The Modern Software Developer

CS146S
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Guest Lecture - 10/17/25

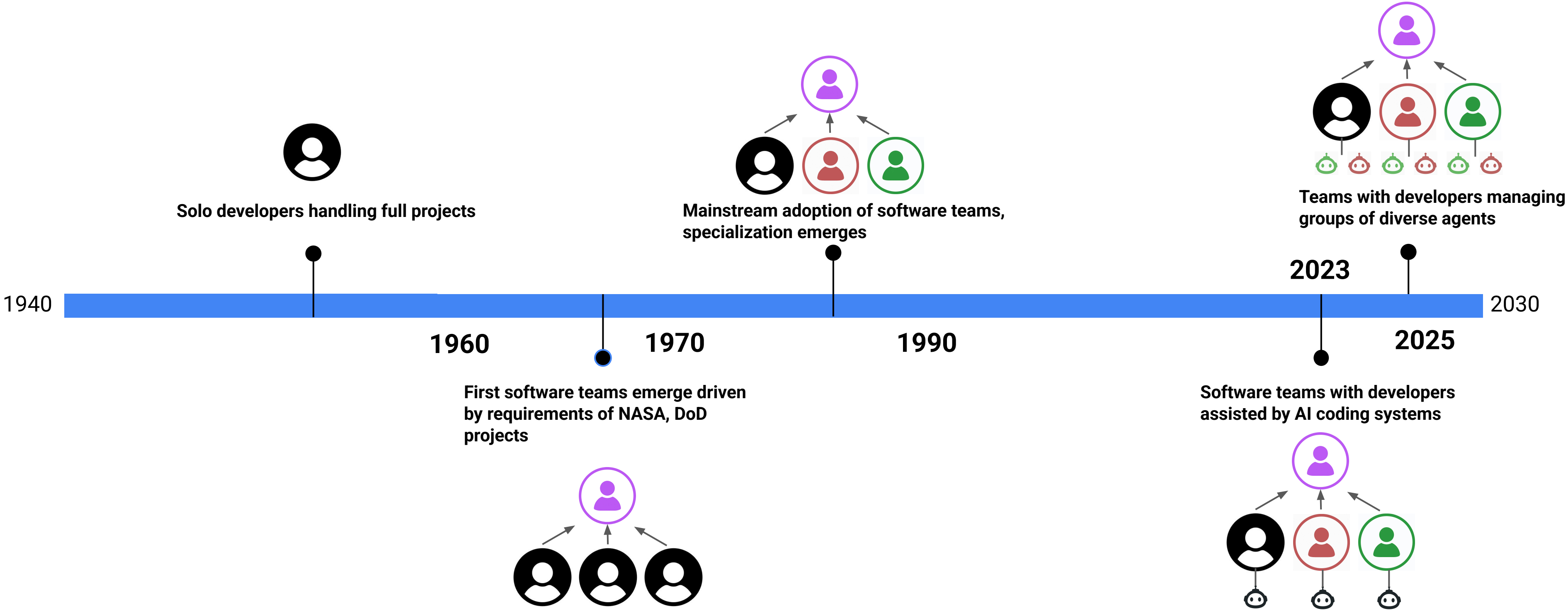
Anthropic Creator of Claude Code, Boris Cherny

How to be an Agent Manager

Why

- Development evolution
  - Single developer managing single developer’s output
  - Lead managing many developers worth of output
  - Lead managing many developers worth of output (assisted by an AI system)
  - Single developer managing many AI agents worth of work

