

ContextOS

Designing for High-Context AI Collaboration

Amer Mriziq

Ayushi Raj Bhatt

Aman Mehrotra

Manish Kumar

Advised by: Coye Cheshire

The Invisible Overhead

- Context Wrangling
- Detailed Instructions
- Rephrasing Prompts



are massive barriers in AI collaboration

We spoke to 26 people.

11 General Users

Understand how people interact with AI

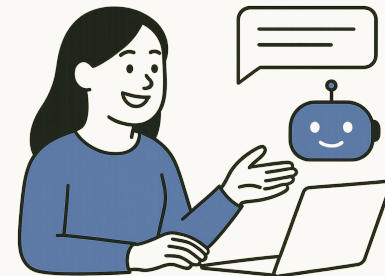


15 Advanced Users

Observe collaborative multi-step tasks



Collaborative Workflow



“Draft a PRD for our fintech MVP using this outline (Goal, Users, Features).” → Returns a draft; user then iterates.

Input:

- Rich context
- Template / outline
- Iterative guidance

User Expectations:

- Back-and-forth dialogue
- Structure control
- Version safety

Pain Points

Siloed Context

AI struggles to act like a true collaborator when relevant information is fragmented across tools.

*“I had **everything I needed**, but it **was scattered**: in a doc, some past chats, and my inbox. The model couldn’t see all of it, and **I didn’t have time to bring it together.**”*

User Feedback



Pain Points

Siloed Context

Instruction Fatigue

Users often need to guide the AI with precise, audience-specific framing.

*"Even after uploading the doc, **I still had to explain what to focus on otherwise it just gave me a generic summary with stuff I didn't care about.**"*

User Feedback



Pain Points

Siloed Context

Instruction Fatigue

Relevance Variation

Users want contextual precision, not just memory. Even when AI tools have persistent context, users still need to re-specify relevance based on audience, purpose, and task.

"It remembers my resume, but I have to keep repeating which parts to use depending on the job otherwise it blends everything and loses focus."

User Feedback



Pain Points

Siloed Context

Instruction Fatigue

Relevance Variation

Context lock-in



As AI tools build up memory and personal context, users develop strong platform loyalty not because of UI or features, but because of the cost of re-teaching another system.

*"ChatGPT just gets how I write. I've used it so much, it knows my tone, my workflows even when I give a vague prompt, it nails it. **I tried Claude once, but I'd have to explain everything again. I don't have time for that.**"*

User Feedback

Pain Points

Siloed Context

Fragmented tools prevent AI from acting as a true collaborator; user has to manually stitch context.

Instruction Fatigue

High prompt friction brakes user flow and prevents them from developing better prompting habits leading to weaker outcomes over time.

Relevance Variation

Persistent memory isn't useful without precision irrelevant info leads to bloated or generic output

Context lock-in

Personalization creates stickiness, but users want the freedom to move across different LLMs.



Goal

Design a UX that scales with user skill, enabling a smooth shift from simple prompts to high-context, high-impact collaboration with AI.



Design Recommendations

Context Management

Context must be Centralized and Organized as a Repository to address multi-llm usage (interoperability).

Give Control

Users require granular control over the application of context (address the challenge of handling large data).

