

Aditya Vashistha

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Research Interests

My research focuses on designing, building, and evaluating voice-based social computing platforms for low-income, low-literate people living in resource-constrained settings. My research spans social computing, human-computer interaction (HCI), information and communication technologies for development (ICTD), and accessibility technology.

Education

- University of Washington, Seattle, USA** Sep. 2013 – Jun. 2019 (Exp.)
PhD Candidate in Computer Science and Engineering
Thesis: Designing usable and sustainable voice-based social computing platforms for marginalized people
Committee: Richard Anderson (Chair), James Fogarty, Kurtis Heimerl, Julie Kientz, and Katharina Reinecke
- University of Washington, Seattle, USA** Sep. 2013 – Jun. 2015
Masters in Computer Science and Engineering GPA: 3.9
Advisor : Gaetano Borriello and Richard Anderson
- Jaypee Institute of Information Technology (JIIT), Noida, India** Jul. 2005 – Jun. 2009
Bachelor of Technology in Information Technology GPA: 9.3/10
Vice Chancellor's Gold Medal

Academic Awards

- 2017** College of Engineering Student Research Award
2017 ACM CHI Best Paper Honorable Mention Award
2016 \$37,000 Facebook Graduate Fellowship (\$74,000 for 2016-18)
2015 ACM ASSETS Best Student Paper Award
2015 ACM CHI Best Paper Award
2014 \$50,000 Tech Challenge Seed Grant from USAID
2014 \$2000 SIGACCESS Scholarship in Computers and Accessibility Award
2014 \$10,000 2014 Access Facebook Award – Access Innovation Prize
2013 Manthan Award South Asia and Asia Pacific for IVR Junction – Runner-up
2013 Sujal Patel First-Year Graduate Fellowship in Computer Science and Engineering
2013 \$7000 Winner of the USAID and Humanity United's Tech Challenge for Atrocity Prevention
2013 mBillionth Award South Asia for IVR Junction – Special Mention
2011 Award of Innovation from Intellectual Property Cell and Infosys Labs
2011 Most Promising Debutant in Infosys Labs
2010 National Internet Exchange of India (NIXI) Fellowship awarded by the Government of India
2009 Vice Chancellor Gold Medal at Jaypee Institute of Information Technology
2008 IC3 Conference Best Demo Award

Selected Social Impact Projects

IVR Junction is a free and open-source software for building voice-based knowledge communities on basic mobile phones that are seamlessly integrated with social media services such as YouTube and Facebook. Using IVR Junction, local communities can achieve agile, scalable, and robust multi-way communication that transcends network, device, economic and literacy limitations. IVR Junction is used by more than a dozen organizations, such as Broadcasting Board of Governors, Voice of America, Government of Somaliland, and Microsoft, to create voice-based services that have received over 100,000 calls from 25,000 users in India, Pakistan, Mali, and Somalia. IVR Junction has received \$67,000 as grants and awards from USAID, Humanity United, and Access Now.

Sangeet Swara is the first voice-based social media service that leverage community of low-income, low-literate, indigenous, and blind people to moderate, tag, and categorize audio content in languages and accents with no speech recognition models and training data. Sangeet Swara deployments have generated 53,000 phone calls from 13,000 callers who submitted 6,000 voice messages and 150,000 votes on users' post. The research on Sangeet Swara has received \$74,000 2016-18 Facebook Fellowship award and best paper awards at the ACM CHI and ACM ASSETS conference.

Respeak is the first voice-based phone-based crowdsourcing marketplace that enables low-income, low-literate, blind people to supplement their income by transcribing audio files containing languages and accents spoken in developing regions. Deployments conducted in partnership with Enable India and IIT Bombay have indicated that Respeak enables users to earn twice the average hourly Indian wage rate in just one hour. The research on Respeak has received best paper nomination at the ACM CHI conference.

Projecting Health uses community-led video education model to produce and disseminate hyperlocal videos on maternal and child health in rural Uttar Pradesh, India. The project, a collaboration between UW, PATH, and Indian non-profit organizations, has created 110 hyperlocal videos that have been used in over 15,000 screenings led by community health workers in 180 Indian villages impacting the lives of 190,000 rural residents. Research based on Projecting Health is published in top conferences such as ICTD, DIS, and CHI.

