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RUTGERS UNIVERSITY

New Brunswick, NJ

Assistant Professor (tenure-track), Department of Library and Information Science

Sep 2014 –

Associate Member of Graduate Faculty, Department of Computer Science.

Associate Faculty Member, WINLAB.

Director, Behavioral Informatics Lab.

- Classes taught: Data Analytics for Information Professionals, Social Informatics, Foundations of Data Science.
- Research Interests: Computational Social Science, Multimedia Information Systems, Data Analytics.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Cambridge, MA

Visiting Professor, Media Lab

Sep 2014 –

- Collaborative research on understanding and shaping human behavior using social, behavioral, 'big' data.

PROFESSIONAL PREPARATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Cambridge, MA

Post-Doctoral Associate, Human Dynamics Group, MIT Media Lab

Sep 2012-Aug 2014

- Research Focus: Understanding and influencing human behavior using social, behavioral, 'big' data.
(Mentor: Professor Alex 'Sandy' Pentland)
- Research Interests: Social Reality Mining, Computational Social Science, Personal Data Analytics.

UNIVERSITY OF CALIFORNIA, IRVINE

Irvine, CA

Ph.D., Information and Computer Science

2007-2012

- Thesis Topic: "Personalized Situation Recognition" (Advisor: Professor Ramesh Jain)
- Graduation: Aug 2012.
- Research Interests: Personalized Decision Systems, Multimedia Systems, Social Media.

NATIONAL UNIVERSITY OF SINGAPORE

Singapore

Master of Computing, (Computer Science)

2003-2005

Bachelor of Engineering, (Computer Engineering)

1998-2002

- Master's Thesis: "Cooperative multi-camera surveillance using model predictive control".
- Fully sponsored for undergraduate studies under the SIA-NOL scholarship. (One of 25 candidates selected from over 8,000 applicants nation-wide in India).

AWARDS AND ACHIEVEMENTS

- **Distinguished Achievement in Research** Award, Library and Information Science Department, Rutgers University, 2015.
- Selected as a “**Rising Star**” **Speaker** for the inaugural Frontiers of Multimedia workshop at ACM International Conference on Multimedia, 2015. This includes a \$1,000.00 travel grant.
- **1st prize** for predicting crime patterns in London in **Datathon on “Big Data for Social Good”** organized by O2, MIT, Telefonica and Open Data Institute, at Campus Party, London, Sep 2013.
- Selected as an “**Emerging Leader in Multimedia Research**”, by **IBM Research Labs, NY**. One of 10 selected world-wide in 2009.
- **Best Paper Award** at ACM Workshop on Social Media (WSM 2009) co-located with ACM Multimedia Conference.
- **Best Student Paper** at IEEE Workshop on Situation Management (SIMA 2009), co-located with IEEE Military Communications conference.

RESEARCH GRANTS

- National Science Foundation, CRII: CHS: Cyberbullying Detection Using Content and Social Network Analysis, Role: (Sole) PI, 2015-2017. \$174, 248.00.
- Google Research Award, Predicting Search Behavior Using Physical and Online Explorations, Role; 2016, Co-PI, PI: Chirag Shah, \$62,813.00.
- SCI Research Development Grant, Predicting User Well-being via Socio-Mobile data, Role: (Sole) PI, 2015-2015. \$7,500.00.
- SCI Research Development Grant, Real-time Diversity Analytics, Role: (Sole) PI, 2016-2016. \$3,500.00.

TEACHING

- **Teaching at Rutgers University:** **2014-**
 - Fall 2014
Data Analytics for Information Professionals: Ratings: 4.60/5.00 (undergrad); 4. 57/5.00 (graduate)
 - Spring 2015
Data Analytics for Information Professionals: Ratings: 4.57/5.00 (undergrad); 4. 50/5.00 (graduate)
 - Fall 2015
Data Analytics for Information Professionals (Online Class) 4.55/5.00 (undergrad); 3.89/5.00 (graduate)
Social Informatics (Hybrid: Online/In-Person Class). Rating: 4.33/5.00 (undergrad)
- **Teaching at Institute of Technical Education, Singapore** **2002-2006**

Four years of full-time teaching experience as a Lecturer. Classes taught (at post-secondary education level) included Web Programming, Multimedia Production, and Database Systems. Duties included developing the curriculum, delivering lectures, leading laboratory sessions, and mentoring students on various internal and external projects.

