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Appointments

2015–present W. K. Kellogg Associate Professor of Community Information
University of Michigan School of Information
Affiliations: African Studies Center, Peace and Conflict Initiative.
2010–2014 Professional Researcher, School of Information, UC Berkeley
2011–2014 Consultant and Advisor, Bill & Melinda Gates Foundation
2011–present Founder and Non-Profit Consultant, ICT Development Strategies
2010–2011 Principal Investigator, Design Revolution, Palo Alto
2004–2009 Co-Founder / Asst. Managing Director, Microsoft Research India
Principal Researcher, Microsoft Corporation (Bangalore, India)
2005-2009 Visiting Scientist, Indian Institute of Science (Bangalore, India)
1997-2004 Researcher, Microsoft Research (Redmond, WA)
2002 Visiting Lecturer, Ashesi University (Accra, Ghana)
2000 Researcher, Microsoft Research Cambridge (Cambridge, UK)

Education

1998	PhD	Yale University	Computer Science
	Thesis: <i>Robust Vision-Based Object Tracking</i> Advisor: Gregory Hager		
1991	AB (magna cum laude)	Harvard University	Physics

Awards / Juried Exhibits

- PROSE Award, American Publishers Awards, for *Geek Heresy* (2016)
- Fellow, Dalai Lama Center for Ethics and Transformative Values at MIT (2011-present)
- Duke University Talent Identification Program, Distinguished Alumni Award (2010)
- Stockholm Challenge Award (2008), for Digital Green
- MacArthur Foundation Digital Media & Learning Grant (2008)
- Museum of Modern Art (2008), *Design for the Elastic Mind*, online exhibit
- Best papers at *Int'l Conference on Information and Communication Technology and Development* (2006, 2007, 2009)
- David Marr Prize, best paper at *Int'l Conference on Computer Vision* (2001)
- John Harvard Scholarship (1987-1991)

Book

Toyama, K. (2015). *Geek Heresy: Rescuing Social Change from the Cult of Technology*. PublicAffairs.

- Foreign translations:
 - Japanese (2017): テクノロジーは貧困を救わない
 - Korean (2016): □□□□□□: □□□□□ □□□ □□□ □□□

Journal Publications

1. [To appear] Toyama, K. (2017). From needs to aspirations in information technology for development. *Journal of Information Technologies and Development*.
2. Toyama, K. (2015). Preliminary thoughts on a taxonomy of value for sustainable computing. *First Monday*, 20(8).
<http://firstmonday.org/ojs/index.php/fm/article/view/6132/4851>
3. Toyama, K. (2014). Teaching how to fish: lessons from information and communication technologies for international development. *Journal of Marketing Management*, 30(5-6):439-444.
<http://www.tandfonline.com/doi/abs/10.1080/0267257X.2014.884621>
4. Medhi, I., W. Thies, K. Toyama, and E. Brunskill. Designing Mobile Interfaces for Novice and Low-Literacy Users. (2011) *ACM Transactions on Computer-Human Interaction (TOCHI)*. <http://dl.acm.org/citation.cfm?id=1959024>
5. Toyama, K. (2010) “Human-Computer Interaction and Global Development,” *Foundations and Trends in Human-Computer Interaction*: Vol. 4: No 1, pp 1-79.
<http://dx.doi.org/10.1561/11000000021>
6. Burrell, J. and Toyama, K. (2009). What constitutes good ICTD research? *Information Technologies and International Development*, 5(3):82-94.
<http://itidjournal.org/itid/article/view/382/178>
7. Pal, J., Lakshmanan, M., and Toyama, K. (2009). “My child will be respected”: Parental perspectives on computers and education in Rural India. *Information Systems Frontiers* 11(2):129-144. DOI= <http://dx.doi.org/10.1007/s10796-009-9172-1>
8. Veeraraghavan, R and K. Toyama. (2009). Warana Unwired: Mobile Phones replacing PCs in a rural sugarcane cooperative, *Information Technologies for International Development*, MIT Press. <http://itidjournal.org/itid/article/view/327/150>
9. Gandhi, R., R. Veeraraghavan, K. Toyama and V. Ramprasad. (2009). “Digital Green: Participatory Video for Agricultural Extension”, *Information Technologies for International Development*, MIT Press. <http://itidjournal.org/itid/article/view/322/145>
10. Kuriyan, R., Ray, I., and Toyama, K. (2008). Information and Communication Technologies for Development: The Bottom of the Pyramid Model in Practice. *The Information Society* 24, 2 (Mar. 2008), 93-104. DOI=
<http://dx.doi.org/10.1080/01972240701883948>
11. Medhi, I., Sagar, A., Toyama, K. (2006). Text-free user interfaces for illiterate and semi-literate users. *Information Technologies for International Development*, 4(1):37–50, MIT Press, 2008. DOI= <http://dx.doi.org/10.1162/itid.2007.4.1.37>
<http://itidjournal.org/itid/article/view/243/113>
12. Petschnigg, G., Szeliski, R., Agrawala, M., Cohen, M., Hoppe, H., and Toyama, K. (2004). Digital photography with flash and no-flash image pairs. In *ACM SIGGRAPH 2004 Papers* (Los Angeles, California, August 08 - 12, 2004). J. Marks, Ed. SIGGRAPH '04. ACM, New York, NY, 664-672. DOI=
<http://doi.acm.org/10.1145/1186562.1015777>

13. Criminisi, A., Perez, P. and Toyama, K. (2004). Region filling and object removal by exemplar-based image inpainting. *Trans. Image Processing*, 13(9):1200-1212. doi: 10.1109/TIP.2004.833105
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=1323101&isnumber=29293>
14. Toyama, K. and Blake, A. (2002). Probabilistic Tracking with Exemplars in a Metric Space. *International Journal of Computer Vision*, 48, 1 (Jun. 2002), 9-19. DOI= <http://dx.doi.org/10.1023/A:1014899027014> Marr Prize paper.
15. Tagare, H. D., Toyama, K., and Wang, J. G. (2001). A Maximum-Likelihood Strategy for Directing Attention during Visual Search. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 23, 5 (May. 2001), 490-500. DOI= <http://dx.doi.org/10.1109/34.922707>
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=922707&isnumber=19947>
16. Gemmell, J., Toyama, K., Zitnick, C. L., Kang, T., and Seitz, S. (2000). Gaze Awareness for Video-Conferencing: A Software Approach. *IEEE MultiMedia* 7, 4 (Oct. 2000), 26-35. DOI= <http://dx.doi.org/10.1109/93.895152>
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=895152&isnumber=19368>
17. Toyama, K. and Hager, G. D. (1999). Incremental Focus of Attention for Robust Vision-Based Tracking. *International Journal of Computer Vision*, 35(1):45-63. DOI= <http://dx.doi.org/10.1023/A:1008159011682>
18. Hager, G. D. and Toyama, K. (1998). X Vision: a portable substrate for real-time vision applications. *Computer Vision and Image Understanding* 69, 1 (Jan. 1998), 23-37. DOI= <http://dx.doi.org/10.1006/cviu.1997.0586>
19. Kao, M.Y., Teng, S.T., Toyama, K. (1995). An optimal parallel algorithm for planar cycle separators. *Algorithmica*, 14(5):398-408.

Refereed Conference Papers

1. [To appear] Rifat, M. R.; J. Chen; K. Toyama. (2017). Money, God, and SMS: Using religious SMSs to influence donation behavior in a Bangladeshi mosque. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '17)*. ACM.
2. O'Neill, J., K. Toyama, J. Chen, B. Tate, A. Siddiqui. (2016). The Increasing Sophistication of Mobile Media Sharing in Bangalore. In *Proc. International Conference on Information Technology and Communication and Development*. Ann Arbor, June, 2016.
3. Medhi, I., M. Lakshmanan, K. Toyama, and E. Cutrell. (2013). Some evidence for the impact of limited education on hierarchical user interface navigation. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '13)*. ACM, New York, NY, USA, 2813-2822. DOI: <http://dx.doi.org/10.1145/2470654.2481390>
4. Boettiger, S., R. Abed, K. Toyama. (2012). Natural Obsolescence of Village Phone. In *Proc. International Conference on Information Technology and Communication and Development*. Atlanta, Georgia, Apr. 2012.

