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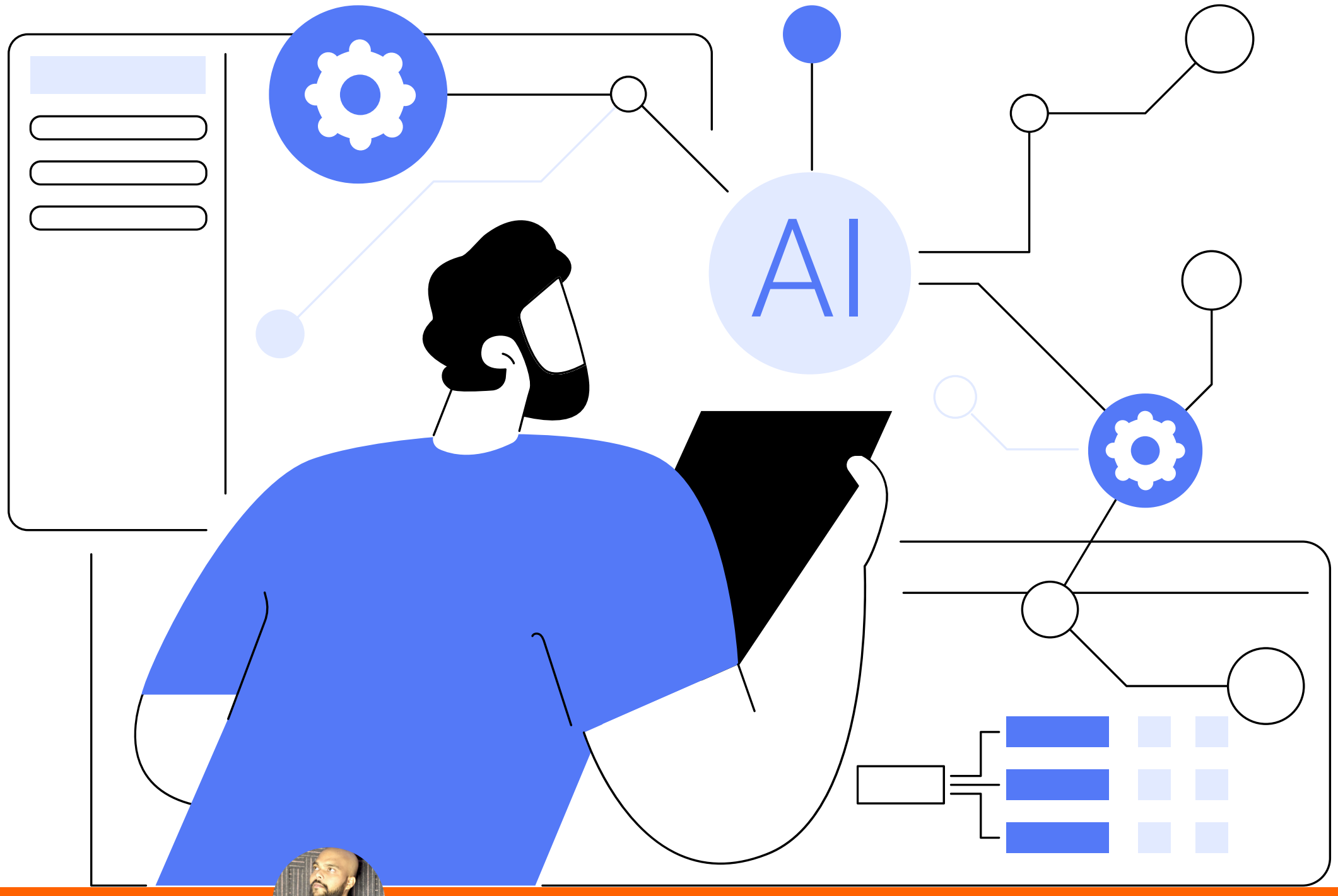
Simple Roadmap To Become A

AI ENGINEER



By SHAILESH SHAKYA @BEGINNERSBLOG.ORG

Phase 1: Building Your Foundation

Master the Essentials:

Mathematics:

- **Linear Algebra:** Khan Academy (free), MIT OpenCourseware (free)
- **Calculus:** Coursera: Calculus 1, 2, and 3 by The Ohio State University
- Probability and Statistics: edX: Probability - **The Science of Uncertainty and Data by MITx**
- **Actionable Step:** Dedicate 1-2 hours daily to these resources. Practice problem-solving regularly.

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Master the Essentials: continue...

