How HCI adopts Service Design

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Question

How HCI adopts Service Design

Abstract

Main Objectives:

- A comprehensive overview of how HCI interprets and adopts service design
- What dimensions or levels of service design have been taken up in HCI ?
- What are future prospects for adopting service design in HCI projects ?

Contribution and Findings:

- Varying dimensions of service design taken up in HCI
- Relations between service design and emerging technologies
- Unclarity to service design in HCI
- HCI current tendency to use service design on interaction level rather that system level

Method

Research Methods and Approach:

- A systematic Literature Review on extant HCI publications that claim to use service design.

Data Collection Techniques:

- A search for keyword "service design" in database excluding irrelevant subject areas resulted in 667 publications found
- The 667 publications were screened to identify publications relevant to main focus of study which resulted in 179 publications
- A summative and inductive analysis was done on the sample of 179 publications

Figure 1

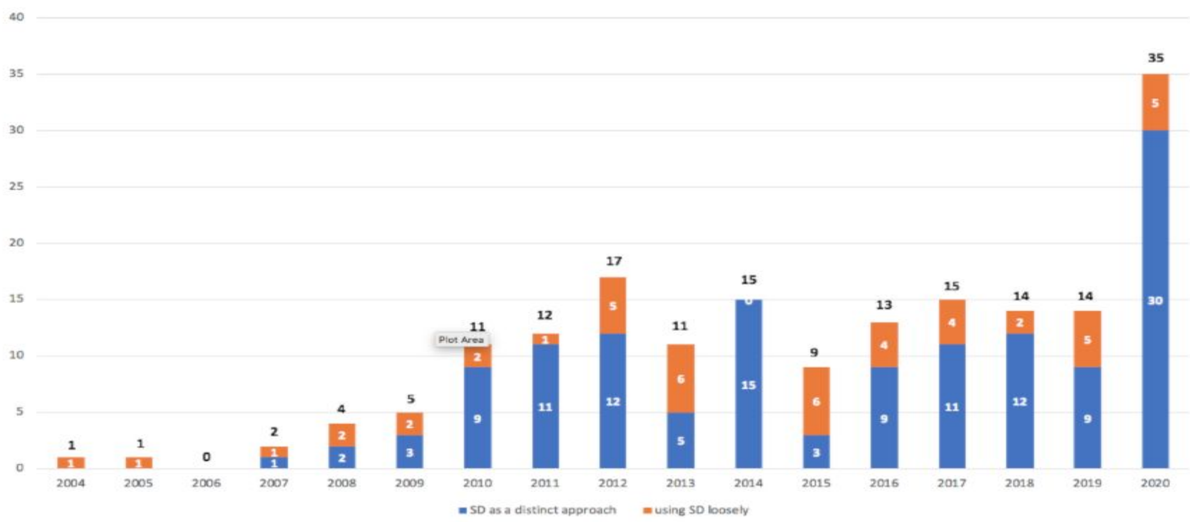

Table 1

Methods	Number of papers (%*)
Interview	36 (27.2%)
Co-design / participatory design workshop	32 (24.2%)
Customer journey map	26 (19.7%)
Service blueprint	26 (19.7%)
Observation (ethnography, shadowing, contextual inquiry)	22 (16.7%)
Persona	17 (12.9%)
Prototyping	11 (8.3%)
Storyboarding	10 (7.6%)
(eco-) System mapping	9 (6.4%)
Stakeholder mapping	8 (6.1%)
Scenario	8 (6.1%)
Probes	5 (3.8%)
Service safari	1 (0.8%)
Service staging (for prototyping)	1 (0.8%)
Role play	1 (0.8%)

*Percentage is calculated by (no. of papers / 132 papers that used SD as a distinct approach – excluding 47 papers coded in C16).

Results

Key Findings:

- Term service design first appeared in 2004, 2005 referring to digital services. Increase in 2010, 2020 Fig 1.
- Service design methods used in publications as a distinct approach to design process eg. interviews, observation ect. Table 1.
- Service design adoption based on 3 categories, Scope of design, Scope of actors, Needs for clarification eg. user journey, backstage work process ect.
- Use of service design in designing social, crowdsourcing and AI applications eg. collaborative networks, customer journey ect.

Discussion

Implications and Findings:

- Increase in publications in 2020 where due to contributions from Chinese universities as a result of the Chinese government focus of research programs for development of social and public services using AI technologies
- Product centric view of service design focusing on UI/UX features and single touch points
- Future agenda for researchers in both HCI and service design to develop methodologies and frameworks.
- HCI works using service design expand conventional scopes of HCI
- HCI research embrace interplay between technology and business models

Limitations of Study:

- Service design not clearly defined in HCI
- Service Design as a discipline not substantially matured.

Conclusion

HCI being a multidisciplinary field in its nature, clarification of understanding and benefit of new disciplines around HCI will help the field better collaborate with other disciplines and evolve.