5. Toyama, K. (2011). Technology as Amplifier in International Development. In *Proc. iConference*. Seattle, 2011.
6. Dias, M. B., M. K. Rahman, S. Sanghvi, K. Toyama. (2010). Experiences with Lower-Cost Access to Tactile Graphics in India. In *Proceedings of ACM DEV 2010*.
7. Medhi, I., R. Menon, E. Cutrell, and K. Toyama. (2010). Beyond Strict Illiteracy: Abstracted Learning Among Low-Literate Users. In *Proc. International Conference on Information Technology and Communication and Development*, London.
8. Panjwani, S., N. Samdaria, A. Gupta, E. Cutrell, and K. Toyama. (2010). Collage: A Presentation Tool for the Developing-World School Teacher. In *Proc. International Conference on Information Technology and Communication and Development*, London.
9. Ratan, A. L., S. Chakraborty, K. Toyama, P. Chitnis, K. S. Ooi, M. Phiong, M. Koenig. (2010). Managing Microfinance with Paper, Pen and Digital Slate. In *Proc. International Conference on Information Technology and Communication and Development*, London.
10. Smyth, Thomas N., Kumar, S., Medhi, I., Toyama, K. (2010). Where There's a Will There's a Way: Mobile Media Sharing in Urban India. *Proceedings of the 28th International Conference Extended Abstracts on Human Factors in Computing Systems*. (Atlanta, GA, USA, 2010). CHI '09. ACM, New York, NY.
11. Sambasivan, N., Cutrell, E., Toyama, K. (2010). ViralVCD: Tracing Information-Diffusion Paths with Low Cost Media in Developing Communities. *Proceedings of the 28th International Conference Extended Abstracts on Human Factors in Computing Systems*. (Atlanta, GA, USA, April, 2010). CHI '09. ACM, New York, NY.
12. Sambasivan, N., Cutrell, E., Toyama, K., Nardi, B. (2010). Intermediated Technology Use in Developing Communities. *Proceedings of the 28th International Conference Extended Abstracts on Human Factors in Computing Systems*. (Atlanta, GA, USA, 2010). CHI '09. ACM, New York, NY.
13. Medhi, I., Ratan, A., and Toyama, K. (2009). Mobile-Banking Adoption and Usage by Low-Literate, Low-Income Users in the Developing World. In *Proceedings of the 3rd international Conference on internationalization, Design and Global Development: Held As Part of HCI international 2009* (San Diego, CA, July 19 - 24, 2009). N. Aykin, Ed. Springer-Verlag, Berlin, Heidelberg, 485-494. DOI=http://dx.doi.org/10.1007/978-3-642-02767-3_54
14. Moed, A., Otto, O., Pal, J., Singh, U. P., Kam, M., and Toyama, K. (2009). Reducing dominance in multiple-mouse learning activities. In *Proceedings of the 9th international Conference on Computer Supported Collaborative Learning - Volume 1* (Rhodes, Greece, June 08 - 13, 2009). C. O'Malley, D. Suthers, P. Reimann, and A. Dimitracopoulou, Eds. International Society of the Learning Sciences, 360-364.
15. Chen, J., Subramanian, L., and Toyama, K. (2009). Web search and browsing behavior under poor connectivity. In *Proceedings of the 27th international Conference Extended Abstracts on Human Factors in Computing Systems* (Boston, MA, USA, April 04 - 09, 2009). CHI '09. ACM, New York, NY, 3473-3478. DOI=<http://doi.acm.org/10.1145/1520340.1520505>
16. Ratan, A. L., S. Satpathy, L. Zia, K. Toyama, S. Blagsvedt, U. S. Pawar, T. Subramaniam. (2009). Kelsa+: Digital Literacy for Low-Income Workers. In *Proc.*

- International Conference on Information Technology and Communication and Development*, Doha, Qatar, Apr. 2009.
17. Chu, G., S. Satpathy, K. Toyama, R. Gandhi, R. Balakrishnan, S. R. Menon. (2009). Featherweight Multimedia for Information Dissemination. In *Proc. International Conference on Information Technology and Communication and Development*, Doha, Qatar, Apr. 2009.
 18. G. Singh, L. Findlater, K. Toyama, S. Helmer, R. Gandhi, R. Balakrishnan. (2009). Numeric Paper Forms for NGOs. In *Proc. International Conference on Information Technology and Communication and Development*, Doha, Qatar, Apr. 2009.
 19. Javid, P., K. Toyama, M. Biswas. (2009). Social Enterprises: A Vocational Entrepreneurship Framework for Street Youth. In *Proc. International Conference on Information Technology and Communication and Development*, Doha, Qatar, Apr. 2009.
 20. Donner, J., K. Verclas, K. Toyama. (2008). Reflections on MobileActive 2008 and the M4D Landscape. In *Proc. Int'l Conf. on Mobile Communication Technology for Development*. Sweden, 2008.
 21. Findlater, L., Balakrishnan, R., and Toyama, K. (2009). Comparing semiliterate and illiterate users' ability to transition from audio+text to text-only interaction. In *Proceedings of the 27th international Conference on Human Factors in Computing Systems* (Boston, MA, USA, April 04 - 09, 2009). CHI '09. ACM, New York, NY, 1751-1760. DOI= <http://doi.acm.org/10.1145/1518701.1518971>
 22. Medhi, I., Gautama, S. N., and Toyama, K. (2009). A comparison of mobile money-transfer UIs for non-literate and semi-literate users. In *Proceedings of the 27th international Conference on Human Factors in Computing Systems* (Boston, MA, USA, April 04 - 09, 2009). CHI '09. ACM, New York, NY, 1741-1750. DOI= <http://doi.acm.org/10.1145/1518701.1518970>
 23. Sambasivan, N., Ho, M., Kam, M., Kodagoda, N., Dray, S., Thomas, J. C., Light, A., and Toyama, K. 2009. Human-centered computing in international development. In *Proceedings of the 27th international Conference Extended Abstracts on Human Factors in Computing Systems* (Boston, MA, USA, April 04 - 09, 2009). CHI '09. ACM, New York, NY, 4745-4750. DOI= <http://doi.acm.org/10.1145/1520340.1520731>
 24. Weber, F.; Bali, K.; Rosenfeld, R.; Toyama, K.; "Unexplored directions in spoken language technology for development," *Spoken Language Technology Workshop, 2008. SLT 2008. IEEE*, vol., no., pp.1-4, 15-19 Dec. 2008. doi: 10.1109/SLT.2008.4777825
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4777825&isnumber=4777819>
 25. Rangaswamy, N., Nair, S., and Toyama, K. 2008. "My tv is the family oven/toaster/grill": personalizing tv for the indian audience. In *Proceeding of the 1st international Conference on Designing interactive User Experiences For TV and Video* (Silicon Valley, California, USA, October 22 - 24, 2008). UXTV '08, vol. 291. ACM, New York, NY, 19-22. DOI= <http://doi.acm.org/10.1145/1453805.1453810>
 26. Prasad, A., Medhi, I., Toyama, K., and Balakrishnan, R. 2008. Exploring the feasibility of video mail for illiterate users. In *Proceedings of the Working Conference on Advanced Visual interfaces* (Napoli, Italy, May 28 - 30, 2008). AVI

- '08. ACM, New York, NY, 103-110. DOI=
<http://doi.acm.org/10.1145/1385569.1385588>
27. Medhi, I., Menon, G., and Toyama, K. 2008. Challenges in computerized job search for the developing world. In *CHI '08 Extended Abstracts on Human Factors in Computing Systems* (Florence, Italy, April 05 - 10, 2008). CHI '08. ACM, New York, NY, 2079-2094. DOI= <http://doi.acm.org/10.1145/1358628.1358640>
28. Veeraraghavan, R and K. Toyama (2007). "Warana Unwired: Mobile Phones replacing PCs in a rural sugarcane cooperative", In *Proc. International Conference on Information Technology and Communication and Development*, Bangalore. doi: 10.1109/ICTD.2007.4937395
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4937395&isnumber=4937385>
29. Pal, J., M. Lakshmanan and K. Toyama (2007). "'My Child Will Be Respected': Parental Perspectives on Computers in Rural India", In *Proc. International Conference on Information Technology and Communication and Development*, Bangalore.
30. Gandhi, R., R. Veeraraghavan, K. Toyama and V. Ramprasad (2007). "Digital Green: Participatory Video for Agricultural Extension", In *Proc. International Conference on Information Technology and Communication and Development*, Bangalore. doi: 10.1109/ICTD.2007.4937388
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4937388&isnumber=4937385>
31. Medhi, I.; Toyama, K.; , "Full-context videos for first-time, non-literate PC users," *Information and Communication Technologies and Development, 2007. ICTD 2007. International Conference on* , vol., no., pp.1-9, 15-16 Dec. 2007
doi: 10.1109/ICTD.2007.4937400
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4937400&isnumber=4937385>
32. Medhi, I., Prasad, A., and Toyama, K. 2007. Optimal audio-visual representations for illiterate users of computers. In *Proceedings of the 16th international Conference on World Wide Web* (Banff, Alberta, Canada, May 08 - 12, 2007). WWW '07. ACM, New York, NY, 873-882. DOI= <http://doi.acm.org/10.1145/1242572.1242690>
33. Pawar, U. S., Pal, J., Gupta, R., and Toyama, K. 2007. Multiple mice for retention tasks in disadvantaged schools. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (San Jose, California, USA, April 28 - May 03, 2007). CHI '07. ACM, New York, NY, 1581-1590. DOI=
<http://doi.acm.org/10.1145/1240624.1240864>
34. Sengar, V., Joshi, T., Joy, J., Prakash, S., and Toyama, K. 2007. Robust location search from text queries. In *Proceedings of the 15th Annual ACM international Symposium on Advances in Geographic information Systems* (Seattle, Washington, November 07 - 09, 2007). GIS '07. ACM, New York, NY, 1-8. DOI=
<http://doi.acm.org/10.1145/1341012.1341044>
35. Prasad, A., Blagsvedt, S. O., and Toyama, K. (2007) SMSBlogging: blog-on-the-street public art project. In *Proceedings of the 15th Int'l Conf. on Multimedia* (Augsburg, Germany; September, 2007). MULTIMEDIA '07. ACM, 501-504. DOI=
<http://doi.acm.org/10.1145/1291233.1291356>

