Anuj Tewari

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Electrical Engineering and Computer Science
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Education

Currently pursuing: PhD in Computer Science (Major: Human Computer Interaction, Minors: Artificial Intelligence, Education and New Media)

Areas of interest: User Interfaces, Mobile Applications, Speech Recognition and Processing, Machine Learning, Natural Language Processing, Educational Game Design.

Publications

Papers

1. A. Tewari, I. Liu, C. Cai and J. Canny. An Analysis of the Dialogic Complexities in Designing a Question/Answering Based Conversational Agent for Preschoolers. To appear in volume 7502 of Lecture Notes in Computer Science/Lecture Notes in Artificial Intelligence by Springer.
2. I. Medhi, M. Jain, A. Tewari, M. Bhavsar, M. Matheke-Fischer, and E. Cutrell, Combating Rural Child Malnutrition through Inexpensive Mobile Phones, Nordic Conference on Human-Computer Interaction, 2012.
3. O. Samanci and A. Tewari. Expanding the Comics Canvas: GPS Comics. To appear in proceedings of Fun and Games Conference, Toulouse, France, September 4-6, 2012.
4. I. Medhi, A. Tewari, M. Jain, and E. Cutrell, The Fate of a Digital Slate: Unexpected Issues with Deployment in Rural India, in User Experience Magazine, 2012
5. A. Tewari and J. Canny. Speech-enabled Games for Language Acquisition and Early Literacy. In the panel on Innovations Across Communities: Technology, Participation and Education at Digital Media and Learning Conference, San Francisco, California, March 1-3, 2012.
6. A. Kumar, P. Reddy, A. Tewari, R. Agrawal, and M. Kam. Improving Literacy in Developing Countries Using Speech Recognition-Supported Games on Mobile Devices. To appear in Proceedings of ACM Conference on Human Factors in Computing Systems (CHI 12), Austin, Texas, May 5-10, 2012.
7. A. Kumar, A. Tewari, S. Horrigan, M. Kam, F. Metze and J. Canny. Rethinking Speech Recognition on Mobile Devices. In Proc. of 2nd International Workshop on International User Interfaces for Developing Regions (IUI4DR) with ACM IUI 2011, Palo Alto, CA, USA, 2011.
8. A. Tewari, N. Goyal, M. Chan, T. Yau, J. Canny, U. Schroeder. SPRING: Speech and Pronunciation Improvement through Games, for Hispanic children. Proceedings of ICTD 2010, London, December 2010. **Nominated for an ITID journal paper.**
9. A. Kumar, A. Tewari, G. Shroff, D. Chittamuru, M. Kam and J. Canny. An Exploratory Study of Unsupervised Mobile Learning in Rural India. Proceedings of CHI 2010, Atlanta, Georgia. **Best paper honorable mention**.

10. M. Kam, S. Bhagwani, A. Kumar, S. Lal, A. Mathur, A. Tewari, and J. Canny. Designing E-Learning Games for Rural Children in India: A Format for Balancing Learning with Fun. Proceedings of Designing Interactive Systems (DIS '08), Cape Town, South Africa, February 25-27, 2008.
11. M. Kam, D. Ramachandran, V. Devanathan, A. Tewari and J. Canny. Localized Iterative Design for Language Learning in Underdeveloped Regions: The PACE Framework, Proceedings of CHI 2007.
12. M. Kam, V. Rudraraju, A. Tewari and J. Canny. Mobile Gaming with Children in Rural India: Contextual Factors in the Use of Game Design Patterns, Proceedings of DIGRA 2007 (Digital Games Research Association Conference).
13. M. Kam, A. Kumar, S. Lal, A. Mathur, A. Tewari, and J. Canny. The Social Complexities of User-centered Design in ICTD: Experiences from Four Schools in India's Villages and Slums. Proceedings of IEEE/ACM International Conference on Information and Communication Technologies and Development (ICTD '07), Bangalore, India, December 15-16, 2007.

Invited Talks

1. A. Tewari and J. Canny. The Complexities of Designing Speech-enabled Games for Under-resourced Environments. At the conference on Cell Phone Justice in the 0n0n0n series of conferences.

Patents

1. *A. Tewari, R.J. Honicky. Multitouch Chording Mechanism, submitted in August 2010, under process.*

Posters

1. O. Samanci, A. Tewari. GPSComics: Seeing through walls, Proceedings of SIGGRAPH 2010.
2. A. Tewari, A. Kumar, A. Mathur, S. Lal, A. Agarwal, M. Kam, and J. Canny. Mobile Games for Learning English in Rural India: Designing Cellphone Games informed by Traditional Games, Proceedings of DIGRA 2007 (Digital Games Research Association Conference).