Reduce Friction

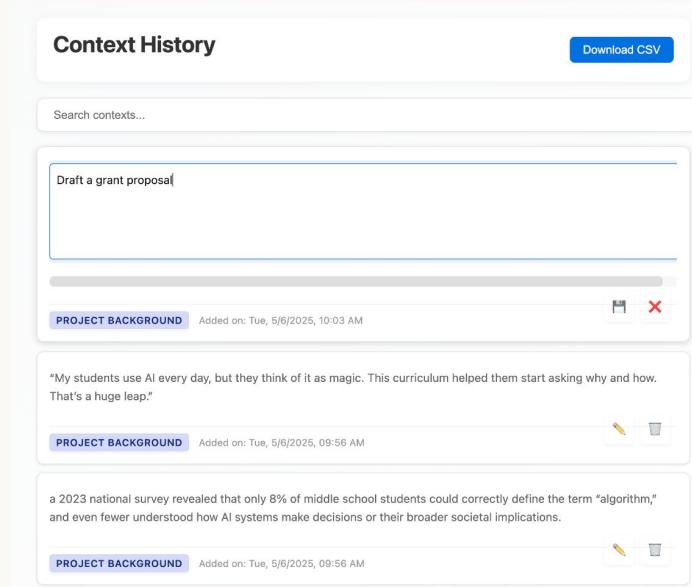
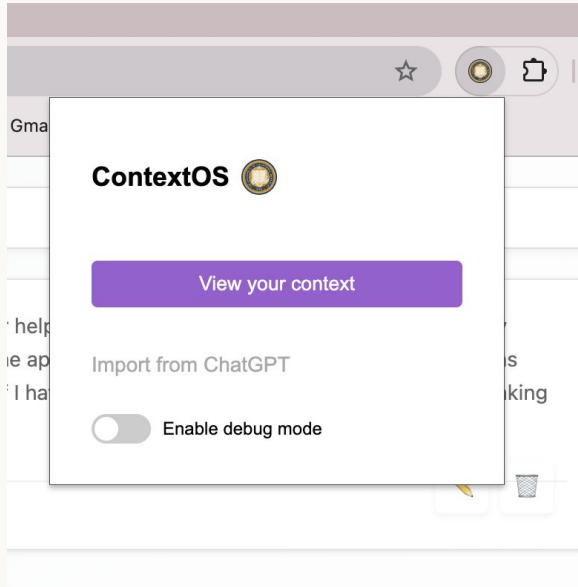
Minimize workflow disruptions when injecting/working with AND storing context (to support iterative refinement, more complex tasks)



ContextOS

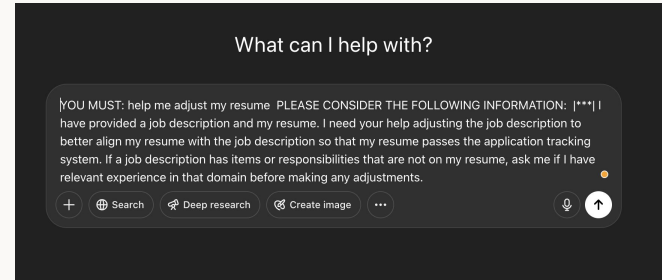
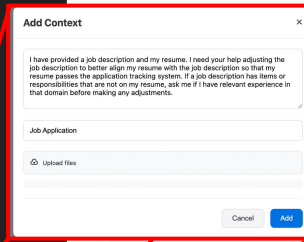
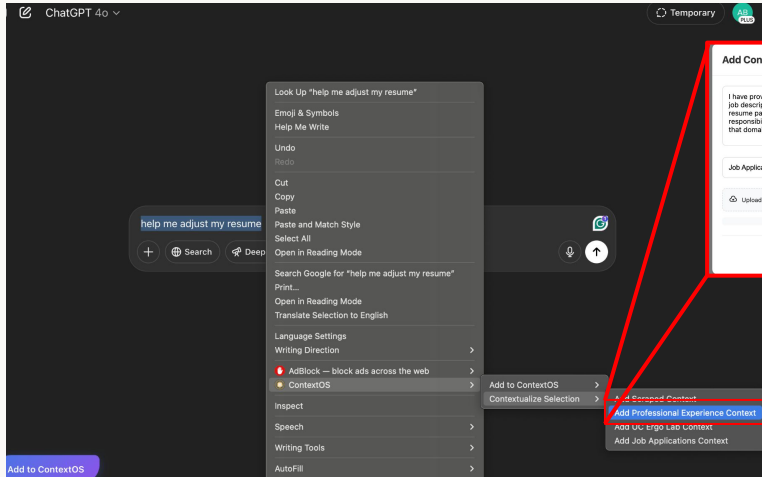
Seamless context injection makes advanced AI workflows effortless, fast, and accessible to all users.