36. Adabala, N., Varma, M., and Toyama, K. 2007. Computer aided generation of stylized maps: Research Articles. *Comput. Animat. Virtual Worlds* 18, 2 (May. 2007), 133-140. DOI= <http://dx.doi.org/10.1002/cav.v18:2>
37. Ananthanarayanan, G., Blagsvedt, S., and Toyama, K. 2006. OWeB: A Framework for Offline Web Browsing. In *Proceedings of the Fourth Latin American Web Congress* (October 25 - 27, 2006). IEEE Computer Society, Washington, DC, 15-24. DOI= <http://dx.doi.org/10.1109/LA-WEB.2006.25>
38. Pawar, U.S., Pal, J., Uppala, S., and Toyama, K. (2006). "Effective Educational Delivery in Rural Computer Aided Education: Multimouse." *Proc. of Digital Learning* (DL 2006).
39. Pawar, U. S., Pal, J., Toyama, K. (2006). Multi-mouse for rural education. In *Proc. International Conference on Information Technology and Communication and Development*, Berkeley, May 2006.
40. Pal, J., Pawar, U. S., Brewer, E. A., and Toyama, K. 2006. The case for multi-user design for computer aided learning in developing regions. In *Proceedings of the 15th international Conference on World Wide Web* (Edinburgh, Scotland, May 23 - 26, 2006). WWW '06. ACM, New York, NY, 781-789. DOI= <http://doi.acm.org/10.1145/1135777.1135896>
41. Medhi, I., Sagar, A., Toyama, K. (2006). Text-free user interfaces for illiterate and semi-literate users. In *Proc. International Conference on Information Technology and Communication and Development*, Berkeley, May 2006.
42. Kuriyan, R., Toyama, K., Ray, I. (2006). Integrating Social Development and Financial Sustainability: The Challenges of Rural Computer Kiosks in Kerala. In *Proc. International Conference on Information Technology and Communication and Development*, Berkeley, May 2006.
43. Veeraraghavan, R., Pitti, B., Singh, G., Smith, G., Meyers, B., Toyama, K. (2006). Kiosk Usage Measurement using a Software Logging Tool. In *Proc. International Conference on Information Technology and Communication and Development*, Berkeley, May 2006.
44. Singh, J., Nedeveschi, G., Pal, J., Fonseca, R., Toyama, K. (2006). Bayesian Networks, a Statistical Approach for Understanding ICT Adoption. In *Proc. International Conference on Information Technology and Communication and Development*, Berkeley, May 2006.
45. Rangaswamy, N & Toyama K. (2006) Global Events Local Impacts: India's Rural Emerging Markets, *Proceedings of the International Conference on Ethnographic Praxis in Industry*, American Anthropological Association, Arlington VA: 198-213.
46. Adabala, N. and Toyama, K. 2006. Customizable panoramic maps. In *ACM SIGGRAPH 2006 Sketches* (Boston, Massachusetts, July 30 - August 03, 2006). SIGGRAPH '06. ACM, New York, NY, 131. DOI= <http://doi.acm.org/10.1145/1179849.1180013>
47. Parikh, T. S., Javid, P., K., S., Ghosh, K., and Toyama, K. 2006. Mobile phones and paper documents: evaluating a new approach for capturing microfinance data in rural India. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (Montréal, Québec, Canada, April 22 - 27, 2006). R. Grinter, T. Rodden, P. Aoki, E. Cutrell, R. Jeffries, and G. Olson, Eds. CHI '06. ACM, New York, NY, 551-560. DOI= <http://doi.acm.org/10.1145/1124772.1124857>

48. Sheth, A., Tejaswi, K., Mehta, P., Parekh, C., Bansal, R., Merchant, S., Singh, T., Desai, U. B., Thekkath, C. A., and Toyama, K. 2005. *SenSlide: a sensor network based landslide prediction system*. In *Proceedings of the 3rd international Conference on Embedded Networked Sensor Systems* (San Diego, California, USA, November 02 - 04, 2005). SenSys '05. ACM, New York, NY, 280-281. DOI=<http://doi.acm.org/10.1145/1098918.1098954>
49. Buck, I., Finkelstein, A., Jacobs, C., Klein, A., Salesiny, D. H., Seims, J., Szeliski, R., and Toyama, K. 2006. Performance-driven hand-drawn animation. In *ACM SIGGRAPH 2006 Courses* (Boston, Massachusetts, July 30 - August 03, 2006). SIGGRAPH '06. ACM, New York, NY, 25. DOI=<http://doi.acm.org/10.1145/1185657.1185865>
50. Rangaswamy, N. & Toyama, K. (2005). "Sociology of ICT: The Myth of the Hibernating Village." *Proc. 11th Conference on Human-Computer Interaction*, July 2005, Las Vegas.
51. Pawar, U. S., and Toyama, K. (2005) "A cross-market taxonomy for ICT in education projects." *Digital Learning*, 1(1).
52. Adabala, N. and Toyama, K. 2005. Semantics-guided procedural rendering for woodcut maps. In *ACM SIGGRAPH 2005 Posters* (Los Angeles, California, July 31 - August 04, 2005). J. Buhler, Ed. SIGGRAPH '05. ACM, New York, NY, 35. DOI=<http://doi.acm.org/10.1145/1186954.1186994>
53. Lu, L., Toyama, K., and Hager, G. D. 2005. A Two Level Approach for Scene Recognition. In *Proceedings of the 2005 IEEE Computer Society Conference on Computer Vision and Pattern Recognition (Cvpr'05) - Volume 1 - Volume 01* (June 20 - 26, 2005). IEEE Computer Society, Washington, DC, 688-695. DOI=<http://dx.doi.org/10.1109/CVPR.2005.51>
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=1467335&isnumber=31472>
54. Toyama, K., Hariharan, R., Gupta, R. (2005). Project Lachesis: parsing location histories. *Proc. American Association of Geographers Annual Meeting*, Denver, Colorado, April 2005.
55. Toyama, K., Kiri, K., Menon, D., Pal, J., Sethi, S., Srinivasan, J. (2005). PC kiosk trends in rural India. Presented at *Policy Options and Models for Bridging Digital Divides*, Tampere, Finland, March 2005.
56. Toyama, K. (2005) A closer look at rural computing. In *Proc. International Conference and Exposition on Communications & Computing*, Kanpur, India, February 2005.
57. Paek, T., Agrawala, M., Basu, S., Drucker, S., Kristjansson, T., Logan, R., Toyama, K., and Wilson, A. 2004. Toward universal mobile interaction for shared displays. In *Proceedings of the 2004 ACM Conference on Computer Supported Cooperative Work* (Chicago, Illinois, USA, November 06 - 10, 2004). CSCW '04. ACM, New York, NY, 266-269. DOI=<http://doi.acm.org/10.1145/1031607.1031649>
58. Hariharan, R., Toyama, K. (2004). Project Lachesis: parsing and modeling location histories. *Geographic Information Science, Proc. Third Int'l Conf., GIScience 2004*. Springer, pp. 106-124.
59. Toyama, K., Logan, R., and Roseway, A. 2003. Geographic location tags on digital images. In *Proceedings of the Eleventh ACM international Conference on Multimedia*

