Future InBodied: A Framework for Inbodied Interaction Design

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ABSTRACT
Inbodied interaction is an emerging area in HCI that aligns how the body performs internally with our designs to support and optimise human performance. Inbodied Interaction therefore relies on knowledge of our physiology/neurology/kinesiology etc, to blend with HCI methodology. Recent Inbodied Interaction workshops and summer schools, have been designed to share models of these processes to accelerate access to these areas of specialisation for HCI researchers. As such this one-day-hands-on-studio presents an extension of this work – an Inbodied interaction framework - to (1) make inbodied sciences accessible and (2) usable for HCI practitioners when it comes to crafting experiences, whether for health, performance or play. Our framework also offers a design alternative to cyborging futures that seek to augment human performance. Inbodied Interaction seeks to help discover and optimise human potential. As such, in this studio, we will explore where inbodied interaction fits in the narrative of our future bodies.

KEYWORDS
Inbodied; body centric; health; wellbeing.

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FUTURE INBODIED: A FRAMEWORK FOR INBODIED INTERACTION DESIGN

The framework (Table 1) has 3 core stages: (1) Building an Understanding which focuses on selecting an area to explore, understanding its effects at large and the current user experience. (2) Connecting & Experience with the IN5 Model leverages our research [3, 8, 12] by leveraging any (or all) of what we have framed as 5 core “inbodied” fundamental volitional physical processes (Movement, Eat, Engage, Cogitate, Sleep) to support human performance. (3) Bringing it Together to HCI offers a playground where participants use the inbodied dimension from stage 2 to explore potential technologies and the resulting interactions to design HCI experiences that take the body as a starting point to support human performance. Finally, participants formulate ways in which they could study the user experience or measure improvement to the selected area.

Table 1: Inbodied interaction framework for HCI - with example 'Learn a new language’ filled in.
What can Inbodied Interaction Experiences Offer to HCI Practitioners?

- facilitate users to develop a functional awareness of specific physio-neuro-relationships via interactive systems (e.g., why/how is movement improving cognitive performance or social interaction?) [2, 10, 13].
- facilitate UX where interactive systems use inner bodily processes as inputs: where the physical state acts as a system controller while it helps the user build a practice [1].

Topics This Studio Covers

- Introduction to Inbodied Interaction and the novel opportunities it opens for HCI.
- Example of collaborations with varied skills to achieve Inbodied Interaction projects.
- Resources to explore and leverage Inbodied interaction to take home.
- Hands on experience conceptualizing and prototyping Inbodied Interaction for future HCI experiences, including future bodies, using the Future Inbodied Interaction Framework.

Learning Goals and Discussion

- Participants will leave with both, (1) a new model (inbodied interaction) for approaching designs that either affects or relies on the body for their interaction.
- (2) direct shared experience of working with the Future Inbodied Framework (FID) to apply this approach in a reasoned, effective and efficient way for designing.

Inbodied Approach IN5: Move, Eat, Engage, Cogitate, Sleep (MEECS)

The state of the body (of which the brain is a part) affects all aspects of our performance. By performance we mean cognitive, social, physical and so on. A core model of Inbodied interaction is IN5 (“Move, Eat, Engage, Cogitate, Sleep”), these five processes are fundamental to our quality of life and provide functional ways to view the more formally defined 11 internal systems that keep us alive (endocrine, reproduction, integumentary, immune, skeletal, respiratory, muscular, digestive, urinary, cardiovascular, nervous). Each of the IN5 lens engages with each of the 11 internal systems to varying degrees. By leveraging the IN5 and focusing on how our internal systems inform all our embodied (mediated through the body) actions, Inbodied interaction design encourages us to ask how designing to engage these processes deliberately can support our aspirations for performance. For instance, if our aspiration is to improve cognitive performance, in5 gives us a way to achieve this aspiration by considering of any one, or combination, of the IN5 lenses (e.g., movement drives processes to support sleep, and in turn, enhanced sleep affects endocrine and nervous responses for taking in and processing information). Likewise, IN5 enables us to “start anywhere” for success. For instance, if one’s goal is to become more active, or “get ripped”, it may be easiest to begin this journey by first adding an hour to one’s sleep several nights a week for a time, and then – being better recovered – one has resource to move more.

Studio Schedule

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning 1</td>
<td>9:30 – 10:45 Introduction to Inbodied Interaction and the potentials for HCI</td>
</tr>
<tr>
<td>Break 10:45–11:00</td>
<td></td>
</tr>
<tr>
<td>Morning 2</td>
<td>11:00 – 12:20 Framework introduction with examples and team formation</td>
</tr>
<tr>
<td>Lunch 12:20 - 1:30</td>
<td></td>
</tr>
<tr>
<td>Afternoon 1</td>
<td>1:30 – 3:00 Hands on: teams begin to use the framework</td>
</tr>
<tr>
<td>Break 3:00 – 3:15</td>
<td></td>
</tr>
<tr>
<td>Afternoon 2</td>
<td>3:15 – 4:15 Hands on: teams continue to develop and refine their ideas</td>
</tr>
<tr>
<td>4:15 – 5:00</td>
<td>Teams showcase their journey and document the results</td>
</tr>
<tr>
<td>Post Studio</td>
<td>5:00 Networking and discussion over drinks &amp; dinner</td>
</tr>
</tbody>
</table>

Table 2: Break down of activities for the studio.
Fig 2. Using the framework to live sketch an interactive sleep garden at the first Inbodied Interaction Summer School.

Fig 3. Collaborative Design using in5 model (stage2 of the framework) at the Inbodied Interaction Summer School.

ACKNOWLEDGMENTS
The work of this studio is informed by the discussions and inspiration from our work [3, 8-10, 13], and the Inbodied Interaction Summer School https://wellthlab.soton.ac.uk/in5-2019/, and the support of GAMONetwork and The Engineering and Physical Sciences Research Council.

CONCLUSION
Inbodied interaction is an emerging area in HCI that aligns how the body performs internally with our designs to support and optimise human performance. In this studio we introduce The Future InBodied: A Framework for Inbodied Interaction Design, to (1) make inbodied sciences accessible and (2) usable for HCI practitioners when it comes to crafting experiences, whether for health, performance or play. Our framework offers a design alternative to cyborging futures that seek to augment human performance, Inbodied Interaction seeks to help discover and optimise human potential. As such, in this studio, we will explore where inbodied interaction fits in the narrative of our future bodies. Participate in this studio: https://wellthlab.soton.ac.uk/inbodiedfutures/

REFERENCES