Futur de la collaboration numérique

17 novembre 2023
Paris
4 projets ciblés : **Espace, Temps, IA et Collectifs**

PC 1 : Collaboration dans l'espace

PC 2 : Collaboration dans le temps

PC 3 : Collaboration avec des systèmes intelligents

PC 4 : Gérer des collectifs à grande échelle

1 PC Transverse
PC 1 : CATS - Collaboration À Travers des eSpaces hétérogènes - Collaboration Across heTeronogeneous Spaces

Co-responsables du projet ciblé

Jean-Marie BURKHARDT
Directeur de Recherche, Université Gustave Eiffel

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Maud MARCHAL
Professeure, INSA Rennes
PC1 Session (10:45am - 1pm)

First part (~1h):
- Presentation of PC1 by coordinators
- Funded PC1 PhD project
- Fast forward research groups

Second part (~1h):
  Workshop: sub-groups around each axis
  - Goals:
    - Discuss the project axes
    - Lay down some initial challenges or research interests for the project
  - 30 minutes discussion around challenges or research interests
  - 15 minutes reporting
Goal: towards (synchronous) collaboration in accessible heterogeneous/hybrid environments

- Continuity and unification of remote and co-located real-time collaboration
- Tightly and loosely coupled collaboration
- Collaboration all together, in spontaneous sub-groups or asides
- Mixed collaboration spaces without the need to replicate physical spaces in virtual reality
- Interdisciplinarity: sociologists, psychologists, ergonomists and computer scientists
Collaboration Spaces

[Image of collaboration space tools and technologies]

Reference:
[Liu 15]
[Fink 22]
Four Axis addressing the change of scale in:

1. Diversity of interaction devices/modalities
2. Diversity of users
3. Complexity of datasets, tasks and environments
4. Transitions between collaboration spaces
Axis #1: Change of scale in the diversity of interaction devices/modalities
- Heterogeneous collaboration spaces -

**Challenge:** understanding the impact of the heterogeneous multimodalities on the users of the collaboration spaces

**Objectives:**
1. Develop interactions techniques to support a high level of fidelity
2. Develop interaction devices/modalities and hardware/software frameworks

**WP1:** Interface presentation and organization in heterogeneous display spaces
**WP2:** Multi-sensory feedback for heterogeneous collaboration spaces
**WP3:** Interaction devices, modalities and techniques for collaborative interactive tasks
Axis #2: Change of scale in the diversity of users
- Collaboration for all -

**Challenge:** handling the diversity of the user into collaboration spaces

**Objectives:**
1. Design methods, components and guidelines for diversity and adaptation of hybrid environments to support heterogeneous participation
2. Design of embodiments techniques and user’s avatar to support synchronous collaboration
3. Design of models and evaluative approaches dedicated to synchronous collaborative experience
4. Design of repository of synchronous collaboration use cases

**WP1:** Diversity and evolutivity of capacities and disabilities, expertise, role, social context and culture

**WP2:** Embodiment, control and properties of users’ avatar for collaboration

**WP3:** Diversity, specificity and multidimensionality of synchronous collaboration experience
Axis #3: Change of scale in the complexity of datasets, tasks and environments
- Collaboration in the large -

**Challenge**: scaling up current collaborative data analysis to large collaboration spaces

**Objectives:**
1. Develop visualization and interaction techniques to support collaboration on massive datasets
2. Design conceptual models and tools to support complex interaction tasks
3. Develop a widely applicable hardware+software platform for beaming/teleporting users, artifacts and environments to remote locations

**WP1**: Collaborative analysis of massive datasets
**WP2**: Collaboration for very complex tasks
**WP3**: Complex spatial hybrid environment
Axis 4: Transitions between collaboration spaces
- Dynamic collaboration spaces -

**Challenge:** handling the transitions between dynamic collaboration spaces

**Objectives:**
1. Characterize space of transitions quality between collaborative spaces
2. Design interactive techniques to facilitate transitions between collaborative spaces
3. Develop use cases of transitions between collaborative spaces for the three dimensions: collaborative spaces, users and complex environments

**WP1:** Transitions between the interactive collaborative spaces  
**WP2:** Transitions between users, groups of users and group dynamics  
**WP3:** Transitions between large and complex environments  
**WP4:** Evaluation and generalization of the transitions
PC1 Budget

5.16M€

- PhD: 20 positions
- Research Engineers: 96 person months
- Post-Docs: 72 person months
- Management (workshops, meetings) and dissemination
- University overheads
Ongoing and upcoming actions
PhD program 2023

- 51 topics (19 for PC1)
- 27 auditioned (7 for PC1)
- 15 funded PhD (3 for PC1)

Jury: PEPR Pilots + Coordinators of all PCs

CoI Handling: jury members involved in PhD supervisions must leave the room during presentations of their candidates and discussions
Extend the community with internal calls

- AMI + CFP: end 2023/beginning 2024
- CFP: 2025
Upcoming important dates

Exact dates to be defined:

● PC1 general meeting: February-March 2024

● PhDs
  ○ Call for PhD topics: End of March 2024
  ○ Notification of topic acceptance: mid April 2024
  ○ Submission of PhD candidates applications: May 2024
  ○ Auditions: June 2024

● Postdoc, Engineers: will be announced within this year
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