- (Berkeley, CA, USA, November 02 - 08, 2003). MULTIMEDIA '03. ACM, New York, NY, 156-166. DOI= <http://doi.acm.org/10.1145/957013.957046>
60. Criminisi, A.; Perez, P.; Toyama, K.; , "Object removal by exemplar-based inpainting," *Computer Vision and Pattern Recognition, 2003. Proceedings. 2003 IEEE Computer Society Conference on* , vol.2, no., pp. II-721- II-728 vol.2, 18-20 June 2003
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=1211538&isnumber=27266>
 61. Feris, R.S., Gemmell, J., Toyama, K., Kruger, V. (2002). Hierarchical wavelet networks for facial feature localization. In *Proc., Automatic Face and Gesture Recognition, 2002*. pp. 118-123. doi: 10.1109/AFGR.2002.1004143
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=1004143&isnumber=21655>
 62. Toyama, K., Blake, A. (2001). Probabilistic tracking in a metric space. In *Proc., Int'l Conf. on Computer Vision*. II: 50-57, 2001. doi: 10.1109/ICCV.2001.937599
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=937599&isnumber=20294> Marr Prize for best paper.
 63. Wu, Y., Huang, T.S., Toyama, K. (2001). Self-supervised learning for object recognition based on kernel discriminant-EM algorithm. In *Proc., Int'l Conf. on Computer Vision*. I:275-280. doi: 10.1109/ICCV.2001.937529
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=937529&isnumber=20293>
 64. Toyama, K. and Wu, Y. 2000. Bootstrap Initialization of Nonparametric Texture Models for Tracking. In *Proceedings of the 6th European Conference on Computer Vision-Part II* (June 26 - July 01, 2000). D. Vernon, Ed. Springer-Verlag, London, 119-133.
 65. Wu, Y. and Toyama, K. 2000. Wide-Range, Person- and Illumination-Insensitive Head Orientation Estimation. In *Proceedings of the Fourth IEEE international Conference on Automatic Face and Gesture Recognition 2000* (March 26 - 30, 2000). IEEE Computer Society, Washington, DC, 183. doi: 10.1109/AFGR.2000.840632
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=840632&isnumber=18088>
 66. Toyama, K., Horvitz., E. (2000). Bayesian modality fusion: probabilistic integration of multiple vision algorithms for head tracking. In *Proc. Fourth Asian Conference on Computer Vision*.
 67. Buck, I., Finkelstein, A., Jacobs, C., Klein, A., Salesin, D. H., Seims, J., Szeliski, R., and Toyama, K. 2000. Performance-driven hand-drawn animation. In *Proceedings of the 1st international Symposium on Non-Photorealistic Animation and Rendering* (Annecy, France, June 05 - 07, 2000). NPAR '00. ACM, New York, NY, 101-108. DOI= <http://doi.acm.org/10.1145/340916.340929>
 68. Toyama, K., Krumm, J., Brumitt, B., Meyers, B. (1999). Wallflower: principles and practice of background maintenance. In *Proc. Int'l Conf. on Computer Vision, 1999*, pp. 255-261. doi: 10.1109/ICCV.1999.791228
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=791228&isnumber=17134>

69. Dodds, Z., Jägersand, M., Hager, G. D., and Toyama, K. 1999. A Hierarchical Vision Architecture for Robotic Manipulation Tasks. In *Proceedings of the First international Conference on Computer Vision Systems* (January 13 - 15, 1999). H. I. Christensen, Ed. Springer-Verlag, London, 312-330.
70. Toyama, K. (1998) Prolegomena for robust face tracking. In *Proc. Post-ECCV Workshop on Advances in Facial Image Analysis and Recognition Technology*, Freiburg.
71. Toyama, K. (1998). 'Look, Ma --- No Hands!' hands-free cursor control with real-time 3D face tracking. *Proc. Workshop on Perceptual User Interfaces (PUI'98)*. San Francisco, pp. 49-54.
72. Toyama, K. (1998). Robust face pose tracking with incremental focus of attention. In *Proc. Nimes 98: Complex Systems, Intelligent Systems, and Interfaces*.
73. Toyama, K., Hager, G. D. (1998). Incremental focus of attention: a layered approach to robust vision and control. In *Proc. Workshop on Robust Vision for Control*, Leuven, Belgium. Most relevant paper prize.
74. Toyama, K., Hager, G.D. (1997). If at first you don't succeed... In *Proc. AAAI 1997*, pp. 3-9.
75. Feiten, W., Hager, G.D., Bauer, J., Magnussen, B., Toyama, K. (1997). Modeling and control for mobile manipulation in everyday environments. *Proc. 8th Int'l Symposium on Robotics Research*.
76. Toyama, K. (1996). Handling tradeoffs between precision and robustness with incremental focus of attention for visual tracking. In *Proc. Symposium on Flexible Computation, AAAI*, pp. 142-147.
77. Toyama, K., Hager, G.D. (1996). Incremental focus of attention for robust visual tracking. In *Proc. Computer Vision and Pattern Recognition, 1996*, pp. 189-195. doi: 10.1109/CVPR.1996.517073
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=517073&isnumber=11029>
78. Toyama, K., Hager, G.D., Wang, J. (1996). SERVOMATIC: a modular system for robust positioning using stereo visual servoing. In *Conf., Robotics and Automation, 1996*, pp. 2636-2643. doi: 10.1109/ROBOT.1996.506560
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=506560&isnumber=10817>
79. Hager, G. D. and Toyama, K. 1996. X Vision: Combining Image Warping and Geometric Constraints for Fast Visual Tracking. In *Proceedings of the 4th European Conference on Computer Vision-Volume II - Volume II* (April 15 - 18, 1996). B. F. Buxton and R. Cipolla, Eds. Springer-Verlag, London, 507-517.
80. Hager, G. D., Grunwald, G., Toyama, K. (1995). Feature-based visual servoing and its application to telerobotics, in Ed., V. Graefe, *Selections of the Int'l Conf. on Intel. Rob. and Sys.*, Elsevier.
81. Toyama, K., Hager, G.D. (1995). Tracker fusion for robustness in visual feature tracking. In *Proc. SPIE Photonics East*. 2569:38-49.
82. Toyama, K., Hager, G. D. (1995). Keeping your eye on the ball: Tracking occluding contours of unfamiliar objects without distraction, in *Proc., Int. Conf. Intelligent Robotics and Systems*, pp. 354-359, Pittsburgh, PA. doi: 10.1109/IROS.1995.525820

URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=525820&isnumber=11432>

83. Hager, G.D.; Toyama, K.; "Modular Tools for Robotic Hand-Eye Coordination," *Proceedings., 1995 IEEE International Conference on Robotics and Automation, 1995*, vol.3, no., pp.V3, 21-27 May 1995
URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=525740&isnumber=11431>
84. Kao, M., Teng, S., and Toyama, K. 1993. Improved Parallel Depth-First Search in Undirected Planar Graphs. In *Proceedings of the Third Workshop on Algorithms and Data Structures* (August 11 - 13, 1993). F. K. Dehne, J. Sack, N. Santoro, and S. Whitesides, Eds. Springer-Verlag, London, 409-420.

Workshop Papers, Posters, Etc.

1. Kano, T. and K. Toyama. (2016). Geographic Diversification of ICTD. Notes program, *International Conference on Information and Communication Technologies and Development*.
2. Kameswaran, V., M. Marathe, T. Dillahunt, J. Pal, K. Reinecke, and K. Toyama. (2016). Project Boost: Addressing the “Socio” in a Socio-Technical System to Improve Income-Earning Opportunities in Detroit. Workshop on “Crossing the Border” at *ACM Conference on Human Factors in Computing Systems (CHI2016)*.
3. Batool, A., S. Razaq, K. Toyama. (2015). An Investigation into ICT-Addressable Causes of Maternal Mortality in Pakistan. In *Proc. ACM Symposium on Computing for Development (ACM DEV)*.

Book Chapters

1. [To appear] Toyama, K. (2017). From Needs to Aspirations in Information Technology for Development. In Aswin Punathambekar, Sriram Mohan (eds.), *Digital South Asia*. MIT Press.
2. [To appear] Toyama, K. (2017). Children’s Education in a Digital Age. In UNICEF, *The State of the World’s Children 2017*.

