Generative AI
Multiagent Systems

Toward (Semi-)Autonomous Intelligence

Donald Thompson
Distinguished Engineer
LinkedIn / Microsoft

GAI Multiagent System

Agents

Tools

Prompts

Models

- Pre-trained / foundation
- Instruction fine-tuned
- Task / domain fine-tuned
- RL with human / AI feedback

GAI Multiagent System

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Models

- Zero, one, few shot learning
- Chain, tree, graph of thought
- Metaprompting
- Chaining

GAI Multiagent System

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Models

- Natural language → API
- Natural language → DB
- EBR / RAG / GAR
- Code generation and execution

GAI Multiagent System

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Tools

Prompts

Models

- Tool selection and use
- Reasoning and planning
- Collaboration
- Self-modification and synthesis

What is an agent?

Intentionality
- has goal or purpose
- can deliberate, plan, and act

Adaptability
- adjust strategies based on situation
- challenges and opportunities

Autonomy
- independently execute actions
- level varies

Profile

Profile Content
- Demographic
- Personality
- Social

Generation Strategy
- Handcrafted
- LLM-generated
- Dataset Alignment

Memory

Memory Structure
- Unified
- Hybrid

Memory Formats
- Languages
- Embeddings
- Databases
- Lists

Memory Operations
- Reading
- Writing
- Reflection

Planning

Planning w/o Feedback
- Single-path Reasoning
- Multi-path Reasoning
- External Planner

