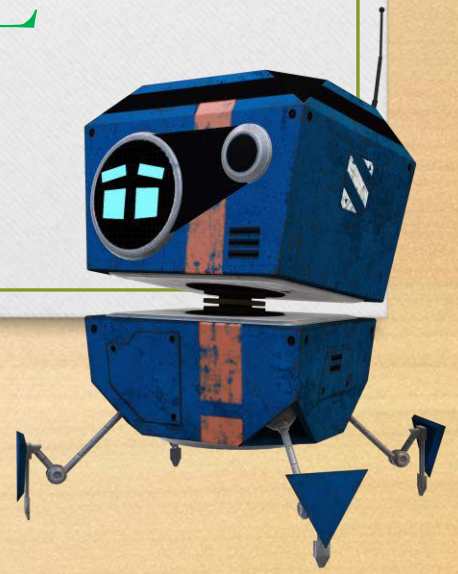
MEASURE ENERGY CONSUMPTION

USING ARTIFICIAL INTELLIGENCE



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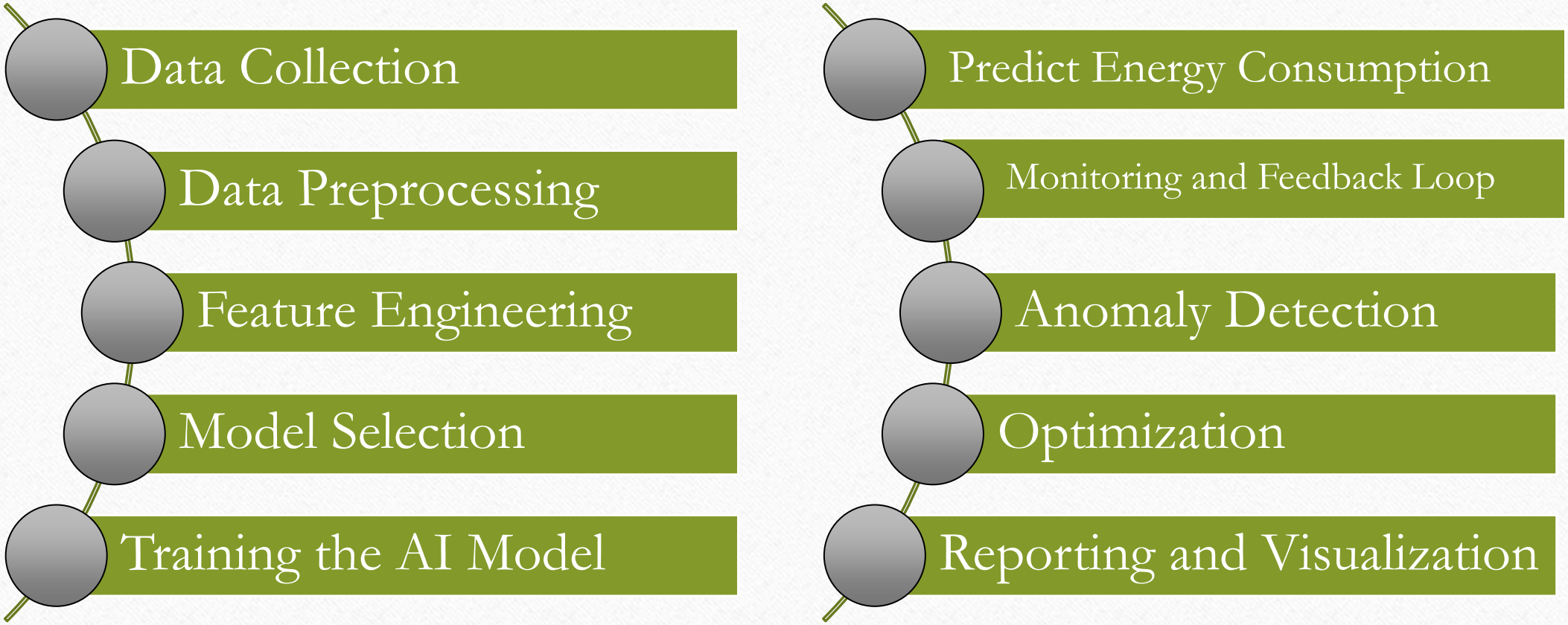
INTRODUCTION

Measuring energy consumption using AI involves using artificial intelligence techniques to analyze and predict energy usage patterns in various applications. AI can help improve energy efficiency, reduce waste, and optimize energy consumption in residential, commercial, and industrial settings.

Energy consumption has been widely studied in the computer architecture field for decades. While the adoption of energy as a metric in machine learning is emerging, the majority of research is still primarily focused on obtaining high levels of accuracy without any computational constraint. We believe that one of the reasons for this lack of interest is due to their lack of familiarity with approaches to evaluate energy consumption. To address this challenge, we present a review of the different approaches to estimate energy consumption in general and machine learning applications in particular. Our goal is to provide useful guidelines to the machine learning community giving them the fundamental knowledge to use and build specific energy estimation methods for machine learning algorithms. We also present the latest software tools that give energy estimation values, together with two use cases that enhance the study of energy consumption in machine learning.

STEPS TO MEASURE ENERGY CONSUMPTION USING AI



MARKET USES OF ENERGY CONSUMPTION

- There are methods to estimate energy consumption in AI, and they can be mapped to specific machine learning scenarios
- The Allen Institute, Microsoft, Hugging Face, and three universities have collaborated to create a tool that measures the electricity usage of any machine-learning program that runs on Azure
- AI and ML have the potential to make major contributions to the fields of predictive turbine maintenance, energy consumption optimization, grid management, energy price prediction, and residential building energy demand and efficiency assessment

ISSUES & IMPACTS

- Business environmental impact.
- Issues made on AI, data, and the environment.
- Overload of Data center energy usage.

Idea for Overcome the Issues

- By Using the bat algorithm, we can reduce the excess energy consumption Based on AI.
- Thus we can minimize the issues on measure of energy consumption by implementing the bat algorithm as well.