Selected Non-Research Publications

1. [To appear] Toyama, K. (2017). 日本独特の「型」. *Shinchou Magazine*, April, 2017.
2. Toyama, K. (2016). The Internet and inequality. *Communications of the ACM*, 59(4):28-30. <http://cacm.acm.org/magazines/2016/4/200163-the-internet-and-inequality/>
3. Toyama, K. (2015). Sure, there's an app for that, but does it work in Michigan? *The Next Idea*, Michigan Radio. Jun. 29, 2015. <http://michiganradio.org/post/sure-theres-app-does-it-work-michigan>
4. Toyama, K. (2015). How the human condition limits the power of technology. *The Seattle Times*, June 11, 2015. <http://www.seattletimes.com/opinion/how-the-human-condition-limits-the-power-of-technology/>

5. Toyama, K. (2015). It may be the age of machines, but it's up to humans to save the world. *The Guardian*, June 11, 2015.
<http://www.theguardian.com/commentisfree/2015/jun/11/age-of-machines-humans-save-the-world>
6. Toyama, K. (2015). Malcolm Gladwell is right: Facebook, social media and the real story of political change. *Salon*, June 6, 2015.
http://www.salon.com/2015/06/06/malcolm_gladwell_is_right_facebook_social_media_and_the_real_story_of_political_change/
7. Toyama, K. (2015). Technology won't fix America's neediest schools. It makes bad education worse. *Washington Post*, June 4, 2015.
<http://www.washingtonpost.com/posteverything/wp/2015/06/04/technology-wont-fix-americas-neediest-schools-it-makes-bad-education-worse/>
8. Toyama, K. (2015). Why technology alone won't fix schools. *The Atlantic* online, June 3, 2015. <http://www.theatlantic.com/education/archive/2015/06/why-technology-alone-wont-fix-schools/394727/>
9. Toyama, K. (2015). Can technology offer solutions to inequality? *USA Today*, May 29, 2015. <http://www.usatoday.com/story/tech/2015/05/29/kentaro-toyama-guest-column-inequality-zuckerberg-braff-clinton/28034093/>
10. Toyama, K. (2015). No, new tech will not lower your company's costs. *Fortune*, May 26, 2015. <http://fortune.com/2015/05/26/tech-cost-savings-health-care/>
11. Toyama, K. (2015). Why technology will never fix education. *Chronicle of Higher Education*, May 19, 2015. <http://chronicle.com/article/Why-Technology-Will-Never-Fix/230185/>
12. Toyama, K. (2014). Book review: Development without representation. *Information Technologies & International Development*, 10(4):49–52.
13. Toyama, K. (2011). On Turbocharged, Heat-Seeking, Robotic Fishing Poles. *Communications of the ACM*, 54(12):29-31.
14. Toyama, K. (2011). There are no technology shortcuts to good education. In *Educational Technology Debate*. January, 2011. <http://edutechdebate.org/ict-in-schools/there-are-no-technology-shortcuts-to-good-education/>
15. Toyama, K. (2010). ICT4D Jester blog. <http://ict4djester.org/blog>
16. Toyama, K. (2010). Can Technology End Poverty? *Boston Review*. 35(6).
17. Winters, N., Toyama, K. (2009). Human-Computer Interaction for Development: Mapping the Terrain. *Information Technologies and International Development*, 5(4):iii-viii.
18. Sambasivan, N., Rangaswamy, N., Toyama, K., and Nardi, B. 2009. UNDER DEVELOPMENT Encountering development ethnographically. *interactions* 16, 6 (Nov. 2009), 20-23. DOI= <http://doi.acm.org/10.1145/1620693.1620698>
19. Toyama, K. and Ali, M. 2009. Computing for global development: is it computer science research? *SIGCOMM Comput. Commun. Rev.* 39, 5 (Oct. 2009), 40-43. DOI= <http://doi.acm.org/10.1145/1629607.1629616>
20. Toyama, K. and K. Keniston (2008). Telecentre Debates, in *Telecentre Magazine*. 1(2-4).
21. Toyama, K. and Dias, M. B. 2008. Information and Communication Technologies for Development. *Computer* 41, 6 (Jun. 2008), 22-25. DOI= <http://dx.doi.org/10.1109/MC.2008.193>

22. Donner, J., Gandhi, R., Javid, P., Medhi, I., Ratan, A., Toyama, K., and Veeraraghavan, R. 2008. Stages of Design in Technology for Global Development. *Computer* 41, 6 (Jun. 2008), 34-41. DOI= <http://dx.doi.org/10.1109/MC.2008.203> URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4548170&isnumber=4548155>
23. Toyama, K. (2008). Sharing a Split Screen. *TechNet Magazine*.
24. Toyama, K. (2008). Multiple Mice, One PC. *TechNet Magazine*.
25. Medhi, I. and K. Toyama. (2007). "Full-Context Video for First-time, Illiterate Users" alt. chi Forum at ACM CHI '07, April 2007. Highest rated paper at alt.chi.
26. Medhi, I. and K. Toyama. (2007). CHI Workshop position paper on User-Centered Design and International Development, April 2007.
27. Toyama, K., Reddy, R., and Saxenian, A. 2007. An introduction to the best ICTD 2006 conference papers. *Inf. Technol. Int. Dev.* 4, 1 (Oct. 2007), 1-3. DOI= <http://dx.doi.org/10.1162/itid.2007.4.1.1>
28. Toyama, K. 1998 *Robust Vision-Based Object Tracking*. Doctoral Thesis. UMI Order Number: AAI9837294., Yale University.
29. Toyama, K. 1996. An interview with Drew McDermott. *Crossroads* 3, 1 (Sep. 1996), 3-4. DOI= <http://doi.acm.org/10.1145/332148.332150>

Selected Keynote Talks, Etc.

- Keynote, "What Technology Can and Can't Do in Governance", State of Michigan – Talking Reinvention (Lansing, 2017)
- Keynote, "Global learning in (or despite?) an age of technology," American Association of Colleges & Universities (Denver, 2016)
- Keynote, "Computing alone doesn't solve education problems. So, what next?" mEducation Alliance (Washington, DC, 2016)
- Keynote, "Geek Heresy: Technology's Law of Amplification and Deming's Deadly Diseases," Deming Institute (Lansing, MI, 2016)
- Keynote, "Computing alone doesn't solve social problems. So, what next?" CRA Annual Conference (Snowbird, UT, 2016)
- Keynote, "University Planning in an Age of Technology," Society of College and University Planning (Vancouver, BC, 2016)
- Plenary, "Where is our First Law of Robotics?" Personal Democracy Forum (New York City, 2016)
- Rob Kling Center Speaker Series, University of Indiana (Bloomington, 2016)
- Keynote, "Geek Heresy: Rescuing Social Change from the Cult of Technology," DOKU:TECH. (Prizren, Kosovo, 2015)
- Distinguished lecture, "Technology and the Future of Capitalism," Princeton Institute of International and Regional Studies. (Princeton, 2015)
- Keynote, Inter-American Development Bank, Social Sector Annual Meeting. (Washington, DC, 2015)
- Distinguished lecture, Pontifical Catholic University of Chile, public talk. (Santiago, 2014).
- Keynote, International Network for Postgraduate Students in ICT4D (Cape Town, 2013)

- Keynote, OZCHI 2012 (Melbourne, 2012)
- Keynote, Subsistence Markets Conference (Chicago, 2012)
- Keynote, ACM DEV 2012 (Atlanta, 2012)
- Panel, New America Foundation (Washington D.C., 2012)
- Public talk, iHub Kenya (Nairobi, 2011)
- Honors lecture, Maricopa County Community Colleges (Phoenix, 2011)
- Keynote, APEC Digital Opportunity Center (Taipei, 2011)
- Plenary, United Nations Economic and Social Council 2011 High-Level Segment (Geneva, 2011)
- Panel talk, *Inter-American Development Bank Annual Conference* (Calgary, 2011)
- Keynote, Instituto de Estudios Peruanos (Lima, 2011)
- Keynote, *Shaastra*, IIT Madras (Chennai, 2010)
- Plenary, *TEDxTokyo* (Tokyo, 2010)
- Plenary, *Computing for Socio-Economic Development Summer School* (Bangalore, India, 2010)
- Keynote, *AAAI Symposium on Artificial Intelligence for Development*. (Palo Alto, 2010)
- Keynote, *Mobile HCI* (Bonn, 2009)
- Keynote, *European Conference on Computer Supported Collaborative Work* (Vienna, 2009)
- Keynote, *2nd India Int'l HCI Conference* (Bangalore, 2008)
- Plenary, *Microsoft Information and Communication Technology for Development Conference* (Washington, D.C., 2008)
- Distinguished Lecture Series, *Tata Consulting Services Excellence in Computer Science* (Pune, India, 2008)
- Keynote, *Indian Symposium on Development of Rural Areas* (Thiruvannamalai, India, 2008)
- Keynote, *International Workshop on Internationalisation of Products and Systems* (Merida, Mexico, 2007)
- Keynote, *1st India Int'l HCI Conference* (Hyderabad, 2007)
- Keynote, *Map India* (New Delhi, January, 2006)
- Keynote, *International Conference and Exposition on Communications & Computing* (Kanpur, February 2005)
- Keynote, *National Seminar on Higher Education*, St. Joseph's College of Arts and Sciences (Bangalore, February 2005)
- Keynote, *International Conference on Speech and Language Systems for Human Communication* (New Delhi, November 2004)
- Invited talks at universities and research labs: Harvard, MIT, Yale, Princeton, UC Berkeley, Stanford, Carnegie Mellon Univ., Univ. of Washington, Univ. of Michigan, Univ. of Maryland, UC Santa Cruz, Michigan State Univ., Johns Hopkins Univ., Brigham Young Univ., Univ. Colorado at Boulder, Univ. of Minnesota, Georgia Institute of Technology, UC San Diego, New York Univ., Columbia Univ., Univ. of Toronto, Indian Institute of Science, Indian Institutes of Technology (Delhi, Bombay, Kanpur, Chennai), Int'l Institute of Information Technology (Bangalore, Hyderabad), Makerere University (Kampala, Uganda), Google, Intel, IBM, Microsoft, Yahoo!,

O'Reilly ETech, Electronic Frontier Foundation, TTI/Vanguard, Singularity University, Confederation of Indian Industry, TiE, Asian Development Bank Institute, OECD, United Nations, World Bank, WHO, etc.

