

## MOHAN S. KANKANHALLI

**Business Address:**

School of Computing  
National University of Singapore  
13 Computing Drive, Singapore 117417  
Phone: (+65) 6516-6738  
Email: mohan@comp.nus.edu.sg

**Home Address:**

Block B #07-07, Kent Vale  
105 Clementi Road  
Singapore 129789  
Phone: (+65) 96238560  
Email: kankanhalli@gmail.com

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### Education

- 07/1982–05/1986 **B.Tech. (Hons) in Electrical Engineering.**  
Indian Institute of Technology, Kharagpur.
- 08/1986–05/1988 **M.S. in Computer & Systems Engineering.**  
Rensselaer Polytechnic Institute, Troy, New York, USA.
- 06/1988–10/1990 **Ph.D. in Computer & Systems Engineering.**  
Rensselaer Polytechnic Institute, Troy, New York, USA.

### Professional Appointments

- 07/2016–present **Dean.** School of Computing, National University of Singapore.
- 01/2016–present **Provost's Chair Professor.** Dept. of Computer Science, School of Computing, National University of Singapore.
- 01/2014–06/2016 **Vice Provost for Graduate Education.** National University of Singapore.
- 01/2011–12/2013 **Associate Provost for Graduate Education.** National University of Singapore.
- 07/2007–12/2010 **Vice-Dean (Academic Affairs & Graduate Studies).** School of Computing, National University of Singapore.
- 12/2001–06/2007 **Vice-Dean (Research).** School of Computing, National University of Singapore.
- 07/2005–present **Professor.** Dept. of Computer Science, School of Computing, National University of Singapore.
- 07/2000–06/2005 **Associate Professor.** Dept. of Computer Science, School of Computing, National University of Singapore.
- 05/1998–06/2000 **Senior Lecturer.** Dept. of Computer Science, School of Computing, National University of Singapore.
- 07/1997–06/1998 **Assistant Professor.** Dept. of Electrical Engineering, Indian Institute of Science, Bangalore.
- 10/1990–07/1997 **Associate, Research Staff.** Institute of Systems Science (ISS), National University of Singapore.
- 08/1986–09/1990 **Research Assistant,** ECSE Department, RPI, Troy, New York.

## Visiting Appointments

01/2013–04/2013 **Visitor**. University College London.

01/2004–06/2004 **Visiting Scholar**. University of California, Berkeley.

## Key Leadership Roles

### University Leadership Roles

1. Dean, NUS School of Computing, Jul 2016 – present

- Chief Academic Officer for the School, reporting to the NUS Provost, with overall responsibilities for the whole school consisting of 2 departments, 5 undergraduate programs, 6 Masters programs and 2 PhD programs with an enrolment of 4261 undergraduate students, 721 Masters students and 356 Ph.D. students. The school has 131 faculty members, 218 research staff members and 130 administrative/technical staff members with an average annual on-going sponsored research of S\$45 million.
- Have overseen more than tripling of undergraduate enrolment and quadrupling of Masters enrolment over 5 years.
- Have hired 38 new tenured/tenure-track faculty members and 9 teaching faculty members over 5 years.
- Have successfully articulated the need for and secured funding for construction of 2 new buildings of 14,300 m<sup>2</sup> and 3400 m<sup>2</sup> areas. The building will be ready in 1Q 2022 and 2Q 2023.
- Worked with NUS Development Office to help secure the largest corporate gift in NUS history till now - Sea Group (Singapore's first tech unicorn) has gifted S\$50 million in March 2021. The unrestricted gift is for advancing teaching and research in the School.
- Worked with NUS Development Office to help secure a S\$5.5 million gift from an NUS Alumnus in February 2021 to establish the *Centre for Computing for Social Good and Philanthropy* in the School.
- Established ACE (Advanced Computing for Executive) in 2018 - the executive education arm of the school for developing an alternative revenue stream.
- Established C-TReND (Computing Translational Research and Development) Centre for industry engagement.

2. Vice Provost & Associate Provost for Graduate Education, NUS, Jan 2011 – Jun 2016

- Was in overall charge of graduate education at NUS consisting of 75 Masters programs and 20 doctoral programs in 16 faculties/schools with an enrolment of 7000 Masters students and 4000 Ph.D. students.
- Was responsible for long-term strategy, policy and operational matters including liaising with Singapore's Ministry of Education.
- Chaired the *Board of Graduate Studies* and was Deputy Chair of *University Committee on Education Policy*.