Publications

Refereed Conference Publications

1. **Aditya Vashistha**, Richard Anderson, and Shrirang Mare, "Examining Security and Privacy Research in Developing Regions", Paper in *The first ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS 2018)*, June 2018, San Francisco, USA.
2. **Aditya Vashistha**, Pooja Sethi, and Richard Anderson, "BSpeak: An Accessible Voice-based Crowdsourcing Marketplace for Low-Income Blind People", Paper in *The 2018 ACM Conference on Human Factors in Computing Systems (CHI 2018)*, April 2018, Montreal, Canada.
3. **Aditya Vashistha**, Fabian Okeke, Richard Anderson, and Nicola Dell, "'You Can Always Do Better!' The Impact of Social Proof on Participant Response Bias", Paper in *The 2018 ACM Conference on Human Factors in Computing Systems (CHI 2018)*, April 2018, Montreal, Canada.
4. Naveena Karusala, Aditya Vishwanath, **Aditya Vashistha**, Sunita Kumar, and Neha Kumar, "'Only if you use English you will get to more things!': Using Smartphones to Navigate Multilingualism", Paper in *The 2018 ACM Conference on Human Factors in Computing Systems (CHI 2018)*, April 2018, Montreal, Canada.

5. **Aditya Vashistha**, Neha Kumar, Anil Mishra, and Richard Anderson, "Examining Localization Approaches for Community Health", Paper in *The 2017 ACM SIGCHI Conference on Designing Interactive Systems (DIS 2017)*, June 2017, Edinburgh, UK.
6. **Aditya Vashistha**, Pooja Sethi, and Richard Anderson, "Respeak: A Voice-based, Crowed-powered Speech Transcription System", Paper in *The 2017 ACM Conference on Human Factors in Computing Systems (CHI 2017)*, May 2017, Denver, USA. **[Best Paper Honorable Mention Award]**
7. **Aditya Vashistha** and Richard Anderson, "Technology Use and Non-use by Low-income Blind People in India", *Article in ACM SIGACCESS Accessibility and Computing Newsletter: Issue 116*, October 2016.
8. **Aditya Vashistha**, Neha Kumar, Anil Mishra, and Richard Anderson, "Mobile Video Dissemination for Community Health", Paper in *The Eighth International Conference on Information and Communication Technologies and Development (ICTD2016)*, June 2016, Ann Arbor, USA.
9. **Aditya Vashistha**, Ed Cutrell, Nicola Dell, and Richard Anderson, "Social Media Platforms for Low-Income Blind People in India", Paper in *The 17th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2015)*, October 2015, Lisbon, Portugal. **[Best Student Paper Award]**
10. **Aditya Vashistha**, Rajan Vaish, Ed Cutrell, and William Thies, "The Whodunit Challenge: Mobilizing the Crowd in India", Paper in *The 15th IFIP TC.13 International Conference on Human-Computer Interaction (INTERACT 2015)*, September 2015, Bamberg, Germany.
11. **Aditya Vashistha**, Ed Cutrell, Gaetano Borriello, and William Thies, "Sangeet Swara: A Community-Moderated Voice Forum in Rural India", Paper in *2015 ACM Conference on Human Factors in Computing Systems (CHI 2015)*, April 2015, Seoul, Korea. **[Best Paper Award]**
12. **Aditya Vashistha**, Ed Cutrell, and William Thies, "Increasing the Reach of Snowball Sampling: The Impact of Fixed versus Lottery Incentives", Paper in *The 18th ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2015)*, March 2015, Vancouver, Canada.
13. **Aditya Vashistha**, Erin Brady, William Thies, and Ed Cutrell, "Educational Content Creation and Sharing by Low-Income Visually Impaired People in India", Paper in *The fifth annual Symposium on Computing for Development (DEV 2014)*, December 2014, San Jose, US.
14. Mohamed Gulaid and **Aditya Vashistha**, "Ila Dhageyso: An Interactive Voice Forum to Foster Transparent Governance in Somaliland", Note in *Sixth International Conference on Information and Communication Technologies and Development (ICTD 2013)*, December 2013, Cape Town, South Africa.
15. Rijurekha Sen, Andrew Cross, **Aditya Vashistha**, Venkat Padmanabhan, Edward Cutrell and William Thies, "Accurate Speed and Density Measurement for Road Traffic in India", in *Third Annual Symposium on Computing for Development (DEV 2013)*, January 2013, Bangalore, India.
16. Karthikeyan Balaji Dhanapal, K Sai Deepak, Saurabh Sharma, Sagar Prakash Joglekar, Aditya Narang, **Aditya Vashistha**, Paras Salunkhe, Harikrishna G. N. Rai, Arun Agrahara Somasundara and Sanjoy Paul, "An Innovative System for Remote and Automated Testing of Mobile Phone Applications", in *Annual SRII Global Conference 2012*, July 2012, San Jose, USA.