PROFESSIONAL SERVICE

- **Conference/Workshop Organization**
 - Tutorials Chair, ACM International Conference on Multimedia, (2017).
 - Technical Program Committee - Associate Chair, ACM Computer Supported Cooperative Work Conference, Systems track, (2017, 2018).
 - Panels Chair, ACM/IEEE International Joint Conference on Digital Libraries, 2016.
 - Technical Program Committee Area Co-Chair: IEEE International Conference on Multimedia and Expo, Area: Mobile Multimedia, 2015, Torino, Italy.
 - Technical Program Committee Area Co-Chair: ACM International Conference on Multimedia, Area: Big and Broad Multimedia Streams, 2014, Orlando, Florida, USA.
 - Co-organizer: Temporal Networks, Human Dynamics and Social Physics NetSci'14 Symposium, Berkeley California, June 2-6 2014
 - General Co-Chair: First ACM Workshop on 'Personal Data Meets Distributed Multimedia', co-located with ACM Multimedia Conference, Oct 2013, Barcelona, Spain.
- **Editor/Guest editing**
 - Guest Co-editor: IEEE Multimedia magazine, Special Issue on New Signals in Multimedia Systems and Applications: Sensing and Understanding Human Behavior and Interactions, (forthcoming, 2017).
 - Guest Co-Editor: ACM Transactions on Internet Technology Special Section on Advances in Social Computing, 2016.
 - Co-Editor: Geo-Intelligence and Visualization through Big Data Trends, IGI Publishers, 2015.
 - Guest Co-Editor: IEEE Internet Computing Special Issue: Physical-Cyber-Social Computing, 2015
- **Program Committee Member:**
 - ACM International Conference on Multimedia, 2017, 2016, 2015, 2014
 - ACM International Conference on Web Science, 2016
 - IEEE International Conference on Multimedia and Expo, 2014, 2015, 2016
 - ACM International Conference on Multimedia Retrieval, 2013, 2016
 - WWW: workshop on Real-Time Analysis and Mining of Social Streams, 2013,
 - ICWSM: workshop on Real-Time Analysis and Mining of Social Streams, 2012,
 - PerCom: workshop on Semantic Ambient Multimedia Experiences 2012,
 - ACM Multimedia: workshop on Socially Aware Multimedia 2012, 2014
 - Multimedia and Ubiquitous Engineering Conference, 2012.

PUBLICATIONS

Total Citations: 831

H-index: 17

(As per Google Scholar on Oct 5, 2017)

Authored and Edited Books

1. Bozkaya, B., & Singh, V.K. *Geo-Intelligence and Visualization through Big Data Trends* (edited book). Hershey, PA: IGI Global. doi 10.4018/978-1-4666-8465-2, pp. 1-349, 2015
2. Singh, V.K., & Jain, R., *Situation Recognition Using EventShop* (co-authored monograph), Springer, pp. 1-150, ISBN: 978-3-319-30535-6 / 3319305352 (Published: June 2016.)

Journals Articles: Published or Accepted

1. Singh, V.K. & Ghosh, I. (2017), Inferring Individual Social Capital Automatically via Phone Logs. (In Press) Proceedings of the ACM Human Computer Interaction, vol. 1, no. 2, Article 95.
2. Dong, X., Suhara, Y., Bozkaya, B., Singh, V. K., & Pentland, A. (2017) Social Bridges in Community Purchase Behavior, (In Press) *IEEE Transactions on Big Data*.
3. Singh, V. K., Fernandes, D., Kankanhalli, M., & Haenselmann, T. (2016). Decoupled Multicamera Sensing for Flexible View Generation. *Journal of Sensors*, 501, 8137859.
4. Almaatouq, A., Shmueli, E., Nouh, M., Alabdulkareem, A., Singh, V. K., Alsaleh, M., Alarifi, A., Alfaris, A. & Pentland, A. (2016). If it looks like a spammer and behaves like a spammer, it must be a spammer: analysis and detection of microblogging spam accounts. *International Journal of Information Security*, 1-17.
5. de Montjoye, Y. A., Radaelli, L., Singh, V. K., & Pentland, A. (2015). Unique in the shopping mall: On the reidentifiability of credit card metadata. *Science*, 347(6221), 536-539.
6. Singh, V. K., Bozkaya, B., & Pentland, A. (2015). Money Walks: Implicit Mobility Behavior and Financial Well-Being. *PloS one*, 10(8), e0136628.
7. Barnaghi, P., Sheth, A., Singh, V., & Hauswirth, M. (2015). Physical-Cyber-Social Computing: Looking Back, Looking Forward (Guest Editorial). *Internet Computing, IEEE*, 19(3), 7-11.
8. Singh, V. K., Mani, A., & Pentland, A. (2014). Social Persuasion in Online and Physical Networks. *Proceedings of the IEEE*, 102(12), 1903-1910.
9. Shmueli, E., Singh, V. K., Lepri, B., & Pentland, A. (2014). Sensing, Understanding, and Shaping Social Behavior. *Computational Social Systems, IEEE Transactions on*, 1(1), 22-34.
10. Singh, V. K., Freeman, L., Lepri, B., & Pentland, A. S. (2013). Classifying spending behavior using socio-mobile data. *HUMAN*, 2(2), pp-99.
11. Singh, V. K., Pirsiavash, H., Rishabh, I., & Jain, R. (2009). Towards environment-to-environment (e2e) multimedia communication systems. *Multimedia Tools and Applications*, 44(3), 361-388.
12. Singh, V. K., & Kankanhalli, M. S. (2009). Adversary aware surveillance systems. *Information Forensics and Security, IEEE Transactions on*, 4(3), 552-563.
13. Singh, V. K., Atrey, P. K., & Kankanhalli, M. S. (2008). Cooperative multi-camera surveillance using model predictive control. *Machine Vision and applications*, 19(5-6), 375-393.

