

Beyond Cognitive Offloading: Conversational AI for Personal Growth

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Abstract

Conversational AI now helps people perform a plethora of everyday tasks, especially online. Such cognitive offloading can enhance task performance, but does not always contribute to the development of the underlying human abilities. As a result, there are increasing concerns about the potential deleterious effects of overusing AI in one's work. This workshop explores a timely and positive framing: cognitive augmentation, where conversational AI can help people grow rather than just perform their tasks. We bring together a diverse set of researchers to work on how these systems might foster inherently human cognitive capabilities, such as meta-cognition, self-motivation, and emotional intelligence, without creating dependency.

CCS Concepts

• **Human-centered computing** → **Human computer interaction (HCI)**.

Keywords

Cognitive offloading, cognitive augmentation, conversational AI

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1 Introduction

Conversational AI (CAI) is now available widely online. This has led many to use online tools such as Claude and ChatGPT for various everyday tasks that earlier required manual work. This is a form of *cognitive offloading* [17], i.e. delegating work that would normally require thinking, freeing up our cognitive resources for other purposes. Yet, by diminishing sustained engagement with the underlying cognitive tasks, such offloading may limit opportunities for development of related skills, and in some cases, even contribute to their decline [9].

This workshop probes how this novel technology can cultivate our abilities rather than, over time, deteriorate them. There is increasing concern over AI potentially harming our cognitive abilities [9], and consequently, researchers are increasingly looking into mitigating this [28]. We adopt the term '*cognitive augmentation*' to distinguish our goal from cognitive offloading: Where offloading delegates tasks to technology, augmentation strengthens the person, while retaining the benefits of efficiency and reduced errors. Many CAI users now also engage in use that is not just functional, and deals e.g. with learning and personal growth (e.g. [20, 25]). Yet we lack a clear understanding of how to design these systems to achieve such personal development. The workshop addresses several interrelated questions. What constitutes cognitive augmentation in the context of CAI? How might CAI improve the users' *meta-cognitive skills*? Can AI interactions help people gain *emotional intelligence*? What role might such systems play in cultivating *internal motivation*? Can AI support users' self-development of cognitive capabilities beyond AI interactions? And critically, what are the risks of getting this wrong?



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2 Background

CAI is the current most widely adopted AI tool; for example, the ChatGPT alone handles over 2 billion daily queries and attracts over 800 million monthly active visitors worldwide [19]. While such tools offer unprecedented efficiency and accessibility, their widespread adoption also poses risks to personal growth: over-reliance on AI, where users increasingly delegate cognitive tasks to external AI tools, leads to cognitive offloading [17, 21], that may hinder the development of self-regulatory skills [5, 9]. For example, Gerlich et al. [5] demonstrated that over-reliance on AI may undermine critical thinking skills: specifically, younger participants in their study exhibited higher reliance on AI and lower critical thinking scores. Lee et al. [10] found that higher confidence in generative AI systems correlates with reduced critical thinking, whereas higher self-confidence in one's own knowledge promotes it. Meanwhile, many existing digital mental health tools also reflect this tension. Such tools primarily focus on short-term symptom management or immediate relief, rather than scaffolding long-term psychological resilience, growth or cognitive capability [3, 6]. For example, prior work has raised concerns that over-reliance on AI in mental health contexts may hinder therapists' and patients in-depth engagement between each others [3]. These limitations motivates a shift from AI tools that replace human cognition to tools that actively support and strengthen it.

Rather than automating cognitive tasks, prior research on *Cognitive Tools* (or Cognitive Aids) conceptualises digital systems as generalizable supports that engage users in cognitive processing rather than performing it on their behalf [8]. Such tools function as both mental and computational devices, structuring attention, prompting reflection, and extending users' thinking processes [1]. They can deliver targeted "Cognitive Boosts" that improve decision-making [7] or provide "Cognitive Inoculation"—a form of psychological immunization against external influences such as misinformation [18]. With the proliferation of LLMs, recent research has demonstrated the use of CAI as *Cognitive Tools* to promote personal growth, including enhancing higher-order thinking skills [23, 24], mitigating confirmation bias [29], and supporting mental well-being [4, 26]. For example, Tanprasert et al. [23] designed a debate chatbot that helps users improve critical thinking while watching YouTube videos and Geng et al. [4] developed a multi-chatbot system and found that it improved women's coping motivation for premenstrual syndrome (PMS) management. These ideas are particularly relevant in the context of psychological wellbeing, which is increasingly understood as a multi-faceted construct encompassing relationships, emotions, autonomy and personal growth [2].