17. **Aditya Vashistha**, Rajarathnam Nallusamy and Sanjoy Paul, "NoMark: A Novel Method for Copyright Protection of Digital Videos Without Embedding Data", in *The IEEE International Symposium on Multimedia (ISM 2010)*, December 2010, Taichung, Taiwan.
18. **Aditya Vashistha**, Rajarathnam Nallusamy and Sanjoy Paul, "2PASCD: An efficient 2-Pass Abrupt Scene Change Detection Algorithm", in *2010 International Conference on Multimedia Information Networking and Security (MINES 2010)*, IEEE Press, November 2010, Nanjing, China.

Refereed Workshop Publications

19. **Aditya Vashistha**, "Doctor on DVD: Virtual Health Consultation Using Interactive DVDs", Paper in *Networked Healthcare Technology Workshop, 6th International Conference on Communication System and Networks (COMSNETS)*, January 2014, Bangalore, India.
20. **Aditya Vashistha**, Edward Cutrell and William Thies, "Mapping Interactive Voice Response Call Data in Developing Regions", in *2013 Workshop on Geographic Human-Computer Interaction, ACM Conference on Human Factors in Computing Systems (CHI 2013)*, April 2013, Paris, France.
21. **Aditya Vashistha** and William Thies, "IVR Junction: Building Scalable and Distributed Voice Forums in the Developing World", in *6th USENIX/ACM Workshop on Networked Systems for Developing Regions (NSDR 2012)*, June 2012, Boston, USA.
22. **Aditya Vashistha**, Rajarathnam Nallusamy, Amitabha Das and Sanjoy Paul, "Watermarking Video Content Using Visual Cryptography and Scene Averaged Image", in *International Workshop on Content Protection and Forensics (CPAF 2010)*, in *proceedings of IEEE International Conference on Multimedia and Expo (ICME 2010)*, July 2010, Singapore.

Refereed Poster Abstracts, Demos and Other Short Publications

23. Krittika D'Silva, Meghana Marathe, **Aditya Vashistha**, Gaetano Borriello, and William Thies, "A Mobile Application for Interactive Voice Forums: Design and Pilot Deployment in Rural India", Poster in *The fifth annual Symposium on Computing for Development (DEV 2014)*, December 2014, San Jose, US.
24. **Aditya Vashistha**, Edward Cutrell and William Thies, "IVR Junction: Deploying Social, Scalable and Distributed Voice Forums in the Developing World", Demo in *Sixth International Conference on Information and Communication Technologies and Development (ICTD 2013)*, December 2013, Cape Town, South Africa.
25. **Aditya Vashistha** and William Thies, "How Should Users Convey Their Location to an Interactive Voice Response System", Poster in *The 4th Annual Symposium on Computing for Development (DEV 2013)*, December 2013, Cape Town, South Africa.
26. Pranav Ramkrishnan, **Aditya Vashistha**, Edward Cutrell and William Thies, "DocTalk: Extending Doctors' Reach with Personalized Voice Messages", Poster in *Third Annual Symposium on Computing for Development (DEV 2013)*, January 2013, Bangalore, India.

Position Papers

27. **Aditya Vashistha**, Rashmi Kanthi, and Richard Anderson, "Community-Led Video Education for Digital Financial Services in India", Position paper in *HCI Across Borders Symposium in the 2017 ACM SIGCHI Conference on Human Factors in Computing Systems (CHI 2017)*, May 2017, Denver, USA.
28. **Aditya Vashistha**, Agha Ali Raza, Umar Saif, Roni Rosenfeld, and Richard Anderson, "Changing Perceptions of Citizens of India and Pakistan", Position paper in *Development Consortium: HCI Across Borders Workshop in the 2016 ACM SIGCHI Conference on Human Factors in Computing Systems (CHI 2016)*, May 2016, San Jose, USA.
29. **Aditya Vashistha**, "IVR Junction: Addressing Communication Needs of Displaced Communities", Position paper in *Workshop on Robust Socio-technical Architectures in Support of Displaced Persons*, December 2013, Cape Town, South Africa.
30. **Aditya Vashistha** and Rajarathnam Nallusamy, "Voice Based Social Media and Information Delivery System for Farmers", Position Paper in *Workshop on Mobile and Web Technologies in Social and Economic Development, Mobile for Development (M4D 2012)*, February 2012, New Delhi, India.

Magazine Articles

31. **Aditya Vashistha** and Bill Thies, "IVR Junction: Connecting Unheard Voices to Global Social Media", in *The Huffington Post*, August 2013.

