Offre n°2025-09192

PhD Position F/M Co-Creating with AI: Using AI as a Creative Partner in Design Teams

Type de contrat : Fixed-term contract

Niveau de diplôme exigé : Graduate degree or equivalent

Fonction : PhD Position

A propos du centre ou de la direction fonctionnelle

Created in 2008, the Inria center at the University of Lille employs 360 people, including 305 scientists in 15 research teams. Recognized for its strong involvement in the socio-economic development of the Hauts-De-France region, the Inria center at the University of Lille maintains a close relationship with large companies and SMEs. By fostering synergies between researchers and industry, Inria contributes to the transfer of skills and expertise in the field of digital technologies, and provides access to the best of European and international research for the benefit of innovation and businesses, particularly in the region.

For over 10 years, the Inria center at the University of Lille has been at the heart of Lille's university and scientific ecosystem, as well as at the heart of Frenchtech, with a technology showroom based on avenue de Bretagne in Lille, on the EuraTechnologies site of economic excellence dedicated to information and communication technologies (ICT).

Contexte et atouts du poste

This Ph.D. focuses on designing and taking advantage of AI in professional design teams. In particular, we aim to evaluate the role such AI agents can play in collaborative design ideation and how to understand, support and design the underlying cognitive ability to enable a successful human-computer partnership. It will extend our previous work on building AI agents for group ideation in design [10], as well as our theoretical work on group cognition for designing collaborative AI systems [9]. We see a large potential of applying a more human-centered design approach to AI agents to identify benefits and address challenges when several stakeholders, intentions and goals are involved.

The Team: Loki is an Inria project team created in January 2018 in partnership with Université de Lille within the Joint Research Unit UMR 9189 CNRS-Centrale Lille-Université de Lille, CRIStAL. Our research aims at producing original ideas,

fundamental knowledge, and practical tools to inspire, inform and support the design of human-computer interactions.

Positioning in the PEPR eNSEMBLE program:
This project directly relates to PC 3 “MATCHING” and in particular to theme 2 (“Modelling and understanding collaborative or competitive interactions between two (or more) humans and intelligent systems”) and partly theme 3 (“Impact of intelligent systems on expertise and the loss of skills”).

This project aims to explore how AI agents can be integrated in human-human ideation practice, that would allow the agent to take part in the ideation practice, express agency through meaningful contributions. This requires the agent to better understand the designers current needs and joint focus, as well as adapt to an evolving and iterative process of ideation itself. Insides will be applicable beyond ideation practice, but contribute to outline the potential for AI in creative human-human exploration overall (theme 2).

Designers often collaborate on creating physical mood boards, allowing them to express ideas and inspire new ones based on their reactions to emerging visual material. The use of AI in design teams o?ers a high external validity and therefore the potential for placing our prototypes in design teams for long-term observation. This will allow us to identify the impact of such AI agents on existing workflows, as well as design and team reflections when using such tools for professional means (theme 3).

Mission confiée

Problem and Objective
Most work in human-AI interaction for creative practice focuses on either active participation of artificial agents in dyadic interactions, or help/support tools for collaborative interactions. The objective of this project is to evaluate the role of GenAI ‘agents’ in the context of a human-human ideation in design. While our previous work showed how creativity can benefit from human-human-agent interactions, complementing rather than replacing the designers’ roles, it opened up a number of questions.

RQ1: How can we integrate contributions from intelligent agents seamlessly within a group ideation process? While in dyadic interaction, AI agents can focus and align on human intention, group processes pose an additional challenge, which relates to selecting a target of alignment (i.e. to whom does the agent answer/suggest) as well as when is a good time to explore or exploit ideas within a collaborative ideation process. This requires the interaction paradigm to go beyond reactive approaches (answering to one user) and instead create a larger context of the task and actions (i.e. ideas) contributed by all participants.

RQ2: Which kinds of intelligent assistance are appropriate for which types of ideation phase? Our previous work has shown that designers prefer di?erent levels of engagement of AI agents depending on the ideation phase. How these levels di?er for each designer and how to select, integrate and provide these levels of support for ideation is one of the questions we want to address. This would include the ability to adapt the role of the AI agent between a tool and an engaged partner

throughout the process.

RQ3: How to design the agency of intelligent assistants in design teams, and how can they adapt to each other? Agency is the ability “to perform activities in a particular environment in line with a set of goals/objectives that influence and shape the extent and nature of [the agent’s] participation" [4]. Within group ideation, we can observe di?erent levels of agency, where one participant takes the lead and suggests an idea, and the others exploit this idea further until someone else takes the lead to explore new ideas. How to design AI agents that are able to adapt their level of agency and when this is necessary is an open question.

In order to answer these questions the student will develop systems that help users to interactively explore diverse capabilities of creative systems, such as suggesting, explaining and negotiating contributions on visual creations adapted to several participants.

Theoretical foundations
The student will build on theory-based interaction approaches informed by previous work of the supervisors and the lab. This includes principles such as instrumental interaction [1] and co-adaptation [16] to create interactive systems that are discoverable [5], appropriable [14], and expressive [18], that grow with the user to enhance rather than replace the users skills.
Of particular relevance will be our work on facilitating human-GenAI interaction for creative exploration in design practice [17, 18] (RQ1); expanding our insights from our previous work on human-human-agent interaction in design ideation [10, 22] (RQ2); and our work on group cognition for collaborative AI [9] and how to design di?erent levels of initiative in human-AI games [15] (RQ3).

