

Enhancing Systems Engineering Processes with AI

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Large Language Models (LLM)

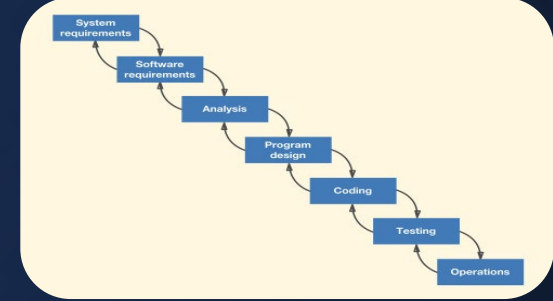
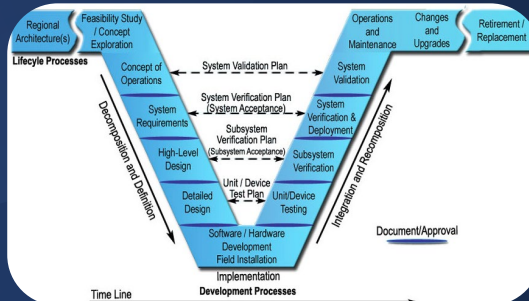
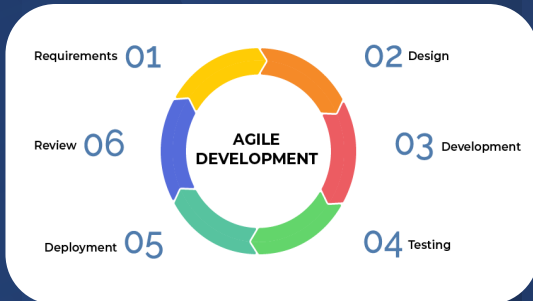


- Large language models are computer programs that can generate natural language text based on a given input.
- The ChatGPT Engine is a computer algorithm that processes natural language inputs and predicts the next word based on what it's already seen. Most notably known as the most advanced LLM program available.
- Using ChatGPT API, we can now access the chatbot on Innoslate Cloud, allowing engineers to combine their efforts with LLM programs to accelerate engineering processes and develop a more robust output of work.



SE Lifecycles

- AI can be used to enhance efficiency and productivity throughout different SE Lifecycle models.
- For each stage of the life cycle, AI can facilitate SE processes and help systems engineers maximize their quality of work.



Concept Definition



- AI can be used to assist systems engineers in defining the environment and detail that projects demand. AI can educate engineers on the concepts in hand, declaring clear standards to be considered.
- Systems engineers can use AI to help define the problem space and develop preliminary operational concepts based on inputs provided to them by an organization or enterprise.

Requirements Definition



- Systems engineers have the opportunity to use AI in creating requirements, expanding on existing requirements, clarifying concepts, and checking the quality of requirements.
- AI can also be prompted for suggestions on improving a requirement to ensure that the requirement is clear and comprehensible, as well as creating rationale based on the requirements.

Implementation



- Once a design is defined, AI can generate required content for various tasks, decreasing the developer's workload and allowing more focus and attention on complex problem-solving.
- AI can also check for the traceability of the system design to ensure the satisfaction of requirements, constraints, and objectives and identify any missing relationships.

- AI is capable of creating requirements and test cases that are both testable and valid in the context of the complex problems being solved by system engineers.
- Additionally to being capable of creating test suites or declaring expected results based on our context, it can also run theoretical tests based on the tests and assumptions provided.

Demonstration



Q & A