Talks

BSpeak: An Accessible Crowdsourcing Marketplace for Low-Income Blind People

2018 Mechanism Design for Social Good Research Group, Online.

2018 ACM CHI conference talk, Montreal (Canada).

The Impact of Social Proof on Participant Response Bias

2018 Mechanism Design for Social Good Research Group, Online.

2018 ACM CHI conference talk, Montreal (Canada).

Respeak: A Voice-based, Crowed-powered Speech Transcription System

2017 Facebook Fellows Workshop, Menlo Park (USA).

2017 ACM CHI conference talk, Denver (USA).

2016 UW CSE Industry Affiliates Program, Seattle (USA).

Accessibility Research in the Developing World

2016 Mini-keynote talk at UW-CSE MSR Summer Institute on Expanding Accessibility Research, Union (USA).

Mobile Video Dissemination for Community Health

2016 ICTD conference talk, Ann Arbor (USA).

2016 Change Seminar, University of Washington, Seattle (USA).

Social Media Platforms for Low-Income Blind People in India

2015 ACM ASSETS conference talk, Lisbon (Portugal).

2015 Change Seminar, University of Washington, Seattle (USA).

Sangeet Swara: A community Moderated Voice Forum in Rural India

2015 ACM CHI conference talk, Seoul (Korea).

2015 Change Seminar, University of Washington, Seattle (USA).

Voice-Based Social Computing Platforms in the Developing World

2015 Qualifying Evaluation Examination Presentation, University of Washington, Seattle (USA).

2015 Computing and Global Health Course, Professional Master Program, University of Washington, Seattle (USA).

Educational Content Creation and Sharing by Low-Income Visually Impaired People in India

2015 Accessibility Seminar, University of Washington, Seattle (USA).

2014 ACM DEV conference talk, San Jose (USA).

2014 Change Seminar, University of Washington, Seattle (USA).

Empowering Rural India through Information Technologies

2014 IIT-Bombay, Mumbai (India).

2014 UNICEF India Consultation, Mobiles for Social and Behavior Change, Lucknow (India).

Social Media for Next Billion People

2014 Pakistan-ICTD Workshop, Lahore (Pakistan).

2014 RightsCon conference, San Francisco (USA).

2014 Facebook Headquarters, Menlo Park (USA).

Robust and Scalable Communication Platform for Crisis Scenarios

2013 Panel talk at International Conference of Crisis Mappers, Nairobi (Kenya).

Building and Deploying Voice Forums for Information Access and Transparency

2013 Voice of America and Broadcasting Board of Governors office, Washington DC (USA).

2013 USAID's Office of Innovation and Development Alliances (IDEA), Washington DC (USA).

2013 Right to Information and Transparency in the Digital Age: Policy, Tools and Practices, Stanford (USA).

2013 Change Seminar, University of Washington, Seattle (USA).

IVR Junction: Building Scalable and Distributed Voice Forums in the Developing World

2013 Panel talk, ICTD conference, Cape Town (South Africa).

2013 mBillionth Award South Asia, New Delhi (India).

2013 TechCamp Mumbai organized by US Department of State, Mumbai (India).

2013 Keynote speaker, Sociobator Creatives, Bangalore (India).

2013 Pakistan-ICTD Workshop, Lahore (Pakistan).

2012 Enzen Global, Bangalore (India).

2012 Greenpeace, Bangalore (India).

2012 Bringing Voice to Mobile Citizen Journalism conference by ICFJ and Knights Foundation, Bellagio (Italy).

2012 First International Workshop on Mobile Data Collection in the Developing World, Bangalore (India).

2012 Sixth USENIX/ACM Workshop on Networked Systems for Developing Regions, Boston (USA).

2012 Mobile for Development conference, New Delhi (India).

Mapping Interactive Response Call Data in the Developing World

2013 Workshop on Geographic Human-Computer Interaction at ACM CHI, Paris (France).

Voice Based Social Media and Information Delivery System for Farmers

2012 Mobile and Web Technologies in Social and Economic Development, M4D conference, New Delhi (India).

2011 Enzen Global, Bangalore (India).

A Novel Method for Copyright Protection of Digital Videos without Embedding Data

2010 Conference talk, IEEE International Symposium on Multimedia, Taichung (Taiwan).

An efficient 2-Pass Abrupt Scene Change Detection Algorithm

2010 Conference talk, International Conference on Multimedia Information Networking and Security, Nanjing (China).

Mentoring and Advising

Supervision of Masters Students (University of Washington)

Anmol Rajal Anubhai, Information School (Feb. 2018 – Present)

Jared Moore, CSE (Nov. 2017 – Present)

Abhinav Garg, Information School (Sep. 2017 – Present)

Supervision of Undergraduate Students (University of Washington)

