Between Threat and Tool: When Users Are Asked To Design Their Competitors

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The discourse surrounding AI foundation models presents a contradiction: they are framed both as tools that enhance human capabilities (e.g., coding assistants) and as autonomous systems that could replace human workers (e.g., independent programmers). This paradox exemplifies a broader challenge in human-AI interaction design: we are asking people to help create 'human-centered' systems built on technologies that are simultaneously the basis of what users perceive as threats to their professional roles, regardless of their actual capabilities.

This position paper considers how concerns around professional replacement shape user experience, particularly through the lens of AI-based systems presented as both supportive tools *and* potential replacements for humans, often based on the same foundation models. We argue that this contradiction creates significant challenges for design, as it can affect user acceptance, interaction patterns, and trust in AI-based systems in ways that current design approaches inadequately address. Drawing on examples from existing systems, we highlight how systems can be intended to serve as workflow enhancements and be perceived as threats to professional identity. This dynamic is further complicated by a tension that is faced by users: their participation is (sometimes) welcomed for improving specific applications but limited in influencing the foundation models determining the applications' core capabilities.

To address these challenges, we advocate shifting from emphasizing AI capabilities toward positioning AI as complementary tools, offering recommendations highlighting human agency and experience while engaging with concerns about professional displacement.

CCS Concepts: • Human-centered computing → Human computer interaction (HCI); Natural language interfaces; • Computing methodologies → Intelligent agents; Natural language generation.

Additional Key Words and Phrases: Human-Centered AI, Human-AI Collaboration, Human-Computer Interaction, Artificial Intelligence (AI), AI Anxiety, Large Language Models (LLMs), Participatory Design, Design Values

1 Introduction

The current discourse around generative AI systems presents designers with a paradoxical challenge: developing interfaces and interaction patterns for users who may view these systems as threats to their professional roles [61, 99]. This tension is particularly acute because the same foundation models [31, 87, 89] often power both assistive tools [3, 17, 36, 68, 78] and autonomous agents [27, 69, 81] marketed as potential human replacements, e.g. 'AI Employees' [5], or 'AI Software Engineers' [16]. For instance, a coding assistant like Microsoft's CoPilot [59] and foundation models evaluated as autonomous coders [62] rely on identical underlying technology, yet their interfaces frame the AI's role in different ways.

The duality creates a crisis of authenticity in human-centered design: How can designers genuinely claim to empower users while building on systems whose training and deployment often aim toward automation of professional work domains, creative processes, and knowledge work – even promising to exceed human capabilities in these areas.

This tension becomes more pressing given the increasing development of agentic AI systems [4, 11, 13, 13, 69, 81, 101]—systems designed to operate with increasing autonomy across domains—with goals including the performance of economically valuable work [32, 64].

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Consider the duality of coding-focused AI-based systems again: the same foundation models simultaneously power both coding assistants that claim to augment developer workflows [59], and autonomous coding agents marketed as capable of independent software development, "working tirelessly and in parallel" [16]. Developers face a cognitive dissonance: using AI as a collaborative tool while aware that the same technology is being positioned as their potential replacement [12, 62]. The challenge extends beyond interface design to the broader practice of human-centered design, where we must reconcile the development of 'collaborative' [65, 78, 95] or 'supportive' [58, 75, 98] tools with their underlying technologies being actively developed towards human capability replication.

The field of human-AI interaction must confront a critical question: how do we design systems that acknowledge this fundamental duality rather than obscuring it? Traditional approaches to human-centered design [10] may prove insufficient when users recognize the underlying technology as a potential threat to their professional identity [61] and standing – encompassing both immediate economic security [43] and deeper concerns about skill relevance, knowledge assets, and workplace authority [41, 102]. While these perceptions may not always align with current technical capabilities, they significantly influence how users interact with AI systems [49, 105]. Professional identity, as a core component of self-concept, shapes responses to AI tools [29, 53, 61, 83], affecting the quality and authenticity of human input, trust in outputs, willingness to incorporate AI suggestions, engagement with designers and researchers during system development, and the overall effectiveness of human-AI collaboration.