Classes Taught

SI 710.005: Philosophical Foundations to ICT and Social Change (Winter 2017)
SI 430: Information Technology & Global Society, University of Michigan (Winter 2016, Winter 2015)
SI 501: Contextual Inquiry and User Needs Assessment, University of Michigan (Fall 2017; Winter 2016)
C283: Information and Communication Technologies and Development, UC Berkeley (Spring 2011)
Calculus I, Ashesi University, Ghana (Fall 2002)

Research Grants Awarded

The Gabii Digital Publication Collaboratory. (2017). Co-PI with Nic Terrenato, Naomi Silver, David Stone, Charles Watkinson, University of Michigan Humanities Collaboratory: *\$69,834 over six months.*

Identifying Technical and Non-technical Feature Requirements to Generate Income-Earning Opportunities for Inexperienced Entrepreneurs (2017-2019). Co-PI with Tawanna Dillahunt, Joyojeet Pal. NSF EAGER: *\$150,000 over two years.*

Reducing prejudice against and among Muslim Arab Americans: A randomized field experiment comparing three de-biasing interventions (2016-2017). Co-PI with Yan Chen, Ann Lin. Russell Sage Foundation: *\$149,277 over eighteen months.*

Arab American Identities After Two Decades of Crisis (2016-2017). Co-PI with Yan Chen, Ann Lin. University of Michigan MCubed Award: *\$15,000.*

Global Heartbeat: Toward a Planet-Wide Shared Experience (2015-2017). PI with Sophia Brueckner. National Academies of Science, Engineering, and Medicine and Keck Foundation: *\$100,000 over two years.*

Randomized controlled trial of the effectiveness of video-based extension (2014-2016). Co-PI with Dean Karlan, Katya Vasilaky, Tushi Baul. Digital Green: *\$330,000 over three years.*

Investigating technology-mediated faculty-student interactions among Ghanaian students. Co-PI with John Boateng, University of Ghana. University of Michigan Africa Studies Center: *\$10,000.*

Landscape study of electronic devices for agricultural extension (2010-2011). Co-PI with Paul Polak. Bill & Melinda Gates Foundation: *\$425,257 over two years.*

Exploration of information and communication technologies and international development at UC Berkeley (2010). Nokia Research: *\$150,000 over one year.*

Technology for emerging markets (2004-2009). Microsoft Research: *\$3,200,000 over five years.*

Digital geographics (2004-2008). Microsoft Research: *\$1,200,000 over four years.*

Always with you: Experiment in hand-held philanthropy (2006). Co-PI with Leba Haber Rubinoff, Karun Koernig. MacArthur Foundation Digital Media and Learning: *\$72,000 over one year.*

A modular toolkit for vision and robotics (1997-2001). Under Co-PIs Gregory D. Hager and Paul Hudak. National Science Foundation: *\$1,223,090 over four years.*

Non-Research Fundraising Activity

Village Health Works (2014), as board member and Seattle committee member. *Private donations totaling \$200,000.*

Digital Green (2009-2012), as board chair. Bill & Melinda Gates Foundation: *\$2,999,000 over three years.*

Innovations for Poverty Action (2012-2013), as board fundraising chair. *Private donations totaling \$1,499,221.*

PlanetEye (2005), licensing of Microsoft-internal IP to external start-up company. *Single-investor investment of \$2,000,000.*

Professional Service

- Co-Editor-in-Chief (2012-present) *Information Technologies and International Development*
- Co-founder, Honorary Chair (2009), General Chair (2007, 2015), Program Committee Chair (2006, 2010), Steering Committee Member, *International Conference on Information and Communication Technology and Development* (2005-present)
- Steering Committee (2009-present), *ACM SIGDEV*.
- Program committee member, (2009-present), ACM Symposium on Computing for Development (ACM DEV).
- Associate Editor and Editorial Board Liaison (2006-2011), *Information Technologies for International Development*
- Editor (2008, 2009), special issues, *Information Technologies for International Development*

- Research Advisor (2007-present), Impact of Public Access to Information research project, telecentre.org, International Research and Development Centre
- Judge (2008), Microsoft *Imagine Cup Rural Innovation Award*
- Editor (2008), special issue, *IEEE Computer*. June 2008.
- Local Chair (2007), *ACM Conference on Geographic Information Systems*.
- Co-organizer (2007), International Research and Development Centre, *Research Methods Workshop*
- Judge (2007, 2008), Mentor (2006) *Global Social Entrepreneurship Competition*, University of Washington
- Co-chair (2008), Workshop on Networked Systems for Developing Regions at *ACM SIGCOMM*, Seattle, August 2008.
- Co-chair (2007), Workshop on Artificial Intelligence in ICT for Development at *Int'l Joint Conference on Artificial Intelligence (IJCAI 2007)*, Hyderabad, January 2007.
- Tutorial Co-chair (2007), Information and Communication Technologies and Development at *Int'l Joint Conference on Artificial Intelligence (IJCAI 2007)* Hyderabad, January 2007.
- Co-chair (2007), developing regions track at *World Wide Web Conference (WWW2007)*, Banff, Canada, June, 2007.
- Co-chair (2007), Workshop on Computer Vision for Developing Regions at *IEEE Int'l Conference on Computer Vision (ICCV2007)*, Rio de Janeiro, Brazil, Oct 2007.
- Reviewer (2004), NSF Panel on Computer Vision and Multimedia
- Co-chair (2001), Workshop on Exemplar Based Vision at *IEEE Int'l Conference on Computer Vision and Patter Recognition (CVPR2001)*, Kauai, Hawaii, Dec 2001.
- Program committee member for International Conference on Computer Vision, International Conference on Computer Vision and Pattern Recognition, European Conference on Computer Vision, etc.
- Reviewer for CHI, International Journal of Computer Vision, Image and Vision Computing, SIGGRAPH, International Conference on Computer Vision, International Conference on Computer Vision and Pattern Recognition, European Conference on Computer Vision, etc.

PhD Thesis Committees

Indrani Medhi	Indian Institute of Technology, Bombay
William Tucker	University of Cape Town (2009), as reviewer
Jacques Panchard	Ecole Polytechnic Federale, Lausanne (2008)
Ying Wu	Univ. of Illinois, Urbana-Champaign (2003)

Pre-Candidacy Committees

Priyank Chandra	University of Michigan School of Information (2016)
Allan Martell	University of Michigan School of Information (2015)
Tamy Guberek	University of Michigan School of Information (2015)

Master's Student Theses / Independent Project Supervision

Lindsay Slater	University of Michigan School of Information (2016-17)
Ayoola White	Simmons College School of LIS (2016)
Purva Kulkarni	University of Michigan School of Information (2015-16)
Chieh-Lin Wu	University of Michigan School of Information (2016)

Undergraduate Student Independent Project Supervision

Lauren Guldan	University of Michigan School of Information (2016-2017)
Joey Carron	University of Michigan School of Information (2016)
Alex Horak	University of Michigan School of Information (2016)

Student Interns

Listed below are name, affiliation, and status (at time of internship), of students directly mentored on research, for periods of typically three months.