Planning w/ Feedback
- Environmental Feedback
- Human Feedback
- Model Feedback

Action

Action Target
- Task Completion
- Communication
- Exploration

Action Production
- Memory Recollection
- Plan Following

Action Space
- Tools
- Self-Knowledge

Action Impact
- Environments
- Internal States
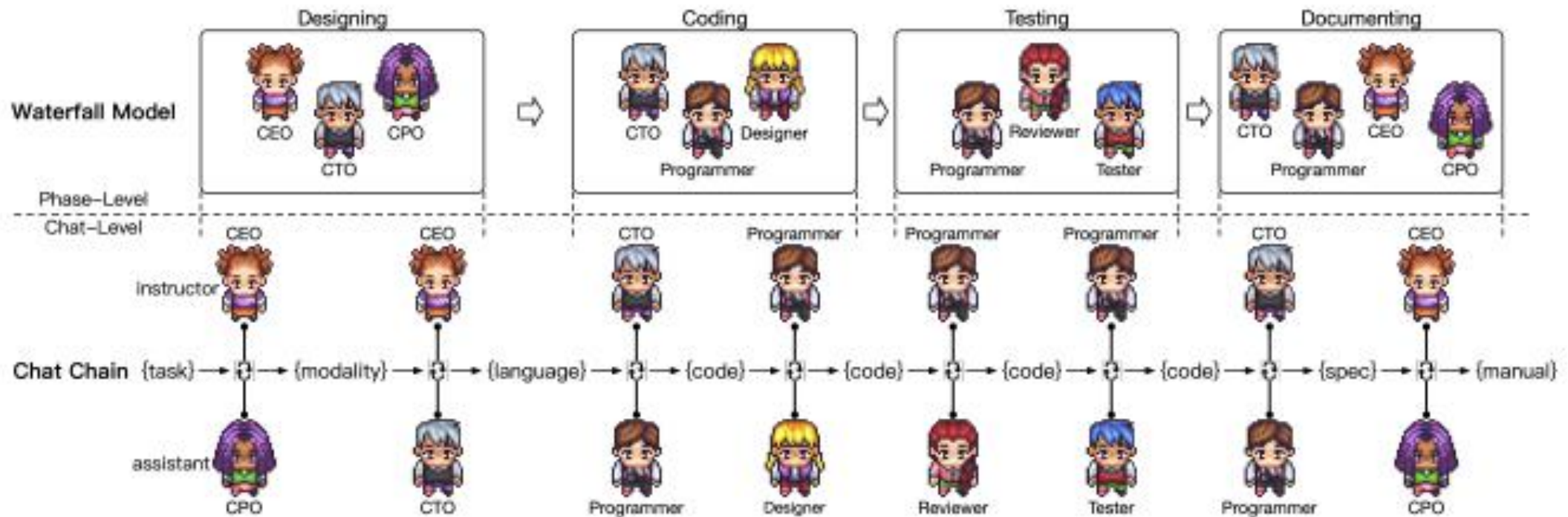- New Actions
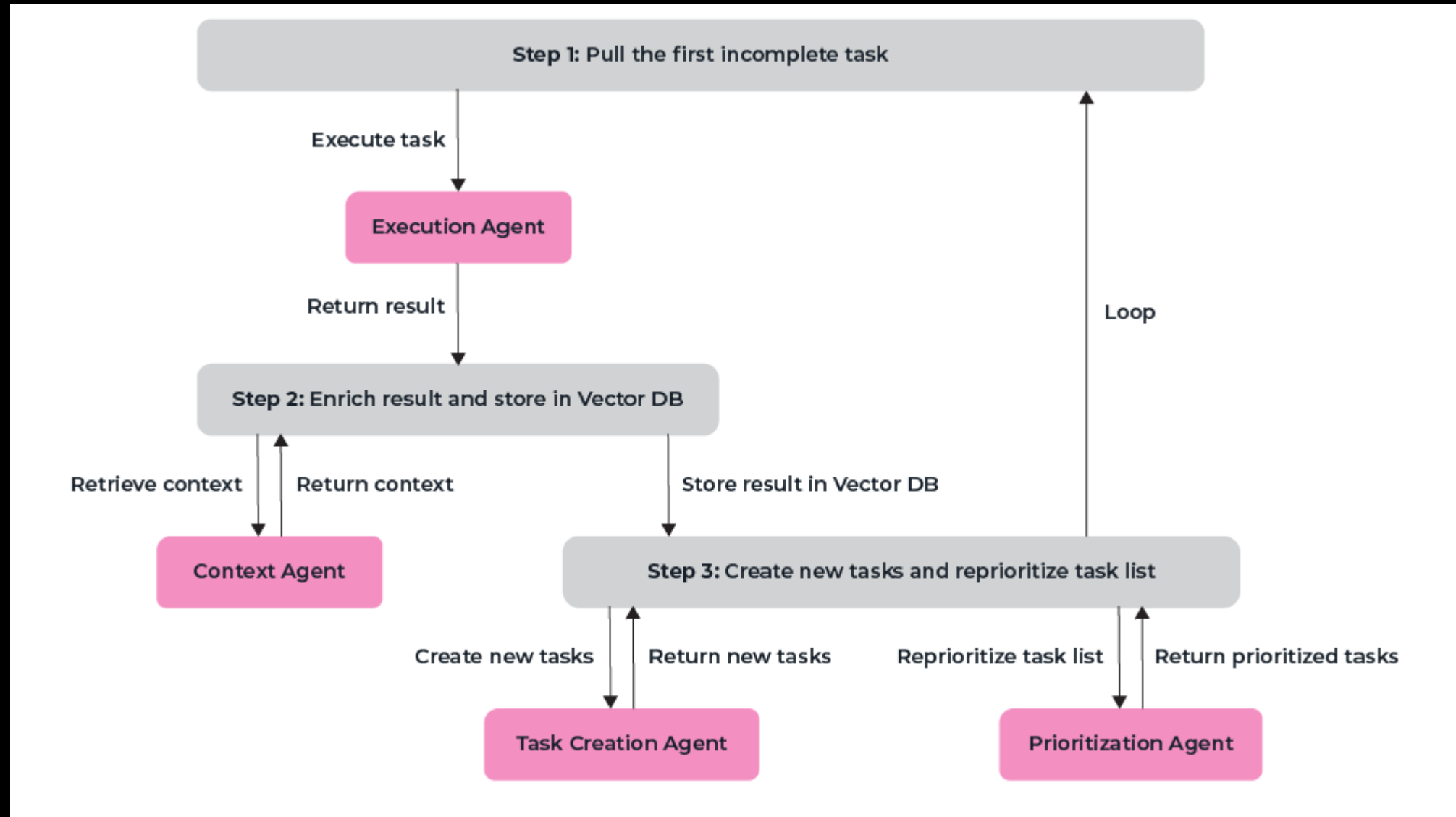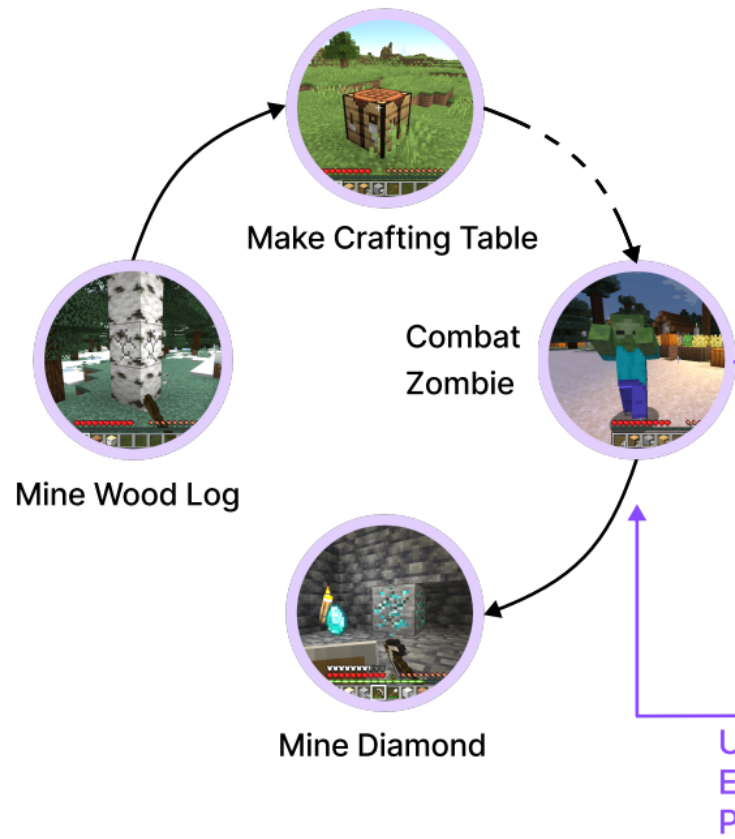
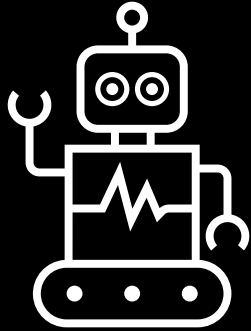# BabyAGI