- Undertook a major reform of doctoral education to introduce rigor and student-centricity in the programs. Also laid the foundations for the formal establishment of the NUS Graduate School.
- Built the financial simulation model for student scholarships funding to ensure long-term financial sustainability of graduate programs. Successfully eliminated the existing financial deficit and built a strong financial buffer to cater for future funding shocks.
- Introduced a major focus on graduate student placements and successfully involved the graduate student society for career fairs.
- Worked with the leadership of CGS (Council of Graduate Schools) to successfully hold the Strategic Leaders Global Summit on Graduate Education on the theme of *Implications of "Big Data" for Graduate Education* in Singapore during Sep 27-29, 2015.

3. Vice Dean (Academic Affairs & Graduate Education), NUS School of Computing, Jul 2007 – Dec 2010

- Was the Deputy Chief Academic Officer for the School with oversight responsibilities on graduate education, for faculty research and professional development, for compensation and promotion & tenure of all faculty members.
- Oversaw a major expansion in Ph.D. program from an enrolment of 200 to 400.
- Introduced many reforms in the doctoral programs to improve rigor and placements.
- Introduced graduate student awards to encourage top-quality research.
- Initiated pro-active international outreach by running several thematic research workshops to attract top international graduate students.
- Closely worked with the graduate student body for various student well-being initiatives.

3. Vice Dean (Research), NUS School of Computing, Dec 2001 – Jun 2007

- Transformed the School's research office into a one-stop service center that helped PIs in securing, spending and successfully executing grants.
- Initiated automation of many steps of grantsmanship by building templates and enhancing the grants management system. Did major processes simplification and slashing of bureaucracy. Streamlined the process for the start-up grants for new faculty members.
- Helped triple the School's research funding over six years.

**Research Leadership Roles**

- Director, NUS Center for Research in Privacy Technologies (N-CRiPT), Oct 2018 – present

Led the team of to win the 5-year S\$12 million grant from Singapore's National Research Foundation for the centre to do end-to-end privacy research, for structured and unstructured data, along the entire data life cycle. The centre does work on multimedia privacy, IoT and embedded systems privacy, privacy for data sharing, privacy in machine learning, federated approaches to privacy and privacy risk management. It consists of 15 faculty members from

3 faculties, 13 research staff members and 25 current graduate students (an additional 16 have already graduated). The center has attracted additional S\$1.98 million funding from 7 industry partners.

- Director, Sensor-enhanced Social Media Centre (SeSaMe), Jul 2012 – Sep 2018  
Led the successful award of S\$10 million grant from Singapore’s National Research Foundation for the centre. SeSaMe Research Center focused on long-term research on sensor-enhanced social media that enables linking of static and mobile cyber-physical environments over the Internet by the abstraction of sensing, processing, transportation and presentation and to enable the design of social media applications on cyber-physical systems. The SeSaMe center, which had an external collaboration with Zhejiang University, was evaluated to be successful. This helped the team to secure the grant for N-CRiPT.

### Professional Leadership Roles

- Senior Associate Editor, ACM Transactions on Multimedia Computing, Communications and Applications, Jan 2014 – present.  
In charge recruitment of new Associate Editors, managing conflicts related to the journal and helping the editor-in-chief for strategic matters.
- Associate Editor-in-Chief, IEEE Multimedia, Jan 2018 – present.  
In charge of managing all aspects related to special issues and help the editor-in-chief for any IEEE Publications Board matters.
- Director of Conferences, ACM Special Interest Group on Multimedia (ACM SIGMM), Jul 2009 – Jun 2013.  
Was in overall charge of all aspects of all conferences sponsored by ACM SIGMM. Undertook a major reform of the flagship *ACM International Conference on Multimedia*, bringing in formal processes, ensuring proper planning and financial sustainability.