Book Chapters: Published

14. Srivastav, K.A., Singh, V. K., Bozkaya, B., & Pentland, A. (2015). Assessing Financial Wellbeing of Merchants by Analyzing Behavioral Patterns in Historical Transactions in *Geo-Intelligence and Visualization through Big Data Trends*, pp. (76-93), IGI Global, PA.
15. Singh, V. K., Jain, R., & Kankanhalli, M. (2011). Mechanism design for incentivizing social media contributions. In *Social media modeling and computing* (pp. 121-143). Springer London.

Journals Articles: Under Submission

16. Huang, Q., Singh, V. K., & Atrey, P. K.. Cyber Bullying Detection Using Social Network Analysis, Submitted to: *IEEE Transactions on Computational Social Systems*, 2015.
17. Dong, X., Suhara, Y., Bozkaya, B., Singh, V. K., & Pentland, A. Social Bridges in Community Purchase Behavior, Submitted to: *IEEE Transactions on Big Data*, 2015.

International Peer-Reviewed Conferences: *Proceedings Published*¹

(Subset based on the following criteria: 6-12 pages, double column format, and acceptance rate between 9% and 29%.)

1. **Singh, V. K.**, Atrey, A., & Hegde, S. (2017). Do Individuals Smile More in Diverse Social Company? Studying Smiles and Diversity Via Social Media Photos. (To Appear – Brave New Ideas track) In *Proceedings of the 25th ACM international conference on Multimedia*. ACM. [Acceptance Rate: 29%]
2. **Singh, V. K.**, & Agarwal, R. R. (2016, September). Cooperative phoneotypes: exploring phone-based behavioral markers of cooperation. In *Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing* (pp. 646-657). ACM. [Acceptance Rate: 23.9%]
3. Choi, D., Shah, C., & **Singh, V.** (2016, September). Probing the interconnections between geo-exploration and information exploration behavior. In *Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing* (pp. 1170-1175). ACM. [Acceptance Rate: 23.9%]
4. Almaatouq, A., Alabdulkareem, A., Nouh, M., Shmueli, E., Alsaleh, M., **Singh, V. K.**, Alarifi, A., Alfaris, A., & Pentland, A. S. (2014, June). Twitter: who gets caught? Observed trends in social micro-blogging spam. In *Proceedings of the 2014 ACM conference on Web science* (pp. 33-41). ACM. [Acceptance Rate: 20.1%]
5. **Singh, V. K.**, Freeman, L., Lepri, B., & Pentland, A. S. (2013, September). Predicting spending behavior using socio-mobile features. In *Social Computing (SocialCom), 2013 International Conference on* (pp. 174-179). IEEE. [Acceptance Rate: 9.9%]
6. **Singh, V. K.**, Gao, M., & Jain, R. (2012, October). Situation recognition: an evolving problem for heterogeneous dynamic big multimedia data. In *Proceedings of the 20th ACM international conference on Multimedia* (pp. 1209-1218). ACM. [Acceptance Rate: 20.2%]
7. **Singh, V. K.**, Luo, J., Joshi, D., Lei, P., Das, M., & Stubler, P. (2011, November). Reliving on demand: a total viewer experience. In *Proceedings of the 19th ACM international conference on Multimedia* (pp. 333-342). ACM. [Acceptance Rate: 17.3%]
8. **Singh, V. K.**, Gao, M., & Jain, R. (2010, October). Social pixels: genesis and evaluation. In *Proceedings of the international conference on Multimedia* (pp. 481-490). ACM. [Acceptance Rate: 17.0%]