Shared Interest: Measuring Human-AI Alignment to Identify Recurring Patterns in Model Behavior

Review by Jonathan Bruce

Background

Authors:
- Angie Boggust
- Benjamin Hoover
- Arvind Satyanarayan
- Hendrik Strobelt

- Affiliations: CSAIL, Massachusetts Institute of Technology, United States, IBM Research, United States
- HCI Significance: Machine learning, Human-centered computing, Accessibility systems and tools, Natural language processing

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Abstract

Objectives:
To show how Shared Interest can be used to decide if a model is trustworthy, uncover issues missed in manual analyses, and enable interactive probing.

Contributions:
Shared Interest enabled ranking, sorting, and aggregating inputs, allowing for large-scale systematic analysis of model behavior.

Findings
Identified eight patterns in model behavior that recur across multiple domains.
Identified reasons to question the model's reliability and validate novel saliency methods.
Not restricted to understanding a model's predictive performance but can also support interactive “what if” analysis to find out what input features are most important to certain predictions.

Methodology

Research Design:
Used quantitative research technique using math and other models

Data Collection Techniques:
Used ImageNet and its visual recognition model as to test Shared Interest

Also used Beer Advocate reviews to directly compare Shared Interest to prior saliency method analysis

Results

Patterns range from cases where the ground truth features are important to the model's incorrect prediction to cases where the ground truth features are not important to the model's correct classification.

Analysts want to explore model behavior, but current methods are tedious, thus Shared Interest helped raise questions toward model reliability and validate novel saliency methods.

Discussion

Implications:
Can be used in wider model analysis to improve the inputs necessary for adequate performance.

Significance:
Can aid in the improvement of numerous machine learning models which can then be used to further aid people in many ways
.
Limitations:
Requires data paired with ground truth annotations.
Human decision-making may not perfectly align with those annotations.
Saliency methods do not accurately reflect certain model, and Shared Interest can inherit the limitations of those methods.

Conclusion

Summary:
Shared Interest was created with the purpose of finding and improving different AI models.
Done through analyzing human inputs.
Insights:
This analysis allows for problems in the models to be found and fixed.
Allows for these models to run at greater efficiency.

"My Zelda Cane": Strategies Used by Blind Players to Play Visual-Centric Digital Games

Review by Isaiah Oxley

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Question

- What strategies do blind players leverage to work around inaccessible gameplay?

Background

Authors:
David Gonçalves, Manuel Piçarra, Pedro Pais, João Guerreiro, and André Rodrigues

Affiliation:

- The authors of this study are all affiliated with LASIGE at the University of Lisbon, one of Portugal's leading research institutions in Human-Computer Interaction.
- Their work focuses on making digital environments more accessible, particularly for individuals with disabilities

Abstract

- This study examines over 70 hours of YouTube content created by blind gamers playing vision-centric games, highlighting the strategies they use to overcome accessibility barriers.

Method

Data Collection:

- Source**:** 70+ hours of YouTube content featuring blind gamers playing mainstream video games using keywords to search.

Types of Data:

- Gameplay videos and player commentaries.
- Various game genres analyzed to cover a broad range of accessibility challenges.

Results

Key Findings

Understanding Surroundings:
•Blind players rely on sound cues and object interaction to build mental maps of their environment.

Wayfinding in Games:
•Sound landmarks and NPCs assist in navigation, but visual-only markers are barriers.

Perspective Issues:
•Manipulating camera angles (especially vertical space) is difficult, leading to challenges with depth perception and platforming.

World Interaction:
•Blind players use trial-and-error approaches, including button mashing, to detect interactive objects.

Cognitive Load:
•Players often use mental mapping and guides to reduce cognitive overload but tracking game state is difficult.

Automation and Customization:
•Customizable controls and reduced difficulty help blind players manage complex games.

Collaboration:
•Playing with sighted co-players helps overcome inaccessible sections, though it adds communication challenges.

Examples of how players leverage and author landmarks in the environment. In Animal Crossing (left), using torches to mark entrances and fountains to mark intersections; in Stardew (right), using the pot and the TV to align the avatar.

Discussion

Implications & Findings

- Blind players rely on sound cues to form mental maps, bumping obstacles, and utilize repetition to navigate their environment.
- It is essential to enhance the use of audio, haptic feedback, and landmarks as fundamental accessibility elements.
- Developers should enable customizable control schemes and implement semi-automated navigation options to improve user experience.

Limitations

- Results mainly represent expert gamers sharing their experiences on YouTube, not general populations.
- Some genres and navigation types are absent, and haptic feedback is only detected when the player mentions it.

Conclusion

- Inclusive design in popular games is essential for accessibility.
- Blind players demonstrate ingenuity by adapting to problems, providing significant insights about potential future game design