Programming:

- **Python**: Codecademy (interactive), Coursera: Python for Everybody Specialization by University of Michigan
- **Data Structures and Algorithms: Coursera**: Algorithms Specialization by Stanford University
- **Actionable Step:** Build small projects like a calculator or a text-based game to apply your Python skills.

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Master the Essentials continue...

Computer Science Fundamentals:

- **Operating Systems: Udacity**: Introduction to Operating Systems by Georgia Tech
- **Databases:** Khan Academy (SQL), Coursera: SQL for Data Science
- **Software Engineering:** Introduction to Software Engineering
- **Actionable Step:** Set up a virtual machine and experiment with different operating systems. Create a simple database and practice SQL queries.

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Core AI Concepts:

Machine Learning:

- **Supervised, Unsupervised, and Reinforcement Learning:** Coursera: Machine Learning by Stanford University (Andrew Ng)
- **Actionable Step:** Work on simple ML projects using scikit-learn (e.g., classifying iris flowers, predicting housing prices).

Deep Learning:

- Neural Networks, CNNs, RNNs, Transformers: deeplearning.ai courses on Coursera (Andrew Ng), fast.ai (practical deep learning)
- **Actionable Step:** Implement basic neural networks from scratch using NumPy. Experiment with pre-trained models on image classification or text generation tasks.

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Core AI Concepts: continue...

Natural Language Processing (NLP)

- Text processing, sentiment analysis, language modeling: Coursera: Natural Language Processing Specialization by deeplearning.ai
- **Actionable Step:** Build a simple chatbot or sentiment analyzer using NLTK and spaCy libraries.

Computer Vision:

- Image classification, object detection, image segmentation: Coursera: Convolutional Neural Networks by deeplearning.ai
- **Actionable Step:** Use OpenCV to process images and build a basic object detection system.

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Phase 2: Hands-On Practice and Tool

Intensify Practical Application:

Personal Projects (Ongoing):

- Ideas: AI-powered game, music generator, personalized recommendation system
- Actionable Step: Dedicate 8-10 hours per week to personal projects. Document your progress on GitHub and create a portfolio website.

Kaggle Competitions (Ongoing):

- Actionable Step: Start with beginner-friendly competitions. Analyze winning solutions to learn advanced techniques.

Open-Source Contributions (Ongoing):

- Actionable Step: Find AI projects on GitHub that align with your interests and contribute to their development.

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Master Essential Tools and Technologies:

Frameworks:

- TensorFlow/Keras: TensorFlow tutorials, Coursera: TensorFlow Developer deeplearning.ai
- PyTorch: PyTorch tutorials, fast.ai
- **Actionable Step:** Implement deep learning models using both frameworks and compare their strengths.

Cloud Platforms:

- AWS: AWS Machine Learning courses, AWS DeepRacer League (hands-on RL)
- Azure: Microsoft Azure AI Fundamentals, Azure Machine Learning Studio
- Google Cloud: Google Cloud AI Platform, Google Colab
- **Actionable Step:** Deploy your AI models on different cloud platforms and explore their AI services.

Data Wrangling:

- Pandas: Pandas documentation, DataCamp courses
- NumPy: NumPy documentation, SciPy lectures
- **Actionable Step**: Practice data manipulation, cleaning, and analysis with real-world datasets.

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Phase 3: Specialization and Continuous Learning

Choose Your AI Domain:

- NLP, Computer Vision, Robotics, AI Ethics, etc.
- ***Actionable Step:*** Read research papers, attend conferences, and follow industry leaders in your chosen field.

Stay Current (Ongoing):

- Follow AI blogs, podcasts, and newsletters.
- Actionable Step: Subscribe to Towards Data Science, MIT Technology Review, and AI Weekly.

Build Your Network (Ongoing):

- Attend AI meetups and conferences.
- Connect with AI professionals on LinkedIn and Twitter.
- Actionable Step: Engage in online discussions and contribute to AI

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Phase 4: Job

CRAFT A STELLAR PORTFOLIO (ONGOING):

- Showcase your skills and projects.
- Highlight your contributions to open-source projects.
- Actionable Step: Create a professional website or GitHub profile to display your work.

INTERVIEW (WHEN READY):

- Practice coding challenges on LeetCode and HackerRank.
- Prepare for behavioral questions and technical discussions.
- Actionable Step: Research common AI interview questions and practice your responses.

NEGOTIATE YOUR WORTH (WHEN YOU HAVE OFFERS):

- Research industry salary trends.
- Know your value and negotiate confidently.
- Actionable Step: Use online resources like Glassdoor and Levels.fyi to understand salary ranges.

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