Rebecca Walton	University of Washington, PhD candidate
Rohit Chaudhri	University of Washington, PhD candidate
Sunandan Chakraborty	IIT Kanpur, masters
Itamar Kimchi	Massachusetts Institute of Technology, undergraduate
Abigail Cauchi	University of Malta, undergraduate
Jennifer Fenech	University of Malta, undergraduate
Saleema Amershi	University of Washington, PhD candidate
Karl Fenech	University of Malta, undergraduate
Luana Micallef	University of Malta, undergraduate
Lilian Zia	Cambridge University, MBA
David Darkwa	Ashesi University, undergraduate
Jay Chen	New York University, PhD candidate
Ghulam Murtaza	Lahore University of Management Sciences, PhD candidate
Saurabh Sanghvi	Carnegie Mellon University, undergraduate
Ermine Teves	Carnegie Mellon University, undergraduate
Kaleem Rahman	Carnegie Mellon University (Qatar), undergraduate
Aysha Siddique	Carnegie Mellon University (Qatar), undergraduate
Leah Findlater	University of British Columbia, PhD candidate
Gerry Chu	Carnegie Mellon University, masters
Sambit Satpathy	Birla Institute of Technology and Science, undergraduate
Srikanth Adimulam	Birla Institute of Technology and Science, undergraduate
Natalie Linnell	University of Washington, PhD candidate
Sabine Dinges	University of Erfurt, masters
Gursharan Singh	University of Pennsylvania, masters
Divya Kumar	University of San Diego, masters
Daniel Sorensen	Cambridge University, MBA
James Sanders	Cambridge University, MBA
Chandima Patabandhige	Mortuwa University, masters
Revi Sterling	University of Colorado, Boulder, PhD candidate
Daniel Ofori-Dankwa	Ashesi University, undergraduate

Paul Javid	University of Washington, undergraduate
Angelin Baskaran	Massachusetts Institute of Technology, undergraduate
Bharathi Pitti	Birla Institute of Technology and Science, undergraduate
Sushma Uppala	Birla Institute of Technology and Science, undergraduate
Harivardan Jayaraman	Sathyabama Inst. of Science and Tech, undergraduate
Savita Bailur	London School of Economics, PhD candidate
Renee Kuriyan	University of California, Berkeley, PhD candidate
R. J. Honicky	University of California, Berkeley, PhD candidate
Anmol Sheth	Pune University, masters
Russell Kondaveti	Birla Institute of Technology and Science, undergraduate
Rajkumar Parihar	Birla Institute of Technology and Science, undergraduate
Gauravdeep Singh	Birla Institute of Technology and Science, undergraduate
Rohan Murthy	Harvard University, PhD candidate
Tapan Parikh	University of Washington, PhD candidate
Swagath Kannan	Birla Institute of Technology and Science, undergraduate
Ganesh Ananthanarayan	Birla Institute of Technology and Science, undergraduate
Yamini Kannan	Birla Institute of Technology and Science, undergraduate
Aman Sagar	National Institute of Design, masters
Joyojeet Pal	University of California, Berkeley, PhD candidate
Janaki Srinivasan	Int'l Institute of Information Technology, masters
Ramaswamy Hariharan	University of California, Irvine, PhD candidate
Rahul Gupta	Indian Institute of Technology, Delhi, undergraduate
Le Lu	Johns Hopkins University, PhD candidate
Ying Wu	University of Illinois, Urbana-Champaign, PhD candidate
Rogério Feris	University of Sao Paulo, masters

University / Department Service

(All at University of Michigan)

Faculty Advisory Committee to Office of Diversity, Equity & Inclusion (2016-present)
 Academic Affairs Advisory Committee (2016-present)
 Master's Program Committee, vice chair (2016-17)
 Dean's Advisory Committee member (2015-16)
 Dean Search Committee member (2015-16)
 Faculty Search Committee member, Human-Computer Interaction (2015-16)
 Ad Hoc Committee member, Human-Computer Interaction (2015-16)
 Michigan Interactive & Social Computing group co-chair (2015-2016)
 Faculty & Staff Giving Campaign faculty co-chair (2016)
 Council on Global Engagement, department representative (2015-2016)
 T&P subcommittee member for School of Information faculty (2015)
 Master's Program Committee member (2015)

Entrepreneurship

- Advisor, Costnomics (2010)
- Co-founder and board member, Digital Green Foundation (2008-present)

- Co-inventor, founding patent portfolio for PlanetEye (2007)

General Service / Volunteer Experience

2014-present	Board member, Humansphere (Seattle, WA)
2012-present	Board president, Digital Green Foundation (Berkeley, CA)
2012-present	Board member, Village Health Works (New York, NY)
2012-2015	Advisory board member, Literacy Bridge (Seattle, WA)
2012	Volunteer and teacher, Technology Access Foundation (Seattle, WA)
2011-2016	Advisory board member, Grameen Foundation (Seattle, WA)
2010-present	Board member, Innovations for Poverty Action (New Haven, CT)
2009-2015	International Advisory Board member, Institute for Information, Communication, and Development (The Hague, Netherlands)
2006-present	Board member, CLT India (Bangalore, India)
2007-2009	Board member, Hope Foundation India (Bangalore, India)
2008-2009	Board member, Saral Services (Secunderabad, India)
2001-2004	Volunteer, Evergreen Hospice (Kirkland, WA)

Patents

1. U.S. Patent 7,757,171 Media authoring and presentation (2010)
2. U.S. Patent 7,756,294 Machine vision system and method for estimating and tracking facial pose (2010)
3. U.S. Patent 7,751,317 Cost-aware networking over heterogeneous data channels (2010)
4. U.S. Patent 7,747,040 Machine vision system and method for estimating and tracking facial pose (2010)
5. U.S. Patent 7,720,652 Modeling location histories (2010)
6. U.S. Patent 7,712,041 Multi-user multi-input desktop workspaces and applications (2010)
7. U.S. Patent 7,710,423 Automatic layout of items along an embedded one-manifold path (2010)
8. U.S. Patent 7,643,035 High dynamic range image viewing on low dynamic range displays (2010)
9. U.S. Patent 7,603,621 Computer interface for illiterate and near-illiterate users (2009)
10. U.S. Patent 7,577,294 Background maintenance of an image sequence (2009)
11. U.S. Patent 7,551,181 Image region filling by exemplar-based inpainting (2009)
12. U.S. Patent 7,548,648 Background maintenance of an image sequence (2009)
13. U.S. Patent 7,539,327 System and process for bootstrap initialization of nonparametric color models (2009)
14. U.S. Patent 7,515,750 Background maintenance of an image sequence (2009)
15. U.S. Patent 7,508,419 Image exchange with image annotation (2009)
16. U.S. Patent 7,492,375 High dynamic range image viewing on low dynamic range displays (2009)
17. U.S. Patent 7,489,817 Background maintenance of an image sequence (2009)

18. U.S. Patent 7,475,060 Browsing user interface for a geo-coded media database (2009)
19. U.S. Patent 7,458,029. System and process for controlling a shared display given inputs from multiple users using multiple input modalities. (2008)
20. U.S. Patents 7,120,293, 7,421,115, 7,444,015, 7,444,016. Interactive images. (2006-2008)
21. U.S. Patent 7,383,508. Computer user interface for interacting with video cliplets generated from digital video. (2008)
22. U.S. Patent 7,315,647. System and method providing subpixel-edge-offset-based determination of opacity. (2008)
23. U.S. Patent 7,272,243. Machine vision system and method for estimating and tracking facial pose. (2007)
24. U.S. Patent 7,269,301. System and method providing subpixel-edge-offset-based determination of opacity. (2007)
25. U.S. Patent 7,222,300. System and method for automatically authoring video compositions using video cliplets. (2007)
26. U.S. Patent 7,167,578. Probabilistic exemplar-based pattern tracking. (2007)
27. U.S. Patent 7,136,525. System and method for background maintenance of an image sequence. (2006)
28. U.S. Patent 7,068,309. Image exchange with image annotation. (2006)
29. U.S. Patent 7,046,825, 7,046,826. Machine vision system and method for estimating and tracking facial pose (2006)
30. U.S. Patent 7,035,431. System and method for probabilistic exemplar-based pattern tracking. (2006)
31. U.S. Patent 6,987,520. Image region filling by exemplar-based inpainting. (2006)
32. U.S. Patent 6,937,745. Machine vision system and method for estimating and tracking facial pose. (2005)
33. U.S. Patent 6,937,744. System and process for bootstrap initialization of nonparametric color models. (2005)
34. U.S. Patent 6,839,463. System and method providing subpixel-edge-offset-based determination of opacity. (2005)
35. U.S. Patent 6,816,847. Computerized aesthetic judgment of images. (2004)
36. U.S. Patent 6,806,898. System and method for automatically adjusting gaze and head orientation for video conferencing. (2004)
37. U.S. Patent 6,792,135. System and method for face detection through geometric distribution of a non-intensity image property. (2004)
38. U.S. Patent 6,757,571. System and process for bootstrap initialization of vision-based tracking systems. (2004)
39. U.S. Patent 6,741,756. System and method for estimating the orientation of an object. (2004)
40. U.S. Patent 6,741,755. System and method providing mixture-based determination of opacity. (2004)
41. U.S. Patent 6,502,082. Modality fusion for object tracking with training system and method. (2002)
42. U.S. Patent 6,499,025. System and method for tracking objects by fusing results of multiple sensing modalities. (2002)

43. U.S. Patent 6,229,918. System and method for automatically detecting clusters of data points within a data space. (2001)
44. U.S. Patent 5,889,505. Vision-based six-degree-of-freedom computer input device. (1999)

Several other patents filed and pending.

