Language Models, and many more applications it is important to understand core reinforcement learning algorithms.

This repository also includes a [comprehensive cheat sheet](#) summarizing key concepts and algorithms for quick reference.

This is *not* a performance-optimized library! I prioritize readability and clarity over speed and advanced features. Think of it as your interactive textbook for RL.

Updates:

- **2 April 2025:** Added a comprehensive [RL Cheat Sheet](#) summarizing all implemented algorithms and core concepts. Repository now includes 18 algorithm notebooks.
- **30 March 2025:** Added 18 new algorithms.

⭐ Why This Repo?

- **Focus on Fundamentals:** Learn the core logic *without* the abstraction of complex RL libraries. We use basic libraries (NumPy, Matplotlib, PyTorch) to get our hands dirty. 🔧
- **Beginner-Friendly:** Step-by-step explanations guide you through each algorithm, even if you're new to RL. 🧑
- **Interactive Learning:** Jupyter Notebooks provide a playground for experimentation. Tweak hyperparameters, modify the code, and see what happens! 🖌
- **Clear and Concise Code:** We strive for readable code that closely mirrors the mathematical descriptions of the algorithms. No unnecessary complexity! 💡
- **Quick Reference:** Includes a detailed [Cheat Sheet](#) for fast lookups of formulas, pseudocode, and concepts.



Awesome Reinforcement Learning awesome

This page is no longer maintained.

A curated list of resources dedicated to reinforcement learning.

We have pages for other topics: [awesome-rnn](#), [awesome-deep-vision](#), [awesome-random-forest](#)

Maintainers: [Hyunsoo Kim](#), [Jiwon Kim](#)

Contributing

Please feel free to [pull requests](#)

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- Lessons: <https://madewithml.com/>
- Code: [GokuMohandas/Made-With-ML](#)

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- Setup
- Product
- Systems

2. 📊 Data

- Preparation
- Exploration
- Preprocessing
- Distributed

3. 🤖 Model

- Training
- Tracking
- Tuning
- Evaluation
- Serving

4. ━━ Develop

- Scripting
- Command-line

5. 📦 Utilities

- Logging
- Documentation
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- Pre-commit

6. ✂️ Test

- Code
- Data
- Models

7. 🎯 Reproducibility

- Versioning

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- Jobs & Services
- CI/CD workflows
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