Foundations of Artificial Intelligence

ICAgile
International
Consortium for Agile

LICENSING INFORMATION

The work in this document was facilitated by the International Consortium for Agile (ICAgile) and done by the contribution of various Agile Experts and Practitioners. These Learning Outcomes are intended to help the growing Agile community worldwide.

This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. To view a copy of this license, visit http://creativecommons.org/licenses/by-nc-nd/4.0/ or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.

YOU ARE FREE TO:

Share — copy and redistribute the material in any medium or format

UNDER THE FOLLOWING TERMS:

Attribution — You must give appropriate credit to The International Consortium for Agile (ICAgile), provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests ICAgile endorses you or your use.

NonCommercial — You may not use the material for commercial purposes.

NoDerivatives — If you remix, transform, or build upon the material, you may not distribute the modified material.

NOTICES:

You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation.

No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material.
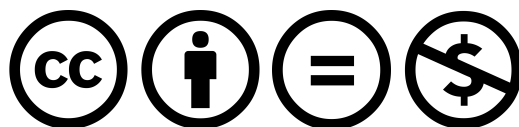
SPECIAL THANKS

ICAgile would like to thank the contributors to the Foundations of Artificial Intelligence Learning Outcomes:

TRACK REVIEWERS

Ed Wehner · Tina Wetterau · Michael Eason

CONTENTS

HOW TO READ THIS DOCUMENT

This document outlines the Learning Outcomes that must be addressed by accredited training organizations intending to offer ICAgile's ICP-FAI certification.

Each LO follows a particular pattern, described below.

0.0.0. Learning Outcome Name

Additional Context, describing why this Learning Outcome is important or what it is intended to impart.

The Learning Outcome purpose, further describing what is expected to be imparted on the learner (e.g. a key point, framework, model, approach, technique, or skill).

LEARNING OUTCOMES

1. INTRODUCTION TO ARTIFICIAL INTELLIGENCE

1.1. EVOLUTION OF AI

1.1.1. Understanding AI

As AI is becoming more integrated into our daily lives it is critical to help people understand what AI is and its potential applications across industries.

Cover the key concepts, potential applications, and limitations of AI in the workplace. Illustrate the practical applications and potential of AI through current and emerging examples. Explain how AI differs from traditional computing.

1.1.2. Pieces of the AI Puzzle

AI is made up of a number of evolving components and concepts. This learning outcome is about establishing a shared language of AI of the building blocks for an AI solution in organizations.

Convey the purpose and underlying value of the components and concepts that make up AI. This could include topics such as machine learning, deep learning, algorithms, data processing, etc. Differentiate between Generative AI and its predecessors, introducing the disruptive potential for Generative AI.

1.1.3. Evolving State of AI

The use of AI is expanding and evolving at an exponential rate. This high rate of change leads to misunderstandings of the abilities of AI and difficulty in assessing machine intelligence.

Discuss the factors that have created the environment for AI to evolve at such a rapid rate. Describe the differences between Artificial Narrow Intelligence (ANI) and Artificial General Intelligence (AGI). Address and clarify common myths and misconceptions surrounding AI.

1.2. ETHICS AND LEGAL CONSIDERATIONS OF AI

1.2.1. Ethics in the Context of AI

Understanding of ethics in the context of AI is critical to ensure that AI technologies respect human rights and dignity, promote fairness and prevent harm. It builds public trust through transparency and accountability, essential for widespread acceptance and integration of AI into society.

Discuss the moral principles and guidelines for the use of AI. Define what ethical considerations should be addressed when working with AI.

1.2.2. The Inherent Bias of AI

AIs are influenced by the information used to train them. The data used can inject human biases or distort historical reality which impacts the results created by AI.

Discuss the impact of bias in the data, algorithms, and AI solutions. Introduce the learners to approaches and strategies to analyze AI models to ensure the use of AI is fair, transparent, and ethical. Introduce the need to apply human critical thinking and strategies to validate and trust the results given by AI solutions.

1.2.3. Data Compliance and Privacy

Generative AI is raising new dilemmas and considerations in the space of data privacy and compliance. These are also taking place on a much larger scale.