## Research Interests

**Multimedia Computing, Information Security & Privacy, Image/Video Processing, Social Media Analysis**

## Publications

- **Conference Publications**
  1. Unsupervised Motion Representation Learning with Capsule Autoencoders, Z. Xu, X. Shen, Y. Wong and M. Kankanhalli, *Neural Information Processing Systems (NeurIPS 2021)*, Dec 2021.
  2. Learning to Predict Trustworthiness with Steep Slope Loss, Y. Luo, Y. Wong, M. Kankanhalli and Q. Zhao, *Neural Information Processing Systems (NeurIPS 2021)*, Dec 2021.
  3. Motion = Video - Content: Towards Unsupervised Learning of Motion Representation from Videos, H. Fan and M. Kankanhalli, *ACM Multimedia Asia (ACMMMAsia 2021)*, Dec 2021.
  4. Learning Causal Representation for Training Cross-Domain Pose Estimator via Generative Interventions, X. Zhang, Y. Wong, X. Wu, J. Lu, M. Kankanhalli, X. Li and W. Geng, *International Conference on Computer Vision (ICCV 2021)*, Oct 2021.

5. Human Attributes Prediction under Privacy-preserving Conditions, A. Singh, S. Fan and M. Kankanhalli, *ACM International Conference on Multimedia (ACMMM 2021)*, Oct 2021.
6. Point 4D Transformer Networks for Spatio-Temporal Modeling in Point Cloud Videos, H. Fan, Y. Yang and M. Kankanhalli, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2021)*, Jun 2021.
7. Effective Abstract Reasoning with Dual-contrast Network, T. Zhuo and M. Kankanhalli, *International Conference on Learning Representations (ICLR 2021)*, May 2021.
8. Geometry-aware Instance-reweighted Adversarial Training, J. Zhang, J. Zhu, G. Niu, B. Han, M. Sugiyama, and M. Kankanhalli, *International Conference on Learning Representations (ICLR 2021)*, May 2021.
9. PSTNet: Point Spatio-temporal Convolution on Point Cloud Sequences, H. Fan, X. Yu, Y. Ding, Y. Yang and M. Kankanhalli, *International Conference on Learning Representations (ICLR 2021)*, May 2021.
10. Identifying Worry in Twitter: Beyond Emotion Analysis, R. Verma, C. von der Weth, J. Vachery and M. Kankanhalli, *Workshop on Natural Language Processing and Computational Social Science (NLP+CSS 2020)*, pp.72-82, Nov 2020.
11. Who You Are Decides How You Tell, S. Wu, S. Fan, Z. Shen, M.S. Kankanhalli and A. Tung, *ACM International Conference on Multimedia (ACMMM 2020)*, Oct 2020.
12. Helping Users Tackle Algorithmic Threats on Social Media: A Multimedia Research Agenda, C. von der Weth, A. Abdul, S. Fan and M. Kankanhalli, Brave New Ideas, *ACM International Conference on Multimedia (ACMMM 2020)*, Oct 2020.
13. n-Reference Transfer Learning for Saliency Prediction, Y. Luo, Y. Wong, M.S. Kankanhalli and Q. Zhao, *European Conference on Computer Vision (ECCV 2020)*, Aug 2020.
14. Attacks Which Do Not Kill Training Make Adversarial Learning Stronger, J. Zhang, X. Xu, B. Han, G. Niu, L. Cui, M. Sugiyama and M. Kankanhalli, *International Conference on Machine Learning (ICML 2020)*, Jul 2020.
15. Inferring DQN Structure for High-dimensional Continuous Control, A. Sakryukin, C. Raissi and M. Kankanhalli, *International Conference on Machine Learning (ICML 2020)*, Jul 2020.
16. Nudging Users to Slow down the Spread of Fake News in Social Media, C. von der Weth, J. Vachery and M. Kankanhalli, *IEEE ICME Media-Rich Fake News Workshop (MedFake 2020)*, Jul 2020.
17. Locality-Sensitive Hashing Scheme based on Longest Circular Co-Substring, Y. Lei, Q. Huang, M. Kankanhalli and A. Tung, *ACM International Conference on Management of Data (SIGMOD 2020)*, Jun 2020.
18. COGAM: Measuring and Moderating Cognitive Load in Machine Learning Model Explanations, A. Abdul, C. von der Weth, M. Kankanhalli and B. Lim, *ACM CHI Conference on Human Factors in Computing Systems (CHI 2020)*, Apr 2020.
19. Weakly-Supervised Multi-person Action Recognition in 360-degrees Videos, J. Li, J. Liu, Y. Wong, S. Nishimura and M. Kankanhalli, *IEEE Winter Conference on Applications of Computer Vision (WACV 2020)*, Mar 2020.

