Text Entry on the Edge

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Abstract
The primary focus of our workshop is to challenge the expanding text entry community to move beyond the mobile phone and start exploring novel and emerging technologies, designing systems for non-traditional users, and expand into unexplored domains and contexts of use. We hope to engage in setting a new agenda for our research community through the identification, collection, and presentation of text entry edge cases. As such, our workshop has two specific foci. First, to strengthen the text entry community by bringing text entry researchers working in various disciplines together in hopes of sharing knowledge across disciplines and establishing a set of best practices that can be used to build our community. Second, to set a research agenda around these edge cases that can be used to drive the field forwards and unite the field in a common direction so that our combined efforts can help bring novel and impactful text entry solutions to new and emerging technologies as well as underserved communities of users and research domains.

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Introduction

Mobile text entry is core to much of what we do on mobiles whether it be social networking, messaging, email, or document writing. Text entry research has a long and storied history. Much of the previous work has focused on designing, evaluating, and improving text entry on mobile phones [2, 6]. This work has focused on developing new methods for evaluating text entry on mobile phones [5, 10, 11], designing experimental techniques for improving text entry on phones [4, 8, 9], and evaluating keyboards and text entry techniques in laboratory studies [1].

Though there is still a long way to go to get mobile entry speeds up to that of desktops for mainstream users, the practice of inputting text on mobile phones for the majority of users is largely considered to be a solved problem. As such, we turn our attention to novel edge cases, use cases where the technology, users, or context has not been thoroughly explored by our community, in an effort to uncover new avenues to focus our research efforts moving forwards. Many of the known challenges of inputting text become much more acute when examining edge cases. For this workshop we are specifically interested in pushing the boundaries of text entry research to explore new technologies, new sets of users, and new domains that previously have not received enough research attention.

Workshop Goals

Two primary goals for this year's text entry workshop are: the establishment of a new research agenda for the text entry research community and expanding this community at CHI by actively reaching out to researchers in other domains to unify the text entry community and engaging them in our new agenda.

Agenda Setting

The primary objective of this workshop is to move the text entry community beyond its focus on the mobile phone by collecting and discussing emerging researcher in three under-explored areas of text entry research. These text entry edge cases include: a) novel technologies such as wearables, smartwatches, interactive walls, and depth sensors; b) non-traditional users - users of assistive technology, the very old, and the very young; and c) unexplored domains such as texting while encumbered, text entry in the smart home, text entry for language acquisition, text entry on public terminals, etc. Our hope is that by focusing the research community on these emerging areas we will be able to energize the text entry research community to push the boundaries of our sub-discipline by investigating these new technologies, users and domains.

Community building

Today text entry researchers are scattered across many communities including human-computer interaction, intelligent interactive systems, experimental psychology, human factors, augmentative and alternative communication, natural language processing, and speech and signal processing. Furthermore, research in novel text entry solutions takes place in both academic and industrial research labs. We want to raise awareness of the research activities and priorities that concern people in different research fields and learn from each other's successes and failures. Since researchers are scattered across different research fields, the scientific dialogue is equally scattered. People in different communities may not be aware of research progress and resolved controversies in neighboring fields. A major goal of this workshop is to bring all these people together to discuss difficult issues that are hard to manage within the traditional format of research papers.

By understanding and leveraging the great work done in the past in each of these fields, we have the opportunity to strengthen future research approaches and to unify research practices moving forwards.

We want the CHI community to become known to text entry researchers who may be more active in other communities. A goal of this workshop is to advertise CHI as a natural and compelling venue for text entry researchers from any field.

Suggested Workshop Panel Topics

For CHI 2015, we want to leverage the momentum of the successful community-building efforts initiated at the CHI 2012 and 2013 workshops and expanded upon at our successful CHI 2014 special interest group. The workshop will be structured as a series of panels wherein each panel discussion will focus on areas of interest that are important to the greater text entry community. While we encourage suggestions for panel topics in our call for workshop papers, we believe the sample panel topics below are of tremendous importance for our community.

Edge Technologies
New edge case technologies are emerging that are in need of text entry solutions to enable rapid entry rates. For example, text entry on smart watches, wearable computers, and wall sized public displays are all areas of research that have previously seen minimal attention in the text entry research community. With the explosion of novel sensing technologies such as depth cameras, magnetometers, and barometers there are new input techniques to be explored that take advantage of these emerging sensors. In addition to exploring the edges of sensing technology, we are entering the age of wearable computing. How can the work we have been focusing on for the past decade [3] be expanded into this new realm? Are we finally at the point where eyes-free text input [7] can become a reality in this new world of novel sensing and expanded mobility?

Edge Communities
In addition to exploring new technologies, the text entry community needs to expand our horizons to focus on user populations we have previously left unexplored. For example, what does it mean to design text entry technologies for users who cannot use or find it difficult to use normal input methods? Such groups of individuals include, but are not limited to, people with vision problems, people with fine motor control problems, and people who have difficulty forming textual sentences. Expanding our research efforts to focus on the assistive technology community and its primary stakeholders, is important for the text entry community.

As a research community we have evaluated our technologies traditionally on students from our universities. How can we expand our engagement with users to explore new communities of users such as the very old and the very young? What can we learn from designing and evaluating solutions for these demographics and how can we, as a field, best focus our energies to address these communities?

Edge Domains
Finally, how can we expand our boundaries to explore edge case domains. Moving beyond the mobile, what does it mean to design text entry solutions for the living room? What about text entry solutions for the smart home of the future? Another domain we are interested in exploring is shifting our attention beyond our text entry optimization to new and interesting challenges. For example, what happens if we change our design goals from optimizing

speed and accuracy of text entry to focusing on designing systems that assist in language acquisition tasks? What happens when learnability is the primary goal of a text entry system? All of these questions are open research questions in the field and we hope to be able to begin addressing them at our workshop.

Conclusion

The text entry community is currently very active and regularly makes significant contributions to both the research literature and our society at large. However, our community is scattered across different research fields. In workshops and SIGs at CHI over the past three years, we have attempted to unify the text entry researchers scattered across different research fields into an interdisciplinary text entry community centered at CHI. Our previous efforts have attracted high-quality submissions and brought researchers active outside of the HCI field to the CHI conference. We want to leverage this momentum and ensure we can create a sustainable interdisciplinary text entry community at CHI focused on strengthening the science of text entry and pushing the boundaries of the field in a common direction. Trying to establish a new agenda for the text entry research community will hopefully help position the field to expand its potential impact by tackling challenging new areas of research. By expanding our focus to emerging technologies, underserved populations, and novel contexts and domains, the text entry community will be well positioned to address the unexplored text entry challenges of the future.

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