Introduce considerations with data privacy regulations such as GDPR and HIPAA, address consent and security considerations. Discuss strategies for establishing clear accountability for data practices within AI projects as well as techniques for mitigating risk such as data minimization and anonymization.

1.3. PROMPT ENGINEERING

1.3.1. Introduction to Prompt Engineering

As conversational AI grows, understanding AI Prompt Engineering is key. This skill is crucial for creating precise prompts that ensure AI delivers relevant and accurate responses.

Introduce the concept and basics of AI Prompt Engineering, highlighting its role in making AI interactions effective. The goal is for learners to recognize that a well-crafted prompt leads the AI to provide useful, specific answers.

1.3.2. Effective Prompts

Effective prompts lead to reliable AI outcomes. The ability to prompt the AI and revise the prompt based on the results is key.

Cover techniques for crafting prompts that produce accurate, reliable, and unbiased results. Learners should be able to recognize when to revise their prompts based on the AI's results. Explain the importance and impact of context in prompt engineering. Learners should be able to identify their goal in using AI and use that to create the prompt.

1.3.3. All Prompts are not Created Equal

Many AI solutions have their own unique syntax or methods of analyzing prompts. An effective prompt in one solution may return poor results in another.

Introduce multiple AI solutions, such as LLMs and Generative AIs, and show how the same prompt returns different results. Describe how to find examples of the syntax of different AI solutions. Introduce patterns and strategies for crafting effective prompts.

2. ARTIFICIAL INTELLIGENCE IN THE ENTERPRISE

2.1. THE AGILE ADVANTAGE

2.1.1. Agile Mindset and AI

An agile mindset acknowledges the need for learning, experimentation, and continuous improvement that enables people and their organizations to be more flexible. This mindset is a significant advantage when working with AI solutions.

Create the connection between the agile mindset, values, and principles in the space of AI solutions. The culture of learning, including reflecting and adapting, is key to the successful use of AI.

2.1.2. Agile Behaviors and AI

Agile behaviors provide an advantage to organizations that must quickly adjust to AI's possibilities and limitations.

Cover how agile behaviors such as iterative development, continuous feedback, and collaboration can be applied to the unique demands of AI solutions. Learners understand how planning, designing, testing, and keeping AI systems up-to-date is different, often needing more trial and error than traditional methods. Prepare the learners to navigate the complexities of AI initiatives.

2.1.3. Cross-Functional Teams and AI

The cross-functional team working on AI brings together the mix of skills to tackle AI's challenges, making solutions smart, fair, and value-driven.

Introduce the concept of a cross-functional team and cover the skills needed in a team focused on AI. Skills needed can include the following: prompt engineering, data literacy, data science, software engineering, ethics, and domain-specific knowledge. Discuss how the cross-functional team evolves to incorporate these new skills and responsibilities.

2.2. LEVERAGING AI IN THE ORGANIZATION

2.2.1. Business Value of AI

AI is changing the way organizations work, from enhancing decision making, analyzing data, and creating efficiencies. Organizations can effectively use AI to enhance and support the skills and creativity of their workforce.

Highlight how AI can be used to to create competitive advantages, optimize operations, and enhance customer engagement. Understanding AI's business value helps to make strategic decisions about investing in, developing, or implementing AI solutions. Discuss how AI supports and complements the skills and creativity of humans.

2.2.2. Align AI with Strategy

To get the most out of AI, there is a need to align AI initiatives with strategic business objectives, manage the organizational change, and ensure that AI solutions are scalable, sustainable, and deliver measurable value.

Introduce the importance of aligning AI initiatives with strategic objectives and the challenges when AI is not aligned with the strategy. Cover the necessary infrastructure for AI initiatives, the cultural shift towards data-driven decision-making, and the oversight required for responsible AI governance.

2.2.3. AI Initiatives in the Real World

Organizations' approaches to business initiatives are changing because of AI. Like all projects, AI initiatives evolve over time, even after they are launched. Real-world examples play a crucial role in understanding AI's impact.

Introduce a number of real-world AI initiatives that bridge the gap between theory and business outcomes. Outline the types of AI solutions available and discuss how those solutions can impact organizations.