Other International Peer-Reviewed Conferences and Workshops: *Proceedings Published*¹

9. **Singh, V. K.**, Hegde, S., & Atrey, A. (2017). Towards Measuring Fine-Grained Diversity Using Social Media Photographs. In *Proceedings of the Eleventh International AAAI Conference on Web and Social Media (ICWSM 2017)* (pp. 668-671). [Acceptance Rate: 19%]
10. **Singh, V. K.**, & Jain, A. (2017, May). Toward Harmonizing Self-reported and Logged Social Data for Understanding Human Behavior. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems* (pp. 2233-2238). ACM. [Acceptance Rate: 25%]
11. **Singh, V. K.**, Ghosh, S., & Jose, C. (2017, May). Toward Multimodal Cyberbullying Detection. In *Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems* (pp. 2090-2099). ACM. [Acceptance Rate: 38%]
12. **Singh, V. K.**, Radford, M. L., Huang, Q., & Furrer, S. (2017, February). "They basically like destroyed the school one day": On Newer App Features and Cyberbullying in Schools. In *In Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW)* (pp. 1210-1216). [Acceptance Rate: 34.5%]

¹ Note that in computational disciplines “papers in peer-reviewed conferences are accepted as high-quality scholarly articles.”

1. Expert advisory: <https://homes.cs.washington.edu/~mernst/advice/conf-vs-journal-uscis.pdf>;

2. Computing Research Association (CRA) Advisory: <http://cra.org/resources/best-practice-memos/evaluating-computer-scientists-and-engineers-for-promotion-and-tenure/>

13. **Singh, V.K.**, Huang, Q, and Atrey, P., Automated Cyberbullying Detection Using Probabilistic Socio-Textual Information, *ACM/IEEE International Conference on Advances in Social Networks Analysis and Mining*, (pp. 474-478). 2016
14. Huang, Q., **Singh, V. K.**, & Atrey, P. K. (2014, November). Cyber Bullying Detection Using Social and Textual Analysis. In *Proceedings of the 3rd International Workshop on Socially-Aware Multimedia* (pp. 3-6). ACM.
15. Pongpaichet, S., **Singh, V. K.**, Jain, R., & Pentland, A. P. (2013). Situation fencing: making geo-fencing personal and dynamic. In *Workshop on Personal Data Meets Distributed Multimedia* (pp. 3-10), ACM.
16. **Singh, V. K.** (2011, November). From multimedia data to situation detection. In *Proceedings of the 19th ACM international conference on Multimedia* (pp. 875-876). ACM.
17. R. Jain, **V.K. Singh**, and M. Gao, (2011) Social Life Networks, In *Proceedings of the WWW Workshop on Social Media Engagement*.
18. Gao, M., **Singh, V. K.**, & Jain, R. (2012, June). Eventshop: from heterogeneous web streams to personalized situation detection and control. In *Proceedings of the 4th Annual ACM Web Science Conference* (pp. 105-108). ACM.
19. **Singh, V. K.**, & Jain, R. (2010, April). Structural analysis of the emerging event-web. In *Proceedings of the 19th international conference on World wide web* (pp. 1183-1184). ACM.
20. **Singh, V. K.**, Jain, R., & Kankanhalli, M. S. (2009, October). Motivating contributors in social media networks. In *Proceedings of the first SIGMM workshop on Social media* (pp. 11-18). ACM. **(Best Paper Award)**
21. **Singh, V. K.**, & Jain, R. (2009, October). Situation based control for cyber-physical environments. In *Military Communications Conference, 2009. MILCOM 2009. IEEE* (pp. 1-7). IEEE. **(Best Student Paper)**
22. Paleari, M. L., **Singh, V.**, Huet, B., & Jain, R. (2009, October). Toward environment-to-environment (E2E) affective sensitive communication systems. In *Proceedings of the first ACM international workshop on Multimedia technologies for distance learning* (pp. 19-26). ACM.
23. Saini, M. K., **Singh, V. K.**, Jain, R. C., & Kankanhalli, M. S. (2008, October). Multimodal observation systems. In *Proceedings of the 16th ACM international conference on Multimedia* (pp. 933-936). ACM. [Acceptance Rate: 33.0%]
24. **Singh, V. K.**, Pirsivash, H., Rishabh, I., & Jain, R. (2008, October). Towards environment-to-environment (e2e) multimedia communication systems. In *Proceedings of the 1st ACM international workshop on Semantic ambient media experiences*. (pp. 31-40). ACM.
25. **Singh, V. K.**, & Kankanhalli, M. S. (2007, July). Towards adversary aware surveillance systems. In *Multimedia and Expo, 2007 IEEE International Conference on* (pp. 2038-2041). IEEE. [Acceptance Rate: 45.0%]
26. **Singh, V. K.**, Atrey, P. K., & Kankanhalli, M. S. (2006). Coopetitive multimedia surveillance. In *Advances in Multimedia Modeling* (pp. 343-352). Springer Berlin Heidelberg.
27. Ram, S., Ramakrishnan, K. R., Atrey, P. K., **Singh, V. K.**, & Kankanhalli, M. S. (2006, October). A design methodology for selection and placement of sensors in multimedia surveillance systems. In *Proceedings of the 4th ACM international workshop on Video surveillance and sensor networks* (pp. 121-130). ACM
28. **Singh, V. K.**, & Atrey, P. K. (2005, November). Coopetitive visual surveillance using model predictive control. In *Proceedings of the third ACM international workshop on Video surveillance & sensor networks* (pp. 149-158). ACM.