Technical reports

1. P. Reddy, S. Tan, A. Tewari and J. Canny. Collaborative Games on Mobile Phones.
2. I. Liu, C. Cai, A. Tewari and J. Canny. An analysis of the complexities of designing a question/answering focused intelligent conversational agent.

Research

Current Research

Mobile and Immersive Learning for Literacy in Emerging Economies (MILLEE):
MILLEE aims at developing cellphones applications that enable children in the villages and slums in the developing world to acquire language and literacy in immersive, game-like environments. These applications target localized language learning needs and aim to make literacy resources more accessible to underprivileged children, at times and places that are more convenient than schools. Our design methodology is informed by best practices in commercial language learning packages and the traditional village games that children in the developing world play. Details of the project can be found at: `MILLEE website`

Speech and Pronunciation Improvement via Games (SPRING):
Lack of proper English pronunciations is a major problem for immigrant population in developed countries like U.S. This poses various problems, including a barrier to entry into mainstream society. Project SPRING is an exploration of speech technologies merged with activity-based and arcade-based games to do pronunciation feedback for Hispanic children within the U.S. We have also done a 3-month long study with immigrant population in California to investigate and analyze the effectiveness of computer aided pronunciation feedback through games. More details on SPRING can be found at: `SPRING`

Technologies to support early child literacy:
A large body of research has shown that the literacy gap between children is well-established before formal schooling begins, that it is enormous, and that it predicts academic performance throughout primary, middle and secondary school. Indeed rather than closing this gap, there is much evidence that formal schooling exacerbates it: once behind in reading and vocabulary, children read with lower comprehension, learn more slowly and have lower motivation than their more language-able peers. Many national organizations like National early literacy panel, National Centre for Family Literacy and NIH recognize the essential role of early literacy in a childs later educational and life opportunities. As a part of this research, we are trying to explore natural interactions for pre-schoolers that would involve them in game-like activities that involve short follow-up conversations. We are hoping to make interventions that use speech-enabled technologies in various forms aimed towards early childhood literacy that happens through conversations, and primarily question-answer sequences.

Work Experience

Internships

1. *Summer 2010*
   Institute: Nokia Research, Palo Alto
   Mentor: RJ Honicky
   Project: Back-of-device text input for tablets.

2. *Summer 2011*
   Institute: Microsoft Research India
   Mentor: Ed Cutrell
   Project: Digital slate and its application in malnutrition tracking.

Teaching Experience

1. *Place*: University of California, Berkeley
   Position: Instructor
   Course and semester: Decal on Games and Narratives for Behavior Change, Spring 2012
   Responsibilities: Designing and conducting the class.

2. *Place*: University of California, Berkeley
   Position: Graduate Student Instructor
   Course and semester: User Interface Design, Prototyping and Evaluation, Fall 2009, Spring 2010, Fall 2010
   Responsibilities: Weekly sections/discussion sessions, and administration of grades.

3. *Place*: Dhirubhai Ambani Institute of Information and Communication Technology, India
   Position: Teaching Assistant
   Course and semester: Operating systems, Spring 2008

Responsibilities: Creation of lab assignments, and administration of all grades.

Skills

Design Methods: user-centered design, ideation, scenarios, personas, experience prototyping, technology probes, cultural probes, proof-of-concept, participatory design, information architecture

User Research: ethnography, contextual inquiry, focus group, experience sampling method, usability testing, heuristic analysis, GOMS, cognitive walkthrough, wizard of oz, survey design & data analysis

Development: C/C++, Java, MATLAB, BREW, .NET, Android development, iPhone development, Kinect SDK, Visual Studio, WPF, Actionscript, Python, J2ME, Speech Recognition technologies (Sphinx, HTK and Microsoft Speech API)

Awards

1. Big Ideas @ Berkeley, Honorable Mention, 2009.
2. Best paper honorable mention at CHI 2010.
3. Finalist on two proposals for Qualcomm Innovation Fellowship 2012.
4. Samuel Silver Memorial Scholarship 2012.

Service

Peer reviews for CHI, UIST, DIS, TOCHI, IUI.

Mentoring experience

Over the past few years in graduate school, I have mentored 3 undergraduates and 3 masters students in Computer Science. The technical reports on some of this work are listed above. Other details will be disclosed on request.

References

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