20. GradMix: Multi-source Transfer across Domains and Tasks, J. Li, Z. Xu, Y. Wong, Q. Zhao and M. Kankanhalli, *IEEE Winter Conference on Applications of Computer Vision (WACV 2020)*, Mar 2020.
21. Embedding Symbolic Knowledge into Deep Networks, Y. Xie, Z. Xu, M. Kankanhalli, K. Meel, and H Soh, *Neural Information Processing Systems (NeurIPS 2019)*, Dec 2019.
22. Self-supervised Representation Learning using 360 Data, J. Li, J. Liu, Y. Wong, S. Nishimura and M. Kankanhalli, *ACM International Conference on Multimedia (ACMMM 2019)*, Oct 2019.
23. User Diverse Preference Modeling via Multimodal Attentive Metric Learning, F. Liu, Z. Cheng, C. Sun, Y. Wang, L. Nie, and M. Kankanhalli, *ACM International Conference on Multimedia (ACMMM 2019)*, Oct 2019.
24. LiveSense: Contextual Advertising in Live Streaming Videos, X. Chen, Tam V. Nguyen, Z. Shen and M. Kankanhalli, *ACM International Conference on Multimedia (ACMMM 2019)*, Oct 2019.
25. Explainable Video Action Reasoning via Prior Knowledge and State Transitions, T. Zhuo, Z. Cheng, P. Zhang, Y. Wong and M. Kankanhalli, *ACM International Conference on Multimedia (ACMMM 2019)*, Oct 2019.
26. Human-imperceptible Privacy Protection against Machines, Z. Shen, S. Fan, Y. Wong, T. Ng and M. Kankanhalli, *ACM International Conference on Multimedia (ACMMM 2019)*, Oct 2019.
27. Unsupervised Domain Adaptation for 3D Human Pose Estimation X. Zhang, Y. Wong, M. Kankanhalli and W. Geng, *ACM International Conference on Multimedia (ACMMM 2019)*, Oct 2019
28. Augmenting Physiological Time Series Data: A Case Study for Sleep Apnea Detection, K. Nikolaidis, S. Kristiansen, V. Goebel, T. Plagemann, K. Liestl and M. Kankanhalli, *The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECMLPKDD 2019)*, Sep 2019.
29. A Deep Jersey-Bib Number/Text Recognition in Sports and Marathon Images, S. Nag, R. Raghavendra, P. Shivakumara, U. Pal, T. Lu and M. Kankanhalli, *International Conference on Document Analysis and Recognition (ICDAR 2019)*, Sep 2019.
30. Towards Robust ResNet: A Small Step but a Giant Leap, J. Zhang, B. Han, L. Wynter, K.H. Low and M.S. Kankanhalli, *International Joint Conference on Artificial Intelligence (IJCAI 2019)*, pp. 4285-4291, Aug 2019.
31. Quantifying and Alleviating the Language Prior Problem in Visual Question Answering. Y. Guo, Z. Cheng, L. Nie, Y. Liu, Y. Wang and M. Kankanhalli, *ACM SIGIR Conference on Research and Development on Information Retrieval (SIGIR 2019)*, Jul 2019.
32. Learning to Learn from Noisy Labeled Data, J. Li, Y. Wong, Q. Zhao and M. Kankanhalli, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2019)*, Jun 2019.
33. Learning to Detect Human-Object Interactions with Knowledge, B. Xu, Y. Wong, J. Li, Qi.Zhao and M. Kankanhalli, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2019)*, Jun 2019.