At the same time, recent technological developments, especially the integration of AI tools in social and interactive media platforms, have been associated with reduced face-to-face interaction and altered social dynamics [15]. As we integrate AI more deeply into our lives, understanding its immediate as well as longer-term impact on these fundamental aspects of wellbeing becomes critical. CAI, when thoughtfully designed as cognitive tools for positive psychology interventions, can provide personalised guidance for practice of cognitive re-framing, goal-setting and strengths identification. This can encourage users to view challenges as growth opportunities, fostering positive behavioural changes [14].

However, without careful design constraints, these same systems risk encouraging over-dependence, potentially undermining motivation, engagement, and effort in training meta-skills required for self-consciousness, self-regulation, and adaptability [16]. This tension highlights a central design challenge for CAI: how can it support users in cultivating positive mental states and cognitive skills without becoming a substitute for those capacities? Addressing this question requires reframing CAI not as an external source of regulation or insight, but as a scaffold that gradually enables individuals to self-induce, sustain, and generalise these cognitive and emotional processes over time. Indeed, while disconnection practices have received some attention in the context of mobile communication technologies [12], considering how and when users might best disconnect from CAI so as to rely on their internalised abilities remains an open challenge.

2.1 Target Constructs

We identify three primary constructs for exploration based on recent work (see e.g. [13]). **(1) Meta-cognition:** The ability to be self-conscious, self-regulated, and adaptive in one's thinking. Using GenAI tools imposes significant strain on meta-cognition [22], and in this workshop, we explore how CAI can support the training of these meta-skills, encouraging users to reflect on their cognitive processes rather than offloading them entirely; **(2) Self-motivation:** The internal drive to engage with tasks and sustain effort. We examine how CAI can instead motivate users to identify personal strengths, set realistic goals, and perceive challenges as growth opportunities. This also includes examining how users frame learning as goals, as opposed to simply offloading tasks [11]; **(3) Emotional Intelligence:** The capacity to understand and manage emotions. Recent concerns highlight how CAI can create pseudo-intimacy that might hamper emotional capabilities [27]. We investigate how CAs can go beyond facilitating positive mental states by scaffolding users' emotional intelligence.

3 Content of Workshop

This workshop will be in-person only to encourage networking and the low-friction sharing of ideas, prioritising critical discourse and collaboration.

Lightning Pitches into Grand Challenges. Participants submit their own ideas of interest and items that are relevant to the workshop topic, which will be briefly presented in a rapid session. These ideas are organised into themes during the session, after which we will conduct an activity to formulate a set of grand challenges for cognitive augmentation using conversational AI. Using simple affinity diagramming, we cluster the key challenges. Then, we facilitate a rapid prototyping session to brainstorm initial solutions and designs for addressing the challenges. The prototypes can be "vibe coded" using solutions like Claude or Google Antigravity. The organisers are also experienced with paper prototyping and will provide participants with printed templates that can be used without digital tools, so everyone can participate even without digital development experience.

Logistics and Requirements. We require a standard workshop room with movable furniture to facilitate group work and an easy-to-use standard A/V system for presentations. Stable internet access is critical as participants will be using cloud-based LLMs.

4 Goals and Outcomes

The primary goal of this workshop is to collaboratively explore and address key questions and challenges related to the core concept of cognitive augmentation through conversational AI with practical solutions. Specific outcomes include:

Prototype Repository: A web-based gallery on the workshop home page of the "Vibe Coded" prototypes and design concepts produced during the workshop, serving as tangible examples of how to use CAI for cognitive augmentation.

Joint Position Paper: A collaborative publication that summarises the workshop's findings, outlines a future research agenda, and presents potential results of any future studies based on the workshop's prototypes.

