AI+ Prompt Engineering Level 1™

COURSE OVERVIEW

The AI+ Prompt Engineer Level 1 Certification Program introduces learners from diverse backgrounds and levels of expertise to the fundamental principles of artificial intelligence and prompts engineering. Covering the history, concepts, and applications of AI, machine learning, deep learning, neural networks, and natural language processing, the program also delves into best practices for designing effective prompts that harness the capabilities of AI models to their fullest potential. Through a combination of theoretical instruction and practical exercises, including project-based learning sessions, participants acquire the skills needed to create and utilize prompts across various domains and objectives.

All students receive:

- One-Year Subscription (with all updates)
- High-Quality E-Book
- AI Mentor for Personalized Guidance
- Quizzes, Assessments, and Course Resources
- Exam Study Guide
- Proctored Exam with one Free Retake

COURSE TARGET AUDIENCE

- AI Engineer
- IT Professional

PREREQUISITES

- Understanding AI basics and practical applications without needing technical expertise.
- Willingness to think creatively to generate ideas and use AI tools effectively

COURSE OBJECTIVES

- Understand the Fundamentals and History of AI
- Master the Art of Prompt Engineering
- Explore AI Tools and Models
- Apply Prompt Engineering Techniques
- Utilize Image Model Techniques
- Engage in Project-Based Learning
- Navigate Ethical Considerations in AI
- Prepare for the Future of AI

COURSE OUTLINE

Module 1: Foundations of Artificial Intelligence (AI) and Prompt Engineering

1.1 Introduction to Artificial Intelligence

- Brief History and Evolution of AI: Explore the origins of AI, from early concepts and theoretical foundations to modern advancements.
- AI's Impact Across Industries: Overview of how AI is transforming sectors such as healthcare, finance, education, and entertainment, illustrating its widespread influence.

1.2 History of AI

- Key Milestones: Highlight significant milestones in AI development, including the creation of the Turing Test, the establishment of AI as an academic discipline, and the advent of neural networks.
- Evolution of AI Technologies: Discuss the evolution of AI technologies over time, emphasizing the transition from simple algorithms to complex neural networks and machine learning models.

1.3 Basics of Machine Learning

- Introduction to Machine Learning: Define machine learning and explain its critical role as a subset of AI, focusing on how machines learn from data.
- Supervised vs. Unsupervised Learning: Provide an overview of the differences between supervised and unsupervised learning, including typical applications and examples.

1.4 Deep Learning and Neural Networks

- Basics of Deep Learning: Introduce deep learning as an advanced form of machine learning that uses neural networks to model complex patterns in data.
- Neural Networks Explained: Dive into the structure and function of neural networks, detailing how they mimic the human brain to process information and learn.

1.5 Natural Language Processing (NLP)

- Overview of NLP: Outline what NLP is and its significance in enabling machines to understand, interpret, and generate human language.
- Applications of NLP: Briefly explain common applications of NLP in AI, such as speech recognition, text analysis, and language translation.

1.6 Prompt Engineering Fundamentals

- Defining Prompt Engineering: Clarify what prompt engineering is and its importance in the field of AI, especially in tasks involving natural language processing and generative AI.
- Principles and Techniques: Introduce the basic principles and techniques of prompt engineering, including how to craft effective prompts to guide AI models towards desired outputs.

Module 2: Principles of Effective Prompting

2.1 Introduction to the Principles of Effective Prompting

- Overview of Prompting Importance: Discuss the pivotal role of effective prompting in enhancing AI interactions and performance.

- Enhancement through Well-Crafted Prompts: Explain how carefully constructed prompts can significantly improve the quality of AI-generated responses

2.2 Giving Direction

- Creating Clear, Concise Prompts: Share strategies for formulating prompts that are both clear and concise, ensuring AI understands the desired direction.
- The Role of Specificity: Highlight the importance of specificity in prompts to minimize ambiguity and ensure AI-generated responses meet expectations.

2.3 Formatting Responses

- Specifying AI Response Formats: Techniques for directing AI on the desired format of responses, such as lists, paragraphs, or tables, to suit different informational needs.
- Influence of Formatting on Utility: Discuss how the chosen format can affect the utility and applicability of AI-generated content in various contexts.

2.4 Providing Examples

- Context Setting with Examples: Explore how including examples in prompts can set context and guide the AI towards the intended style or approach.
- Clarifying Tasks and Outcomes: Use examples to make tasks clearer to the AI, ensuring the expected outcomes are well understood.