Here, we indicate how the current media and marketing environment contributes to rising displacement anxiety that can, in turn, shape user experience and trust in AI systems. For this, we particularly focus on cases where foundation models serve both assistive and autonomous functions. Based on this analysis, we propose design approaches that recenter AI as a tool while giving end-users appropriate authority and agency through specific interface decisions.

2 Dual Narratives: Threats and Tools

The duality of the same technologies being positioned as collaborative tools [68, 70] and marketed as autonomous replacements for human workers [5, 16] manifests across multiple professional domains.

The creative industries provide a particularly revealing example [38]: While companies and researchers advance AI image and video generators as tools to enhance artistic workflows [34, 82, 93], foundation models drive systems marketed as autonomous creative agents [67]. This tension became particularly visible during the 2023 SAG-AFTRA and WGA strikes, where actors and writers confronted the possible impacts of AI systems on their industry [1]. Similar concerns emerge in scientific research, where AI systems are designed as collaborative research tools [26, 91, 96, 97], while also being presented as autonomous 'deep research' assistants [25, 30, 71, 101].

The pattern repeats in enterprise settings, with customer service providing a clear example: companies promote AI as enhancing human agent capabilities [37] through better information retrieval and response suggestions. However, these same technologies are already being deployed to replace human customer service agents [92], creating a disconnect between marketing narratives and implementation reality. Government agencies demonstrate this duality too, through initiatives like ChatGPTGov [70], which markets AI as a tool to enhance worker productivity while AI is also being developed to automate analysis and auditing tasks traditionally performed by human analysts [76, 100] – a direct means to reduce civil service positions.

This consistent pattern of dual positioning—tools for augmentation versus agents of automation—can shape how users approach and interact with AI systems in professional contexts.

Current human-AI collaboration research employs various approaches to system development, with a significant body of work highlighting system augmentation benefits [9, 104, 108]. Many participatory approaches explicitly recognize GenAICHI: CHI 2025 Workshop on Generative AI and HCI 2

power dynamics and advocate for meaningful stakeholder engagement [8, 20, 40, 73, 103, 108]. However, translating these principles into practice remains challenging. While participatory AI scholarship [35, 44, 94] addresses power imbalances within system design processes, there are still gaps in examining how users are positioned within broader professional power structures or how they might meaningfully influence AI systems that impact their domains at scale [6, 56?].

The responsible AI community has begun exploring reviewability [14] and contestability in AI systems [42, 107], recognizing that meaningful user engagement requires more than just soliciting feedback for system improvement. Literature suggests that engagement should include the power to fundamentally reshape or reject existing systems [22, 52, 85, 88?]. This perspective aligns with broader discussions about democratizing AI development [7] and technological advancements serving rather than supplanting human agency [19, 54, 55].

When confronted with technologies that can be perceived as both threat and tool, users may resist [22, 86], adapt [50, 106], or withdraw [39, 51] from interaction. Current approaches must therefore address not just system usability but the tension between augmentation [33, 60, 72, 74, 79] and automation [2, 45, 47, 57] that underlies these systems.

3 Recentering the Tool

The dual positioning of AI systems as both user-supporting tools and potential user replacements demands a shift in how we approach system and interaction design. As AI capabilities advance, this duality creates a tension between enhancing functionality and preserving meaningful user engagement. When system improvements increase both capability and autonomy, they can undermine user agency [63] and authority despite their intended benefits [18, 66].

Specific design elements can illustrate these challenges. For example, conversational AI systems often adopt interaction patterns traditionally reserved for human-to-human communication. When AI systems engage users through chat interfaces—a medium historically used for human conversation—they can create misleading expectations about the AI's capabilities and role [24]. Recent research demonstrates how these interfaces shape both AI behaviour and user expectations: models exhibit sycophantic tendencies, adjusting their responses to agree with user corrections regardless of accuracy [21, 80], while users treat them as conversational platforms for information retrieval and 'search' [48, 90].