A brief history of software teams



Solo developers handling full projects

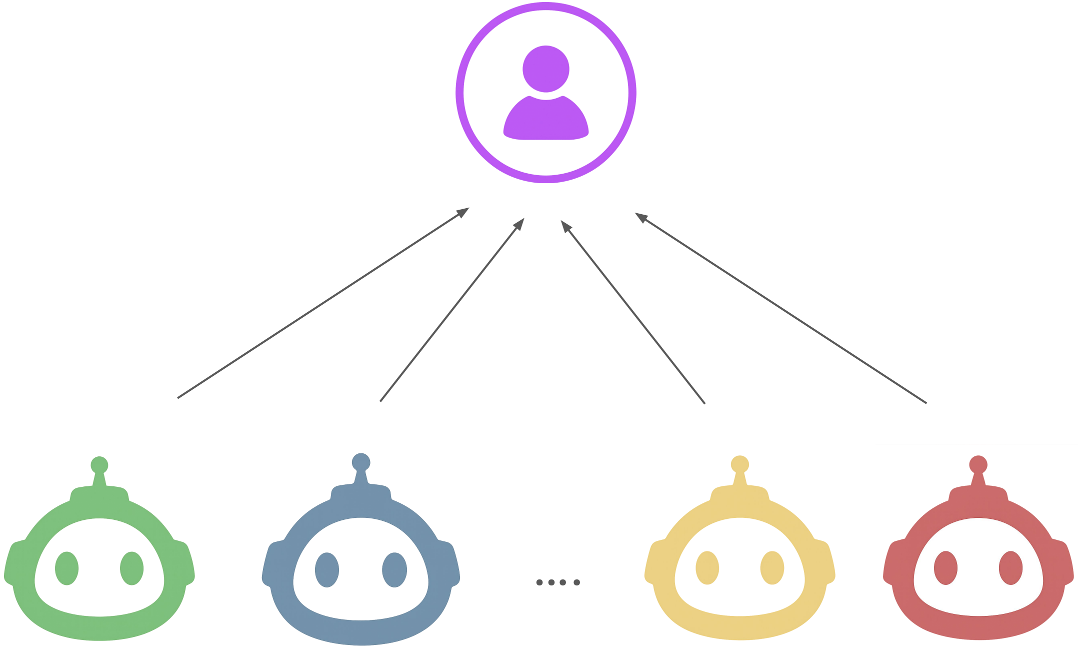
First software teams emerge driven by requirements of NASA, DoD projects

Mainstream adoption of software teams, specialization emerges

Software teams with developers assisted by AI coding systems

Teams with developers managing groups of diverse agents

Goals



Software task steps

- Provide high level requirements 🟩
- Convert requirements into a design doc 🟩/🟦
- Implement solution from doc 🟦
- Add tests 🟦
- Ensure CI (continuous integration) passes 🟦
- Code review 🟦
- Update docs 🟦

Techniques for directing agents

- Agent behavior files (Claude.md/Cursorrules/agents.md)
- Hooks
- Commands
- Subagents

Hooks

- Deterministic scripts that run on predefined event types
  - PreToolUse
  - PostToolUse
  - UserPromptSubmit
  - PreCompact
  - …and more

Commands

- Provide frequently-used prompts as files that the agent can execute
- Use cases
  - Running tests
  - Reviewing code
  - Form a git commit, push

Subagents

- Runtime delegation
- Purposes of a subagent is to
  - Create distinct developer personas for different types of work (frontend, backend, etc)
  - Cleanly separate contexts for different work streams
- Offer
  - Customized system prompts, tools, and a separate context window
  - A move toward agents managing other agents
- Use cases
  - https://github.com/vijaythecoder/awesome-claude-agents/blob/main/CLAUDE.md
  - https://github.com/SuperClaude-Org/SuperClaude_Framework

Best practices

- You need careful backstops
  - Tests in codebase
  - CI/CD best practices
- Auditability of each agent
  - Label every diff made by an agent
- Different models for different classes of tasks
- More complex tasks you may need to handhold a bit more upfront vs fully async ones
- Checkpoint (commit) regularly

Workflow walkthrough

Open questions

- How can we automate the first 10-20% research phase of any task?
- How to maintain a queue of pending tasks (easier for 1-off changes)?