Voyager
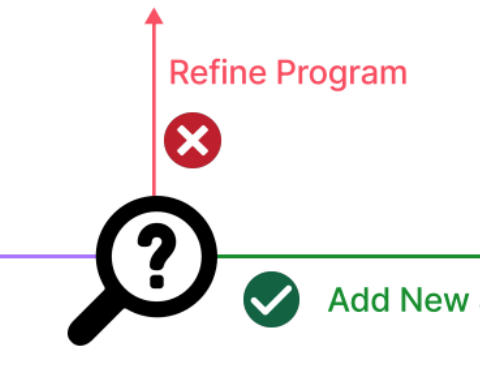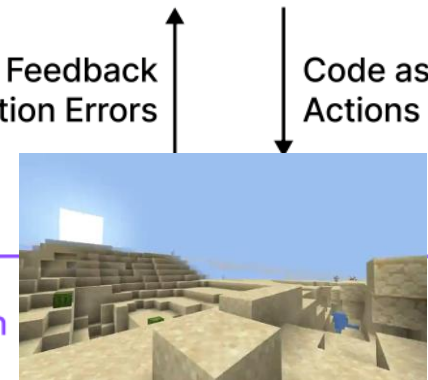
Generative Agents
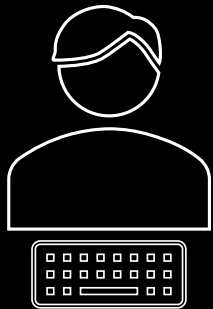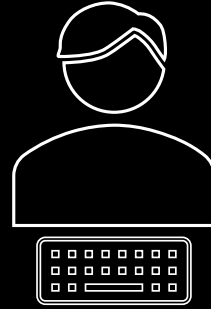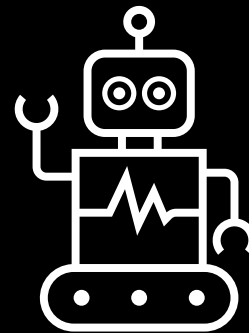**Interactive Simulacra of Human Behavior**
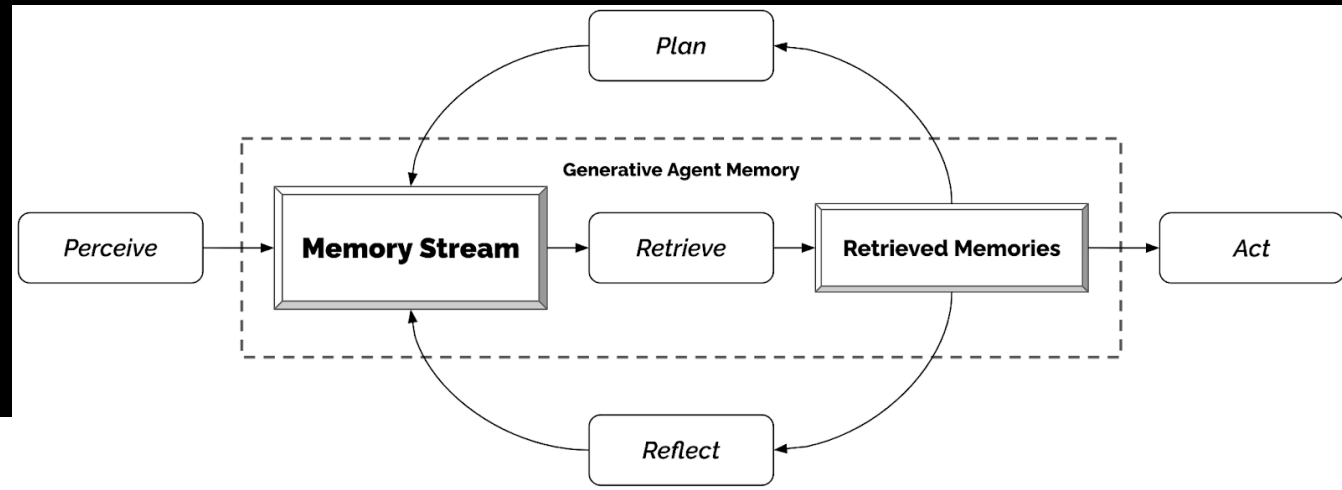
AutoAgent
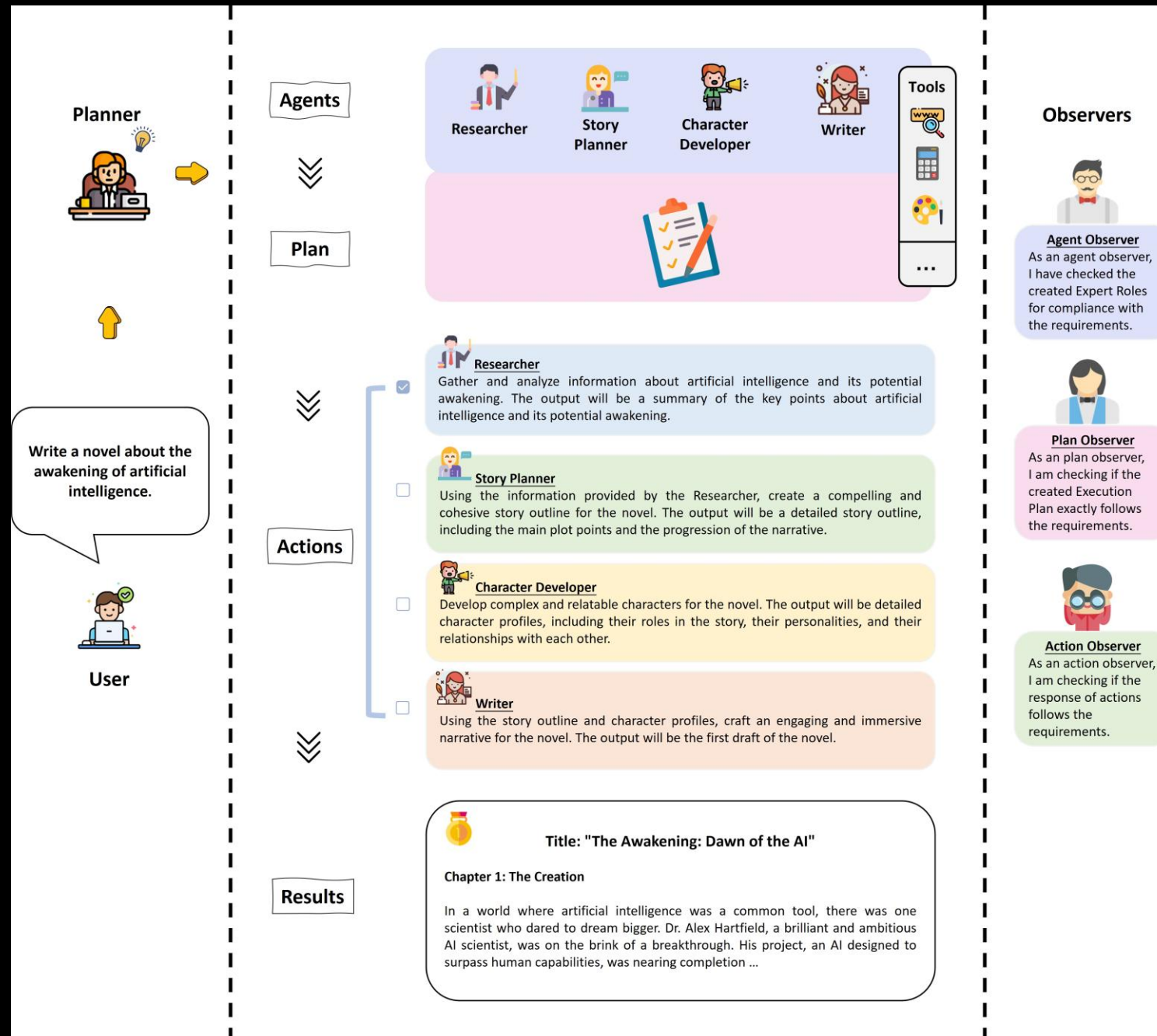
ChatDev

- Assist
- Augment

- Intent
- Critique

Today

Tomorrow