Context Management & Interoperability



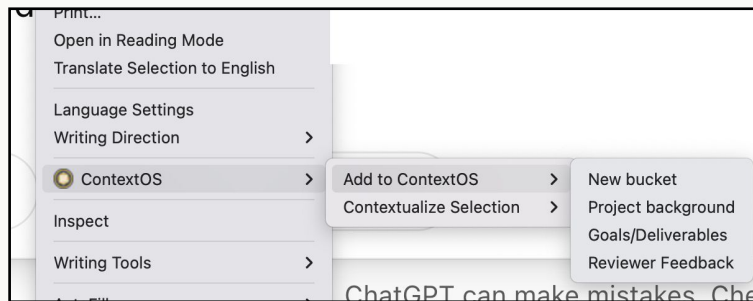
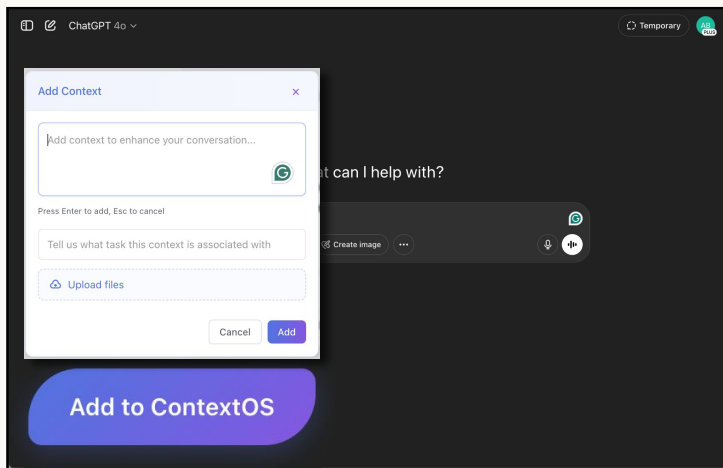
Context Management Browser-based storage, enabled on all popular LLMs, user-generated buckets to organize

Give Control



User-generated buckets, insertable specific context,
Restructuring LLM-based prompts

Reduce Friction



Right-click interaction design for “contextualizing” prompts and for adding context ad hoc to your OS, keyboard shortcuts for speed

Types of trust relations

Intentionally, "trusts" have been defined independently. Indeed, "trusts" have been used in multiple contexts, including in alignment with acts of system input/output or trustworthiness, and "trustworthiness" in the context of ongoing interactions over time. Such distinctions are not clear.

Trust in AI

Trust in AI is a multifaceted concept that encompasses

confidence, belief, and a motivational tendency, which is a

user's belief and reliance on their system to make it clear

to be used, especially, to help them, and to help them

to be used.

Trust in AI is a multifaceted concept that encompasses

confidence, belief, and a motivational tendency, which is

Trust in AI: A Review of the Literature

Trust in AI is a multifaceted concept that encompasses

confidence, belief, and a motivational tendency, which is

confidence, belief, and a motivational tendency, which is

Agreement trust is the agreement between the user and the system performance of the system. (Bachmann et al. 2002) Agreement trust is to freely release control to the system (Cheng et al. 2020) If the possibility of the system making an error that is its own, then trust is appropriately calibrated. (Gardner and Dennis, 2014)

Calibrated Trust

Calibrated trust is defined as the process by which a human adjusts their expectations of the system's reliability and trustworthiness. (4) Calibrated trust is a process to calibrate trust in that a human's trust level about the system corresponds to their actual trustworthiness. However, calibrated trust necessarily involves a process of trust calibration or trust adjustment that occurs for users with calibration over the course of time and repeated interactions. (5, 6) Agreement trust is the traditional view of "calibrated trust" over multiple interactions. (1)

It primarily pertains to the user's subjective belief that the system will do what the user expects it to do, and that the system will do what the user expects it to do. (2) Calibrated trust is the process of adjusting expectations to match actual performance.

2. We use the terms *trust*, *belief*, and *confidence* (3). Moving on to the "trust" side, the trust concept is used to describe a user's belief in the system's ability to do what the user expects it to do, and that the system will do what the user expects it to do.

Beliefs: These describe a user's belief in the system's ability to do what the user expects it to do, and that the system will do what the user expects it to do.

Confidence: These describe a user's belief in the system's ability to do what the user expects it to do, and that the system will do what the user expects it to do.

Trust: These describe a user's belief in the system's ability to do what the user expects it to do, and that the system will do what the user expects it to do.

ContextOS

Designing for High-Context AI Collaboration