This challenge extends beyond interface design to core research values in AI development. Rather than focusing on enhancing narrow capabilities, we need to reimagine the purposes of engagement. For instance, Salvaggio's analysis of NotebookLM [77] demonstrates an alternative approach where AI design centers on collaborative discorvery and learning. By prioritizing 'interestingness' [28] as a core value, systems could move beyond information retrieval towards other central design values.

Inspired by this and to address these challenges, we propose four design strategies particularly relevant to how system design can reshape user engagement with AI:

- Asymmetric hierarchies: Design that visually and functionally positions AI as a tool through distinct styling, clearer delineations between AI and human content, and interaction flows that require explicit user initiation
- Capability transparency: Implement confidence indicators, continued disclosure mechanisms, and explanations that the focus on system limitations and transparency at appropriate decision points
- **Meaningful oversight:** Design of review processes where AI outputs require explicit human validation and correction, focusing on intentional friction at consequential decision-points
- Human expertise: Develop attribution systems, feedback loops, and design elements, that prominently feature
 and incorporate human contributions and demonstrate how expertise enhances system performance

This work does not aim to be comprehensive, but rather aims to spark critical conversation and identify key directions for the community to explore. These ideas serve as initial conversation starters for workshop discussions and future research initiatives, not as definitive solutions to complex socio-technical challenges.

Indeed, any way forward will likely require ongoing refinement and adaptation to different domains, user groups, use cases, and contexts. This is especially important as requirements vary across domains and implementation environments, particularly with the growing prevalence of 'AI as a Service' infrastructure where foundation models are adapted to countless different contexts with varying governance and ethical considerations [15, 46].

Fundamentally, this requires shifting our design language and values from **automation to augmentation**. Interface patterns, interaction flows, and even descriptive language should emphasize Al's role in enhancing rather than replacing human capabilities. Achieving this shift requires deliberate design choices that communicate system capabilities and limitations honestly while still maintaining usability. While explainable AI research has advanced methods for communicating system functionality [23, 84], effectively implementing these insights in practical interfaces remains challenging.

While our analysis primarily focuses on maintaining human agency within AI interactions, we recognize that certain contexts merit some level of AI autonomy. Specifically, AI-based systems can effectively reduce human involvement in routine procedural tasks with minimal cognitive or judgmental requirements and well-defined parameters, functioning explicitly as tools rather than autonomous agents. The key principle is establishing boundaries between autonomous and collaborative functions, with appropriate transition mechanisms between them. The HCI community is well-positioned to try and elaborate these boundaries through domain-specific studies examining task characteristics, and user control preferences.

The 'tool-threat' duality that we've described introduces complex considerations, where even incremental improvements in AI capabilities can also work against user interests. By acknowledging these tensions explicitly in our design approaches, we can create interfaces that support genuine human-AI collaboration while maintaining appropriate engagement dynamics that preserve user agency, autonomy and professional identity.

4 Conclusion

The examples examined in this paper illustrate how generative AI systems simultaneously occupy roles as collaborative tools and perceived threats to professional identity. This duality creates fundamental challenges for participatory design approaches that aim to enhance human-centered AI applications. Specifically, the challenge lies in how to acknowledge and account for this duality rather than obscuring it.

We argue that addressing these tensions requires expanding our design focus beyond technical capabilities to consider how users' professional identity and agency shape their engagement with AI systems. By designing systems that explicitly acknowledge these dynamics while emphasising human expertise and judgment, we can address rising uncertainties in AI system design, particularly gaps between design intentions and user expectations, and power differentials between AIs and humans. These uncertainties call for new design approaches that can effectively position AI systems as tools while acknowledging and addressing users' displacement concerns while reshaping how the HCI community influences the development AI-based technologies.

Through this workshop, we aim to facilitate dialogue to develop concrete and domain-specific design patterns that better navigate these dynamics.

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Received 20 February 2025; revised 14 April 2025