Mrinal Sharma, CSE (Mar. 2017 – Present)

Pooja Sethi, CSE (Jun. 2014 – Jun. 2017) **Best Undergraduate Honors Thesis Award**

Divya Cherukupalli, CSE (Sep. 2016 – Dec. 2016)

Atul Pai, CSE (Apr. 2014 – Jun. 2015)

Radu Cracut, CSE (Jan. 2014 – Jun. 2014)

Supervision of High School Students

Khushi Chaudhari, Redmond High School (Sep. 2017 – Dec. 2017)

Co-supervision of Interns (Microsoft Research India)

Pranav Ramakrishnan, MIT (Nov. 2012 – Jan. 2013)

Dhruv Parthasarathy, MIT (Mar. 2012 – Apr. 2012)

Professional Services

Organizing Committee

2019 Open Sessions Chair, International Conference on Information and Communication Technologies and Development (ICTD)

2018 Accessibility and Registration Chair, ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS)

2018 Co-organizer, Symposium titled HCI Across Borders: Paving New Pathways at ACM SIGCHI Conference on Human Factors in Computing Systems (CHI)

2013-2014 Co-organizer, Pakistan-ICTD Workshop

2013 Open Session Organizer, International Conference on Information and Communication Technologies and Development (ICTD)

Program Committee

2017 Notes at the Ninth International Conference on Information and Communication Technologies and Development (ICTD)

Reviewer

2017-2018 ACM Transactions on Computer-Human Interaction (TOCHI)
2013, 2015-2018 ACM SIGCHI Conference on Human Factors in Computing Systems (CHI)
2018 ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS)
2018 ACM SIGCHI Conference on Designing Interactive Systems (DIS)
2018 ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)
2017 International Journal of Human-Computer Studies (IJHCS)
2014 ACM User Interface Software and Technology Symposium (UIST)
2014 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)
2011 Second International Conference on Computer and Communications Technology (ICCCT)
2011 International Conference on Distributed Computing and Networking (ICDCN)

Local Arrangements Coordinator

2011 International Conference on Distributed Computing and Networking (ICDCN)

University Service

2018 Co-organizer, DUB Doctoral Consortium
2014-2017 Graduate Student Coordinator, UW CSE Department

Research Appointments

Research Assistant at ICTD Lab University of Washington Advisor: Richard Anderson and Gaetano Borriello	Sep. 2013 – Present
Visiting Researcher Indian Institute of Technology Bombay Collaborator: Ganesh Ramakrishnan	Sep. 2014 – Aug. 2016
Research Intern at Technology for Emerging Markets Microsoft Research India Advisor: Bill Thies and Ed Cutrell	Dec. 2014 – Jan. 2015 Jun. 2014 – Sep. 2014 Dec. 2013 – Jan. 2014
Research Assistant at Technology for Emerging Markets Microsoft Research India Advisor: Bill Thies and Ed Cutrell	Oct. 2011 – Aug. 2013
Systems Research Engineer at Convergence Lab Infosys Labs, India Advisor: Rajarathnam Nallusamy and Sanjoy Paul	Oct. 2009 – Sep. 2011

Teaching Experience

Fall 2017 TA, CSEP 590: Information and Communication Technologies and International Development Professional Master's Program at CSE, University of Washington

Spring 2016 TA, CSE 599: Information and Communication Technologies and International Development Post Quads Course at CSE, University of Washington

Patents

2015 Methods, Systems and Computer-Readable Media for Detecting Scene Changes in a Video [US 8947600 B2].

2013 Method and System for Efficient Watermarking of Digital Video [US 8379911 B2].

Public Release of Software Artifacts

2013 IVR Junction

IVR Junction offers flexible and robust voice-based communication by connecting an IVR system to cloud services such as YouTube, Facebook and other social media.

Released under Apache 2.0 license; <http://www.ivrjunction.org>

Used by several organizations including Broadcasting Board of Governors, Voice of America, Government of Somaliland, Microsoft, and the University of Washington.

Selected Press

2013 [Innovators enlist citizen journalists to combat India's rape crisis](#), GlobalPost.

2013 [How IVR Junction bridges the technology gap for people lacking smartphones](#), IJNet Blog.

2013 [IVR Junction allows increased participation in global social media](#), Blog of Sangoma.

2013 [A Technology that helps bridge the digital divide](#), LiveMint.

2013 [Microsoft's social 'Whodunit' competition to begin in India](#), Yahoo! News.

2013 [Microsoft India Announces A Nationwide Social Gaming Competition](#), Silicon India.

2013 [Social whodunnit competition launches in India](#), NewScientist.