2.5 Evaluating Quality

- Assessing AI Responses: Outline methods for evaluating the quality of AI responses to ensure they meet the set criteria and objectives.
- Addressing Common Issues: Strategies for identifying and rectifying common issues in AI outputs through iterative prompt refinement.

2.6 Dividing Labor

- Breaking Down Complex Tasks: Techniques for deconstructing complex tasks into smaller, more manageable prompts to effectively leverage AI capabilities.
- Sequential Prompt Structuring: How to structure prompts sequentially to ensure comprehensive coverage of complex topics or multifaceted tasks.

2.7 Applying The Five Principles

- Real-World Application: Engage with practical exercises and case studies demonstrating the application of the five principles of effective prompting.
- Documentation Tools: Introduction to worksheets and one-pagers as tools for participants to practice these principles and document their insights and progress.

2.8 Fixing Failing Prompts

- Identifying Prompt Failures: Methods to diagnose why prompts may fail and strategies for their correction.
- Hands-on Activity: A practical session where participants work to revise and improve a set of failing prompts, applying learned strategies for effective prompting

Module 3: Introduction to AI Tools and Models

3.1 AI Tools and Models Landscape

- Understanding AI Tools and Models: An introduction to the variety of AI tools and models available today in the business landscape.

- Generative AI vs. Traditional Models: Explore the differences between generative AI models like GPT and traditional AI models, highlighting their unique applications and impacts.

3.2 Deep Dive into ChatGPT

- Architecture of ChatGPT: Explore the intricate design and functionality behind ChatGPT, delving into its architecture, algorithms, and natural language processing capabilities.
- Capabilities and Limitations: Explore ChatGPT's capabilities and limitations in natural language processing, understanding its strengths and areas where improvement is needed.
- Real-world Applications: Explore ChatGPT's diverse applications in various industries, from customer service to content creation, uncovering its real-world impact and potential.

3.3 Exploring GPT-4

- Advancements in GPT-4: Explore improved context understanding, nuanced response generation, expanded knowledge base, and enhanced language coherence for diverse applications in GPT 4.
- GPT-4 in Practice: Discover how GPT-4 transforms industries with practical demonstrations in business, healthcare, and various sectors.

3.4 Revolutionizing Art with DALL-E 2

- Introduction to DALL-E 2: Discover the transformative impact of DALL-E 2 on visual creativity, exploring AI's role in redefining artistic expression and innovation.
- Using DALL-E 2 for Creative Projects: Learn to harness the power of DALL-E 2 for creative expression in art and design with expert techniques and practical tips.

3.5 Introduction to Emerging Tools using GPT

- Claude-instant-100k and DALL-E-3: Explore cutting-edge models redefining AI's creative potential through rapid generation and imaginative image synthesis.
- Comparative Analysis: Contrast Claude-instant-100k & DALL-E-3 with established models, showcasing advancements in this module on emerging AI tools.

3.6 Specialized AI Models

- StableDiffusionXL and Llama-2-70b-Groq: Discuss the specialized applications of these models for image generation and beyond.
- Practical Applications: Unlock the power of StableDiffusionXL and Llama-2-70b-Groq for advanced data analysis and AI-driven decision-making in diverse industries.

3.7 Advanced AI Models

- Features of Claude-2-100k, Mistral-Medium, and Gemini-Pro: Detail the capabilities and ideal use cases for each advanced model.
- Model Selection Strategies: Learn to select optimal models tailored to project requirements, enhancing AI deployment efficiency.

3.8 Google AI Innovations

- Google-PaLM Overview: Dive into Google's Pathways Language Model, analyzing its structure, applications, and transformative influence on NLP and AI technology.
- Integrating Google Models: Dive deep into Google AI's application across products/services, dissecting its integration, impact, and future implications for users and technology.

3.9 Comparative Analysis of AI Tools

- Strengths and Weaknesses Across Models: Explore AI tools and models critically, discerning strengths and weaknesses to make informed decisions for practical applications.

- Selection Criteria for Projects: Outline how to choose the most appropriate AI tool or model based on specific project requirements.

3.10 Practical Application Scenarios

- Designing Effective Use Cases: Create hypothetical scenarios to demonstrate the application of AI tools in solving real-world problems.
- Tailoring Selection Based on Needs: Discuss the importance of matching AI tools to project specifics for optimal outcomes.

