Waterfall to Agile Onward to AI Driven Test Automation
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Outline

01 History of Test Automation

02 Challenges in Test Automation

03 AI Powered Test Automation
History of Test Automation

1980-1990: Bulky Automation Tools
1990-2000: Record & Play back tools
2000-2010: Robust Automation Tools
2010-2020: DevOps, CI/CD
2020 onwards: AI, Autonomous Testing

Waterfall
Early Agile
Agile
Challenges in Test Automation

- Changing Requirements
- Insufficient Time to Ensure Quality
- Maintenance Overhead
- Prediction of User Behaviour
- Test Data Management
- Result Analysis and Defect Prediction
AI in Test Automation

- Use-Cases
- AI Powered Tools
- Case study: GitHub Copilot
- AI Adoption: Expectation vs Reality
- Strategies for AI Implementation

GenAI models trained on vast amount of text data to understand and generate natural language. Popular LLMs: GPT, Gemini, Llama 3

AI models designed to generate new content such as text, images, music and code based on patterns and data they have been trained on.

Supplying specific cues to guide the AI system in generating novel output

Gen AI

LLMs (Large Language Models)

Prompting
GenAI Use-Cases

TEST GENERATION & MANAGEMENT
- Test Case Creation
- Coding Assistance
- Test Data Generation

RESULT ANALYSIS & DEFECT PREDICTION
- Bug Management

TEST EXECUTION & MAINTENANCE
- Dynamic Test Execution
- Self-Healing Tests
- Visual Testing
AI Powered Tools

Katalon
applitools
headspin
eggplant
Keysight Technologies
testRigor
test craft
Tricentis
Testim
codium
Amazon CodeWhisperer
mabl
functionize
testsigma
ACCELQ
reportportal
Bugasura
Postman
Postbot
GitHub Copilot
GitHub Copilot – AI Pair Programmer

**USE-CASES**

- **Code Completion**: Context-aware suggestions to complete lines of blocks of code
- **Fix Issues**: Propose a fix for problems in the selected code
- **Documentation and Comments**: Generate meaningful doc strings and comments for functions and classes
- **Answering coding questions**: Integrated with popular IDEs, have chat prompt box

**Describe the Goal**

**Be Flexible**

**Provide Examples**
AI Adoption - Expectation vs. Reality

- Variance in Responses
- Complexity and Expertise
- Cultural Resistance
- Integration Challenges
- Security and Reliability
- Initial Cost
Strategies for AI Implementation

Assess Readiness
Pilot Projects
Data Preparation
Select the Right Tool
Embracing the Change

AI is your co-pilot. Not auto-pilot.
Do you have any questions?

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THANK YOU

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