Steering AI Initiative

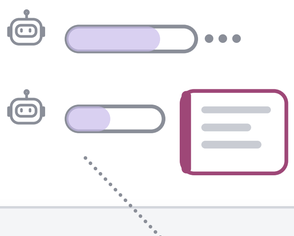
Designing when AI engages, what it exposes, and where human direction applies

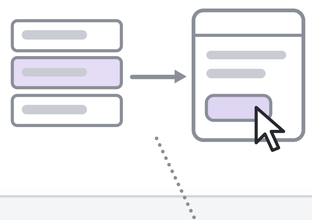
Kevin Pu University of Toronto PhD Candidate advised by Tovi Grossman and Yan Chen

AI now takes initiative: it acts unasked, makes choices nobody specified, and spreads work across agents and time. I design systems that help people keep steering it, drawing on theories of how people collaborate, think and organize.



Surfaces an agent's unrequested decisions while you wait





Generalizes web automation from your demonstrations

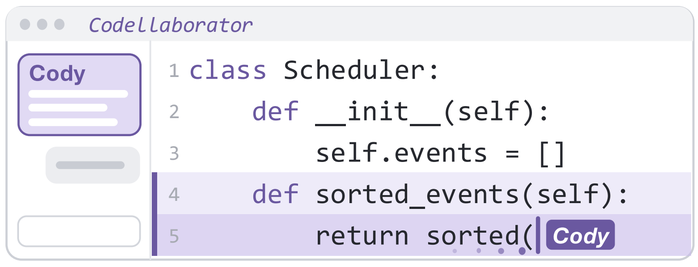


Times proactive help based on modeling your working memory



Web automation with semantic conditions you revise mid-run

WHEN the AI engages
Assistance or Disruption? CHI '25



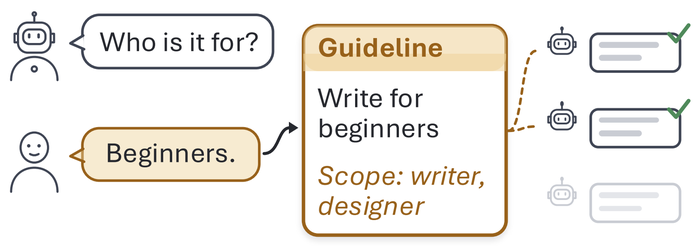
A proactive coding partner with a visible presence in your editor, stepping in at task boundaries and editor events.

Grounded in *interruption management and social transparency theory*

34.5 s → 18.7 s

time to interpret each AI action with Codellaborator, vs. a prompt-only baseline

WHERE direction applies
Helm under review



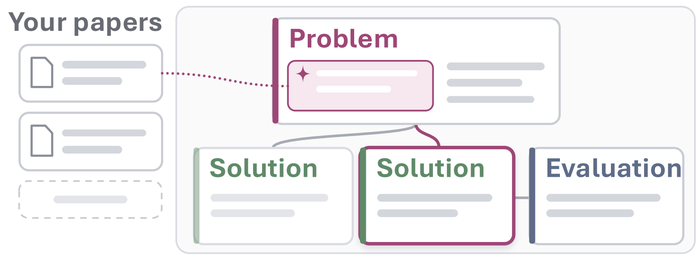
Agents ask before acting, and each answer becomes scoped guidance that carries to later tasks across a multi-agent workflow.

Grounded in *organizational information processing and coordination theory*

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guidelines that persisted came from answering agents' questions; only 2 were user-written

WHAT the AI exposes
IdeaSynth CHI '25



Exposes a research idea as editable facets grounded in literature, so people judge and revise parts instead of whole drafts.

Grounded in *divergent–convergent ideation and non-linear information seeking*

5.40 vs. 3.65

rated exploration of alternatives higher (7-point scale), vs. an LLM document-interface baseline

Gaps on the map = Future Research Directions to Explore the Design Space

1. **WHEN × WHERE** — *Consequence-aware mixed-initiative coordination across a workflow*
2. **WHERE** — *Guidance for agent work that builds up and persists across sessions*
3. **ALL THREE** — *Scaffold and protect user understanding in work delegated to agents*

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