3.11 Harnessing AI's Potential

- Synthesis of Key Insights: Summarize the module's core teachings and the strategic application of AI tools and models.
- Looking Forward: Embrace continual learning amid AI evolution: adapt and thrive in dynamic landscapes through ongoing skill enhancement and technological fluency.

Module 4: Mastering Prompt Engineering Techniques

4.1 Zero-Shot Prompting

- Understanding Zero-Shot Learning: Explore zero-shot learning techniques and prompt engineering strategies to enable models to generalize without task-specific training data.
- Designing Zero-Shot Prompts: Master crafting prompts to guide AI without prior examples. Delve into strategies for precision and effective AI interaction techniques.

4.2 Few-Shot Prompting

- Leveraging Few-Shot Learning: Utilizing few-shot learning to enhance AI model performance with minimal examples.
- Crafting Few-Shot Prompts: Techniques for incorporating example inputs into prompts to provide better context and understanding.

4.3 Chain-of-Thought Prompting

- Encouraging "Thinking Aloud" in AI: Highlight the strategies to guide AI through verbalizing its thought process on complex problems.
- Structuring Chain-of-Thought Prompts: Understand how to design prompts that lead AI through a logical, step-by-step reasoning process.

4.4 Ensuring Self-Consistency in AI Responses

- Promoting Internal Consistency: Explore techniques ensuring AI outputs coherence, logic, and consistency: from error detection to robust validation in complex systems.
- Self-Checking Mechanisms: Learn methods to guide AI in evaluating its responses accurately and consistently, ensuring reliability and quality in decision-making processes.

4.5 Generate Knowledge Prompting

- Fostering Creativity in AI: Unlock AI's potential to innovate by synthesizing existing data, fostering creative solutions and generating novel ideas. Enhance problem-solving skills.
- Innovative Prompt Crafting: Explore techniques for crafting creative prompts to inspire AI innovation through hands-on exercises and practical applications in this module.

4.6 Prompt Chaining

- Sequential Prompting for Complex Tasks: Linking prompts in a sequence to address multifaceted tasks or compile comprehensive information.

- Applications of Prompt Chains: Master prompt chain techniques with diverse examples and case studies, empowering practical application and skill development in various scenarios.

4.7 Tree of Thoughts: Multiple Solutions Exploration

- Multipath Solution Exploration: Dive into AI's problem-solving versatility with Multipath Solution Exploration, mastering diverse techniques to tackle complex challenges with innovation
- Creativity and Diversity in Responses: Discover cutting-edge approaches to enrich AI solutions, fostering creativity and adaptability through diverse enhancement strategies and methodologies.

4.8 Retrieval Augmented Generation

- Augmenting AI with External Data: Learn to enhance AI capabilities by integrating diverse external data sources, refining responses, and uncovering deeper insights for optimization.
- Improving Output Quality: Explore retrieval augmentation's impact on response quality through diverse real-world use cases in this insightful and practical module.

4.9 Graph Prompting and Advanced Data Interpretation

- Graphical Data in Prompting: Learn to harness the power of graphs and other complex data structures for advanced AI applications
- Insight Generation from Non-Textual Data: Strategies to enable AI to interpret and derive insights from graphical or complex data formats.

4.10 Application in Practice: Real-Life Scenarios

- Practical Application Exercises: Hands-on tasks designed to apply prompt engineering techniques in real-world settings.
- Cross-Industry Use Cases: Exploration of the application of various prompting techniques across different sectors.

4.11 Practical Exercises

- Optional Practical Exercises: A collection of exercises for those seeking additional practice to refine their prompt engineering skills.
- Challenging Projects: Projects and prompts designed to test and enhance learners' abilities in crafting effective AI prompts.

Module 5: Mastering Image Model Techniques

5.1 Introduction to Image Models

- Overview of Generative Image Models: Introduction to the evolution and impact of generative image models on visual content creation.
- Distinguishing Image Models: Comparative analysis of models like DALL-E, Stable Diffusion, highlighting their unique use cases and capabilities.

5.2 Understanding Image Generation

- Visual Content Creation: Explore how image models interpret text prompts to create visual content, bridging language and imagery in innovative ways.
- Principles of Image Generation: Discover the intricacies of image generation through neural networks, exploring cutting-edge techniques and their applications in visual synthesis.

5.3 Style Modifiers and Quality Boosters in Image Generation

- Enhancing Image Quality: Master techniques to enhance image quality and manipulate artistic styles through guided prompts for compelling visual storytelling and expression.
- Practical Examples: Demonstrating how specific prompt adjustments can modify image attributes like style and resolution.