PATENTS

Lou, J., Joshi, D., Stubler, P., Das, M., Lei, P. & **Singh, V.K.** Method for Media Reliving Playback, *U.S. Patent No. 8879890: Issued November 4, 2014.*

Lou, J., Joshi, D., Stubler, P., Das, M., Lei, P. & **Singh, V.K.** Method for media reliving on demand, *U.S. Patent No. US 908245: Issued 2015/7/14*

INVITED TALKS

- **Keynote Talk:** *Sensing, Understanding, and Shaping Human Behavior*, ACM International Workshop on Computational Models of Social Interactions: Human-Computer-Media Communication, co-located with ACM Multimedia Conference, Brisbane, Australia, 2015.
- *Sensing, Understanding, and Shaping Human Behavior*, Connective Media Seminar, CornellTech, NYC, 2015.
- *Sensing, Understanding, and Shaping Human Behavior*, Human Dynamics Group Seminar, MIT Media Lab, Cambridge, MA, 2015.
- *Sensing, Understanding, and Shaping Human Behavior*, 5th International Workshop on Cyber-Physical Cloud Computing, National Institute on Standards and Technology, 2015.
- *Sensing, Understanding, and Shaping Human Behavior*, Bay Area Multimedia Forum, Stanford, CA, 2014.

MEDIA COVERAGE OF RESEARCH ACTIVITIES

- New York Times, With a Few Bits of Data, Researchers Identify ‘Anonymous’ People, <http://bits.blogs.nytimes.com/2015/01/29/with-a-few-bits-of-data-researchers-identify-anonymous-people/>, 2015
- BBC News, Mobile location data 'present anonymity risk', <http://www.bbc.com/news/science-environment-21923360>, 2015.
- Wall Street Journal, Metadata Can Expose Person’s Identity Even Without Name, <http://www.wsj.com/articles/metadata-can-expose-persons-identity-even-when-name-isnt-1422558349>, 2015
- Nature News, People identified through credit-card use alone, <http://www.nature.com/news/people-identified-through-credit-card-use-alone-1.16817>
- Harvard Business Review, There’s No Such Thing as Anonymous Data, <https://hbr.org/2015/02/theres-no-such-thing-as-anonymous-data>, 2015
- More coverage: [MIT Technology Review](#), [PBS](#), [Le Monde \(FR\)](#), [Die Zeit \(DE\)](#), [Die Spiegel \(DE\)](#), [El Pais \(ES\)](#), [RT](#), [The Hill](#), [Telegraph \(UK\)](#), [Scientific American](#), [New Scientist](#), [Five Thirty Eight](#), [Gizmodo](#), [Fast Company](#), [Computer World](#), [ZDNet](#), [Tom's guide](#), [Popular Mechanics](#), [Motherboard](#), [US News](#), [NBC](#), [CNBC](#), [Huffington Post \(US\)](#), [IEEE Spectrum](#), [Phys.org](#), [Radio Canada \(FR\)](#), [Le Vif \(FR\)](#), [Slate \(FR\)](#), [Trends-Tendance \(FR\)](#), [Science et vie \(FR\)](#).
- Rutgers CommInfo Public Relations, Appellate Court Cites Vivek Singh’s Study in Decision Against the NSA, <https://comminfo.rutgers.edu/news/appellate-court-cites-vivek-singhs-study-in-decision-against-the-nsa.html>
- ACM Tech News, University Receives Grant to Prevent Cyberbullying, <http://cacm.acm.org/news/185388-university-receives-grant-to-prevent-cyberbullying/fulltext>