Selected Appearances in Media

- Mention: Colin, Chris. (2017). The battle for the soul of San Francisco. *Wired*, Feb. 7, 2017. https://www.wired.com/2017/02/san_francisco_gentrification_tenderloin_glide/
- Interview: Lotman, Mo. (2016). Podcast #6: Kentaro Toyama on the fallacies of tech in development. Technoskeptic, Oct. 26, 2016. <https://thetechnoskeptic.com/podcast006/>
- Interview: *BBC World Service*. (2016). Do we need artificial intelligence? Oct. 23, 2016. <http://www.bbc.co.uk/programmes/p04c7kdx>
- Mention: Frederick, Denver. (2016). Podcast: Turning tech toward social change. *Chronicle of Philanthropy*, Oct. 21, 2016. <https://www.philanthropy.com/resources/audio/podcast-turning-tech-toward-s/6115/>
- Quote: Henry, Alexa. (2016). Online gaming platform aims to teach social and emotional skills. *Education Week*, Oct. 18, 2016. <http://www.edweek.org/ew/articles/2016/10/19/online-gaming-platform-aims-to-teach-social.html>
- Mention: Kardaras, Nicholas. (2016). Screens in schools are a \$60 billion hoax. *Time*, Aug. 31, 2016. <http://time.com/4474496/screens-schools-hoax/>
- Mention: Lee, Elizabeth. (2016). Is Internet important to economic development? *Voice of America*, May 30, 2016. <http://learningenglish.voanews.com/a/is-fast-internet-most-important-to-economic-development/3343812.html>
- Mention: Day, Matt. (2016). Microsoft not done reinventing itself, Nadella tells local leaders. *Seattle Times*, May 2, 2016. <http://www.seattletimes.com/business/microsoft/microsoft-not-done-reinventing-itself-nadella-tells-local-leaders/>
- Mention: Chang, Ann Mei. (2016). Fewer pilots, more scale: Making digital development work. *Huffington Post*, Feb. 29, 2016. http://www.huffingtonpost.com/ann-mei-chang/fewer-pilots-more-scale-m_b_9345068.html
- Interview: Chernich, Annie. (2016). Empty tech promises. *Public Radio International: Innovation Hub*, Mar. 4, 2016. <http://blogs.wgbh.org/innovation-hub/2016/3/4/toyama-geek/>
- Mention: Mertens, Maggie. (2016). How tablets and tech are revolutionizing education in Myanmar. *Glamour*, Mar. 21, 2016. <http://www.glamour.com/story/how-tablets-and-tech-are-revol>
- Quote: McFarland, M. Why Facebook's push to end poverty is actually self-serving. *Washington Post*, Feb. 16, 2016. <https://www.washingtonpost.com/news/innovations/wp/2016/02/16/when-facebook-gives-internet-to-the-poor-the-real-winner-isnt-whom-you-think/>

Mention: Anderson, A. Big Bang Data offers worries, wonders and some cats. *New Scientist*, Dec. 25, 2015. <https://www.newscientist.com/article/dn28707-big-bang-data-offers-worries-wonders-and-some-cats/>

Mention: Stanley, A. Silicon Valley's new philanthropy, *New York Times*, Oct. 31, 2015. <http://www.nytimes.com/2015/11/01/opinion/siliconvalleys-new-philanthropy.html>

Featured: Bellman, E. Epic fail: Tech tricks are no fix for developing-world problems. *Wall Street Journal*, Sept. 4, 2015. <http://blogs.wsj.com/indiarealtime/2015/09/04/epic-fail-tech-tricks-are-no-fix-for-developing-world-problems/>

Interview: Cornish, A. Author: Tech firms' rhetoric outpaces the actual good they do. *NPR: All Tech Considered*, Aug. 3, 2015. <http://www.npr.org/sections/alltechconsidered/2015/08/03/425639479/author-tech-firms-rhetoric-outpaces-the-actual-good-they-do>

Interview: Purdy, M. Integrating technology too tightly with education presents its own kind of problems. *Public Radio International*, Jul. 27, 2015. <http://www.pri.org/stories/2015-07-27/integrating-technology-too-tightly-education-presents-its-own-kind-problems>

Quote: Maney, Kevin. (2015). We're doomed! And it's all Silicon Valley's fault! *Newsweek*, July, 2015. <http://www.newsweek.com/2015/07/24/behind-fear-technology-dooming-us-all-352699.html>

Quote: Senior, J. The case against laptops in the classroom. *New York Magazine*, Jul. 9, 2015. <http://nymag.com/scienceofus/2015/07/>

Interview: Author Kentaro Toyama, *PBS: Tavis Smiley*, Jul. 9, 2015. <http://www.pbs.org/wnet/tavissmiley/interviews/author-kentaro-toyama/>

Interview: Canty, C. Kentaro Toyama discusses the limitations of technology on "Stateside with Cynthia Canty." *Michigan Radio: The Next Thing*, Jun. 29, 2015. <http://michiganradio.org/post/sure-theres-app-does-it-work-michigan>

Interview: Wallace, N. Tech's no panacea for saving the world, says computer scientist. *Chronicle of Philanthropy*, Jun. 17, 2015. <https://philanthropy.com/article/Tech-s-No-Panacea-for-Saving/230857>

Feature: Giridharadas, A. Taking a tire iron to techie triumphalism. *New York Times*, Jun. 8, 2015. <http://www.nytimes.com/2015/06/09/us/taking-a-tire-iron-to-techie-triumphalism.html>

Feature: McFarland, Matt. He was certain technology would save the world. Here's what changed his mind. *Washington Post*, Jun. 3, 2015. <https://www.washingtonpost.com/news/innovations/wp/2015/06/03/he-was-certain-technology-would-save-the-world-heres-what-changed-his-mind/>

Interview: Mitchell, G., B. Thompson. Kentaro Toyama's Geek Heresy. *BBC Radio*, May 26, 2015. <http://www.bbc.co.uk/programmes/p02rq85t>

Interview: Wai, J. The power of wisdom to enact social change. *Psychology Today*, May 19, 2015. <https://www.psychologytoday.com/blog/finding-the-next-einstein/201505/the-power-wisdom-enact-social-change>

Interview: Bergstein, B. Putting technology in its place. *MIT Technology Review*, Apr. 15, 2015. <https://www.technologyreview.com/s/536701/putting-technology-in-its-place/>

Quote: Bornstein, D. Where YouTube meets the farm. *New York Times* blog, (Apr. 3, 2013) <http://opinionator.blogs.nytimes.com/2013/04/03/where-youtube-meets-the-farm/>

Television panel: Al Jazeera (Jan. 10, 2013)

Mention: Editors of the New York Times, Stone Links, *New York Times* blog (Feb. 8, 2012) <http://opinionator.blogs.nytimes.com/2012/02/08/stone-links-20/>

Mention: Rowan, D. Kinect for Xbox 360: The inside story of Microsoft's secret 'Project Natal.' *Wired*, Oct. 29, 2010.
<http://www.wired.co.uk/magazine/archive/2010/11/features/the-game-changer>

Quote: Stross, R. Two billion laptops? It may not be enough. *New York Times*, Apr. 18, 2010. <http://www.nytimes.com/2010/04/18/business/18digi.html>

Quote: Mollman, S. Human behavior: the key to future tech developments. *CNN*, Oct. 22, 2009. <http://www.cnn.com/2009/TECH/10/22/digital.anthropology/>

Feature: Vance, A. Microsoft goes far afield to study emerging markets. *New York Times*, Oct. 27, 2008.
<http://www.nytimes.com/2008/10/27/technology/companies/27microsoft.html>

Feature: Bahree, Megha. Computing at the bottom of the pyramid. *Forbes Magazine*, Sept. 28, 2008. <http://www.forbes.com/forbes/2008/0929/074a.html>

Mention: Greene, J. Troubling exits at Microsoft. *Bloomberg Business*, Sept. 25, 2005.
<http://www.bloomberg.com/news/articles/2005-09-25/troubling-exits-at-microsoft>

Quote: O'Connell, P. L. Online Diary, *New York Times*, Oct. 23, 2003.
<http://www.nytimes.com/2003/10/23/technology/online-diary.html>

Mention: Discover Magazine. The Surfball. *Discover Magazine*, May 1, 1997.

Miscellaneous

Fluent in English and Japanese.