5.4 Advanced Prompt Engineering in AI Image Generation

- The Essence of Prompt Engineering in Image Generation: Master prompt engineering in AI image generation to harness textual cues to guide models, shaping output's relevance, accuracy, and artistry.
- Embracing Weighted Terms: Enhance AI prompts for nuanced image creation, allowing control over specific elements for richer visual content.
- Negative Prompts in AI Image Generation: Explore implications and countermeasures for AI-generated images, addressing biases, harmful content, and fostering responsible AI development
- Power of Weighted Terms in AI Image Generation: Explore how weighted terms shape AI image generation, leveraging their power to enhance visual outputs and improve model performance.

5.5 Prompt Rewriting for AI Image Models

- Understanding Prompt Influence: Analyze the impact of prompts on behavior, cognition, and culture, delving into theories and practical implications for diverse contexts.
- Prompt Adjustments in AI Image Generation: Master techniques to refine AI image generation promptly, optimizing quality and efficiency through strategic adjustments. Enhance creative output effectively.
- Case Studies and Practical Applications of Prompt Rewriting in AI Image Generation: Explore AI image generation through case studies, learning practical applications, and mastering prompt rewriting techniques for creative outputs.

5.6 Image Modification Techniques: Inpainting and Outpainting

- Inpainting and Outpainting: Master the art of digital image manipulation through inpainting and outpainting techniques, unlocking creative possibilities in visual content enhancement.
- Inpainting Techniques: Explore advanced methods to reconstruct missing or damaged parts of images seamlessly using various inpainting techniques. Practical applications emphasized.
- Outpainting with AI Models: Unlock creativity through advanced AI models, mastering outpainting techniques to expand artistic horizons and create captivating visuals beyond conventional limits.

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5.8 Realistic Image Generation

- Overview of Realistic Image Creation: Explore principles and techniques behind realistic image creation: lighting, textures, shaders, rendering engines, and compositing for stunning visual effects.
- Techniques for Generating Realistic Characters: Explore character development through psychology, backstory creation, and dialogue crafting to breathe life into your narratives authentically.
- Ensuring Consistency Across Characters: Learn to maintain character consistency across scenes and platforms for immersive storytelling through traditional methods and AI tools.

5.9 Realistic Models and Consistent Characters

- Realistic Image Creation Methods: Learn techniques for creating realistic images, including rendering, lighting, texturing, and post-processing.
- Realistic Models and Consistent Characters: Explore creating believable characters and worlds through realistic modeling techniques in this course focused on narrative consistency and depth.

5.10 Practical Application of Image Model Techniques

- Applying Image Model Techniques in Real-World Scenarios: Learn to deploy image models effectively, solving real-world problems with practical applications, from classification to object detection.
- Implications and Opportunities in Image Model Techniques: Explore diverse image model techniques, uncovering their implications and seizing opportunities for innovation in various applications.

Module 6: Project-Based Learning Session

6.1 Introduction to Project-Based Learning in AI

- Importance of Project-Based Learning in AI: Explore AI through hands-on projects to grasp concepts deeply, fostering critical thinking and problem-solving skills for real-world applications.
- Understanding Project-Based Learning: Explore theory, design, implementation. Enhance teaching skills for engaging, student-centered learning experiences. Foster critical thinking and collaboration.
- Traditional vs. PBL in AI Education: Compare traditional lecture-based AI education with Project-Based Learning (PBL), focusing on hands-on experience and real-world problem-solving strategies.

6.2 Selecting a Project Theme

- Choosing Relevant Themes: Offer guidance on how to select project themes that resonate with participants' interests and learning goals, ensuring engagement and motivation.
- CTheme Examples: Present examples of diverse project themes, including both text-based and image-based AI applications, to inspire creativity and innovation.

6.3 Project Planning and Design in AI

- Project Structuring: Outline how to define clear project goals, choose appropriate AI models, and apply prompt engineering techniques effectively.
- Scope, Timeline, and Resources: Discuss the importance of realistic project scope, timeline planning, and efficient resource allocation to ensure project feasibility and success.

6.4 AI Implementation and Prompt Engineering

- Practical Application: Demonstrate the use of prompt engineering techniques in creating effective AI interactions tailored to the project's objectives.
- Adaptation and Refinement: Explain how to iteratively refine prompts and AI model choices based on feedback and project progress to achieve better alignment with goals.