Principales activités

Application Domain
This PhD focuses on collaborative AI agents for design ideation, particularly in design teams. Ideation is a dynamic process involving divergent thinking (generating many ideas) and convergent thinking (narrowing down to the best ones) [7]. Designers draw inspiration from multiple sources, including collaboration, self-reflection, and serendipitous encounters [25]. Such ideation techniques for generating, evaluating, and refining ideas are the foundation for people’s creative endeavors ranging from art to design to problem-solving. Research has shown that the quality of ideas oen increases when people collaborate with each other [23, 24]. This is due to the fact that group members can express diverse viewpoints that individuals may not consider otherwise and collaborate on ideation e?orts by building on each other’s contributions [2, 3, 11]. This human-human collaborative ideation can be observed in diverse contexts such as when individuals with shared interests seek better ideas or when groups with conflicting needs seek to formulate satisfying solutions for everyone‘ [22].

As a use case we will focus on mood boards, which are visual collages composed of images, text, and objects, that express concepts, ideas and emotions. Commonly used in creative fields such as design or fashion, they stimulate the perception and interpretation of more ephemeral phenomena such as color, texture, form, image

and status [6]. Designers oen collaborate in the design of physical mood boards, where the act of finding, choosing and curating visual material not only helps designers express ideas they already have, but also inspires new ideas based on their reactions to the images that emerge [8]. Exploring the potential of GenAI in design teams hence provides a high level of external validity and opens up the possibility to deploy our work in design teams for long-term observation.

Contribution to digital collaboration: Expected results and Impact

The goal of this Ph.D. is to design and develop a novel form of human-computer partnership in the context of professional design teams.

The student will develop novel interactive systems that enable e?ective human-human-agent interaction, to:

• Investigate how humans in a design team could actively take control and collaborate with a GenAI agent.
• Provide a better understanding how users directly and indirectly communicate while creating visual designs and how these diverse signals can be interpreted by an AI agent
• Develop working prototype(s) that demonstrate these methods in realistic design practice.
• Develop and apply evaluation methods to determine the e?cacy of the interaction from a human point of view

References

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Avantages

- Subsidized meals
- Partial reimbursement of public transport costs
- Leave: 7 weeks of annual leave + 10 extra days off due to RTT (statutory reduction in working hours) + possibility of exceptional leave (sick children, moving home, etc.)
- Possibility of teleworking and flexible organization of working hours
- Professional equipment available (videoconferencing, loan of computer equipment, etc.)
- Social, cultural and sports events and activities
- Access to vocational training
- Social security coverage

Rémunération

2200 € per month

Informations générales

- **Thème/Domaine :** Interaction and visualization
  Information system (BAP E)
- **Ville :** Villeneuve d'Ascq
- **Centre Inria :** Centre Inria de l'Université de Lille
- **Date de prise de fonction souhaitée :** 2025-10-01
- **Durée de contrat :** 3 years
- **Date limite pour postuler :** 2025-08-21

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A propos d'Inria

Inria est l’institut national de recherche dédié aux sciences et technologies du numérique. Il emploie 2600 personnes. Ses 215 équipes-projets agiles, en général communes avec des partenaires académiques, impliquent plus de 3900 scientifiques pour relever les défis du numérique, souvent à l’interface d’autres disciplines. L’institut fait appel à de nombreux talents dans plus d’une quarantaine de métiers différents. 900 personnels d’appui à la recherche et à l’innovation contribuent à faire émerger et grandir des projets scientifiques ou entrepreneuriaux qui impactent le monde. Inria travaille avec de nombreuses entreprises et a accompagné la création de plus de 200 start-up. L'institut s'e?orce ainsi de répondre aux enjeux de la transformation numérique de la science, de la société et de l'économie.

L'essentiel pour réussir

The doctoral candidate will be expected to conduct empirical studies and workshops (e.g., participatory design workshops), prototype, design, and develop novel interactive systems, and design, run, and analyze qualitative and quantitative studies to evaluate interaction techniques with professional design teams. In addition, they will be responsible for writing and publishing research articles for top-level research venues.
The expected results include advancing our understanding of how AI can be meaningfully adapted and applied in design practice, developing novel interaction methods for exploring visual ideas, and creating working interactive system(s) that demonstrate new interactive approaches in design practice.

Attention: Les candidatures doivent être déposées en ligne sur le site Inria. Le traitement des candidatures adressées par d'autres canaux n'est pas garanti.

Consignes pour postuler

CV + cover letter

Sécurité défense :
Ce poste est susceptible d’être affecté dans une zone à régime restrictif (ZRR), telle que définie dans le décret n°2011-1425 relatif à la protection du potentiel scientifique et technique de la nation (PPST). L’autorisation d’accès à une zone est délivrée par le chef d’établissement, après avis ministériel favorable, tel que défini dans l’arrêté du 03 juillet 2012, relatif à la PPST. Un avis ministériel défavorable pour un poste affecté dans une ZRR aurait pour conséquence l’annulation du recrutement.

Politique de recrutement :
Dans le cadre de sa politique diversité, tous les postes Inria sont accessibles aux personnes en situation de handicap.