Community Building: Establishing a network of researchers interested in the intersection of AI, psychology, and education, specifically focused on the target constructs of meta-cognition, self-motivation, and emotional intelligence.

We will set up a website for the workshop to host all submissions and outputs. The organisers will advertise the workshop, including on HCI-related mailing lists.

5 Schedule

The workshop is planned for 3 hours, after which the organisers will coordinate a voluntary social event.

Welcome and Introduction to the Topic	(10 min)
Self-introductions and Lightning Pitches of Accepted Submissions	(20 min)
Panel Discussion	(30 min)
Collection and Formulation of Grand Challenge Questions	(30 min)
Coffee Break	(15 min)
Practical Prototyping in Small Groups	(60 min)
Synthesis, Final Discussion and Wrap-up	(15 min)

6 Recruitment and Reviewing

The workshop will host up to 20 in-person participants (including organisers). We invite submissions from researchers, practitioners, and students in HCI, Human-AI Interaction, Psychology, Education and related fields, as described in the draft of the participation call below. Recruitment will occur through direct invitation and public call.

We invite submissions that identify a core problem or propose a solution related to the risks of cognitive offloading in conversational AI, including (but not limited to): *Dependency and reduced self-reflection, Erosion of critical thinking or meta-cognition, Over-automation of emotional or moral reasoning, Design strategies that foster learning, agency, or long-term growth.*

Participants may submit work in any format of their choice, including: *Paper or short essay, Poster, Video (accessible online, Interactive website, app, prototype, or tool (submit a brief PDF including the URL and a short description), Speculative or critical design artifact.* Our goal here is to be maximally open to all formats, and will be happy to accommodate author requests in this matter. We welcome research, design, artistic, and practice-based contributions. Submissions should clearly articulate the problem addressed and/or the proposed approach, and authors must be ready to pitch their submission in the short lightning talks session at the beginning of the workshop.

The workshop aims to create a multidisciplinary space for discussion, critique, and hands-on exploration of how conversational AI can move beyond cognitive offloading toward meaningful personal growth.

To ensure an inclusive and accessible workshop, we will ask participants to share any related requests, and do our best to accommodate all in cooperation with the conference organisers. Further, we will use inclusive language in all communications and materials. The workshop organisers are highly experienced in successful workshops, having organised several in key HCI venues such as CHI, CSCSW, and UbiComp, ensuring the workshop atmosphere will be safe and encouraging for participants.

Workshop organisers

Dániel Szabó is currently pursuing a PhD at the University of Oulu, Finland. His primary research interest is conversational human-AI interaction.

Niels van Berkel is a professor at Aalborg University, Denmark. His current projects focus on mental health and decision support.

Benjamin Tag is a senior lecturer at the University of New South Wales in Sydney, Australia. His research focuses on affective computing, human factors, and ubiquitous computing.

Rune Møberg Jacobsen is a postdoc at Aalborg University, Denmark. His research focuses on AI-supported Decision-Making and Conversational Interfaces for health.

Xinrui Fang is a PhD student at the University of Tokyo, Japan. His research focuses on exploring how AI can be designed to foster human critical thinking skills and support mental well-being.

Zefan Sramek is a PhD student at the University of Tokyo, Japan. His current research is on the relationship between social media use, agency, and psychological well-being.

Jorge Goncalves is an associate professor at the University of Melbourne. Dr. Goncalves has organised workshops across CHI, CSCW and UbiComp conference and has a strong background in applied LLM and HCI research.

Koji Yatani is a professor at the University of Tokyo. Dr. Yatani has a strong background in ubiquitous computing and, more recently, on conversational AI systems especially in the context of human wellbeing. Dr. Yatani has organised several workshops in various HCI conferences and leads the Interactive Intelligent Systems Laboratory.

Aku Visuri is an Academy Fellow at the University of Oulu and has a strong background in HCI and recommendation systems.

Simo Hosio is a professor at the University of Oulu. Dr. Hosio has organised workshops at CHI, CSCW and UbiComp, and he leads the Crowd Computing research group that focuses on crowdsourcing and applied AI systems for human wellbeing.

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