6.5 Integrating Text and Image Models

- Combining Models for Comprehensive Projects: Explore strategies for the successful integration of text and image AI models to enhance project complexity and outcomes.
- Integration Case Studies: Share examples of projects that have effectively combined different AI models for innovative and enriched results.

6.6 Evaluation and Integration in AI Projects

- Project Outcome Assessment: Introduce methods for evaluating the success of projects in meeting initial objectives and the importance of benchmarking results.
- Iterative Improvement: Highlight the process of making iterative refinements based on evaluations, focusing on prompt adjustments and model selection for enhanced project performance.

6.7 Engaging and Effective Project Presentation

- Presentation Preparation: Guide participants on how to prepare and present their projects, emphasizing clarity, coherence, and the ability to convey technical details.
- Feedback Session: Facilitate a constructive feedback session, encouraging the sharing of insights, challenges encountered, and problem-solving strategies.

6.8 Guided Project Example

- Walkthrough of a Guided Project: Provide a detailed example of a project from conception to completion, illustrating the application of learned concepts in a structured manner.
- Encouragement for Independent Projects: Motivate participants to undertake their projects, using the guided example as a blueprint for their initiatives.

Module 7: Ethical Considerations and Future of AI

7.1 Introduction to AI Ethics

- Overview of AI Ethics: An introduction to the ethical considerations essential in AI development and deployment, emphasizing the critical role of ethics in shaping responsible AI technologies.
- Ethics in Prompt Engineering: Discuss the significance of incorporating ethical considerations in prompt engineering and AI model deployment to ensure responsible use and application.

7.2 Bias and Fairness in AI Models

- Understanding AI Bias: Explore the sources and impacts of biases inherent in AI models and datasets, highlighting the importance of recognizing these biases.
- Mitigating Bias for Fairness: Present strategies for identifying and mitigating bias in AI-generated content, ensuring fairness and equity in AI applications.

7.3 Privacy and Data Security

- AI and Privacy Concerns: Address privacy issues related to AI development and interaction, including concerns over data handling and user privacy.
- Best Practices for Data Security: Outline best practices for maintaining privacy and ensuring data security in AI projects, safeguarding against data breaches and misuse.

7.4 The Imperative for Transparency in AI Operations

- Need for Transparency: Discuss the importance of transparency in AI operations, particularly in how AI models make decisions and process inputs.
- Enhancing Accountability: Explore approaches to increase accountability in AI applications, including the implementation of explainability features and audit trails.

7.5 Sustainable AI Development: An Imperative for the Future

- Environmental Impact of AI: Address the environmental implications of training extensive AI models, emphasizing the carbon footprint associated with computational resources.
- Promoting Sustainability: Advocate for sustainable practices in AI development and usage to minimize environmental impact and encourage eco-friendly innovations.

7.6 Ethical Scenario Analysis in AI: Navigating the Complex Landscape

- Emerging AI Trends: Examination of upcoming trends and breakthrough technologies in AI, contemplating their potential societal and technological impacts.
- Evolving Role of Prompt Engineering: Discuss how prompt engineering is adapting to and shaping the future landscape of AI applications, highlighting its growing importance.

7.7 Navigating the Complex Landscape of AI Regulations and Governance

- Applying Ethical Principles: Analyze hypothetical scenarios to practice applying ethical principles in AI decision-making, fostering critical thinking about ethical dilemmas.
- Discussion on Ethical Implications: Facilitate group discussions or individual reflections on the ethical considerations and implications of various AI applications, promoting a deep understanding of ethical challenges.

7.8 Navigating the Regulatory Landscape: A Guide for AI Practitioners

- AI Regulations Overview: Provide an overview of existing and forthcoming regulations affecting AI development and usage worldwide, highlighting key legal frameworks and governance structures.
- Regulatory Implications for Practitioners: Discuss the implications of these regulations for AI developers and prompt engineers, including compliance challenges and opportunities for advocacy.

7.9 Ethical Frameworks and Guidelines in AI Development

- Introduction to Ethical Frameworks: Introduce established ethical frameworks and guidelines designed to guide responsible AI development and usage.

- Adopting Ethical Practices: Encourage the integration of these ethical guidelines into AI project development and professional conduct, aiming to foster a culture of ethical responsibility in the AI community.

WHY TRAIN WITH SUNSET LEARNING INSTITUTE?

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Premiere World Class Instruction Team

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Enhanced Learning Experience

- The goal of our instructors during class is ensure students understand the material, guide them through our labs and encourage questions and interactive discussions.

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