34. Emotion-Aware Human Attention Prediction, M. Cordel, S. Fan, Z. Shen and M. Kankanhalli, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2019)*, Jun 2019.
35. Sublinear Time Nearest Neighbor Search over Generalized Weighted Space, Y. Lei, Q. Huang, M. Kankanhalli and A. Tung, *International Conference on Machine Learning (ICML 2019)*, pp. 3773-3781, Jun 2019.
36. Unsupervised Learning of View-Invariant Action Representations, J. Li, Y. Wong, Q. Zhao and M. Kankanhalli, *Conference on Neural Information Processing Systems (NIPS 2018)*, Dec 2018.
37. Multi-modal Preference Modeling for Personalized Product Search, Y. Guo, Z. Cheng, L. Nie, X. Xu and M. Kankanhalli, *ACM International Conference on Multimedia (ACMMM 2018)*, Oct 2018.
38. Looking Beyond a Clever Narrative: Visual Context and Attention are Primary Drivers of Affect in Video Advertisements, A. Shukla, H. Katti, M. Kankanhalli and R. Subramanian, *International Conference on Multimodal Interaction (ICMI 2018)*, oct 2018.
39. EEG-based Evaluation of Cognitive Workload Induced by Acoustic Parameters for Data Sonification, M. Bilalpur, M. Kankanhalli, S. Winkler and R. Subramanian, *International Conference on Multimodal Interaction (ICMI 2018)*, Oct 2018.
40. A<sup>3</sup>NCF: An Adaptive Aspect Attention Model for Rating Prediction, Z. Cheng, Y. Ding, X. He, L. Zhu, X. Song and M. Kankanhalli, *International Joint Conference on Artificial Intelligence (IJCAI 2018)*, Jul 2018.
41. Emotional Attention: A Study of Image Sentiment and Visual Attention, S. Fan, Z. Shen, M. Jiang, B. Koenig, J. Xu, M. Kankanhalli and Q. Zhao, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2018)*, Jun 2018.
42. EPICURE-Aspect-based Multimodal Review Summarization, A. Kashyap, C. von der Weth, Z. Cheng and M. Kankanhalli, *ACM Conference on Web Science (WebSci 2018)*, May 2018.
43. Trends and Trajectories for Explainable, Accountable and Intelligible Systems: An HCI Research Agenda, A. Abdul, J. Vermeulen, D. Wang, B. Lim and M. Kankanhalli, *ACM CHI Conference on Human Factors in Computing Systems (CHI 2018)*, Apr 2018.
44. Aspect-Aware Latent Factor Model: Rating Prediction with Ratings and Reviews, Z. Cheng, Y. Ding, L. Zhu and M. Kankanhalli, *International World Wide Web Conference (WWW 2018)*, Apr 2018.
45. Evaluating Content-Centric vs. User-Centric Ad Affect Recognition, A. Shukla, S. Gullapuram, H. Katti, K. Yadati, M. Kankanhalli and R. Subramanian, *ACM International Conference on Multimodal Interaction (ICMI 2017)*, Nov 2017.
46. Understanding Fashion Trends from Street Photos via Neighbor-Constrained Embedding Learning, X. Gu, Y. Wong, P. Peng, L. Shou, G. Chen and M. Kankanhalli, *ACM International Conference on Multimedia (ACMMM 2017)*, Oct 2017.
47. Affect Recognition in Ads with Application to Computational Advertising, A. Shukla, S. Gullapuram, H. Katti, K. Yadati, M. Kankanhalli and R. Subramanian, *ACM International Conference on Multimedia (ACMMM 2017)*, Oct 2017.

48. Attention Transfer from Web Images for Video Recognition, J. Li, Y. Wong, Q. Zhao and M. Kankanhalli, *ACM International Conference on Multimedia (ACMMM 2017)*, Oct 2017.
49. The Role of Visual Attention in Sentiment Prediction, S. Fan, M. Jiang, B. Koenig, Z. Shen, M. Kankanhalli, and Q.Zhao, *ACM International Conference on Multimedia (ACMMM 2017)*, Oct 2017.
50. Dual-Glance Model for Deciphering Social Relationships, J. Li, Y. Wong, Q. Zhao and M. Kankanhalli, *International Conference on Computer Vision (ICCV 2017)*, Oct 2017.
51. Eye-2-I: Eye-tracking for Just-in-time Implicit User Profiling, K. Ma, Q. Xu, R. Lim, L. Li, T. Sim and M. Kankanhalli, *IEEE International Conference on Signal and Image Processing (ICSIP 2017)*, Aug 2017.
52. Exploiting Music Play Sequence for Music Recommendation, Z. Cheng, J. Shen, L. Nie and M. Kankanhalli, *International Joint Conference on Artificial Intelligence (IJCAI 2017)*, Aug 2017.
53. Semi-supervised Learning for Surface EMG-based Gesture Recognition, Y. Du, Y. Wong, W. Wei, Y. Hu, M. Kankanhalli and W. Geng, *International Joint conference on Artificial Intelligence (IJCAI 2017)*, Aug 2017.
54. MM2RTB: Bringing Multimedia Metrics to Real-time Bidding, X. Chen, B. Chen and M.S. Kankanhalli, *International Workshop on Data Mining for Online Advertising (AdKDD+TargetAd, KDD Workshop)*, Aug 2017.
55. Exploring User-Specific Information in Music Retrieval, Z. Cheng, J. Shen, L. Nie, T.S. Chua and M. Kankanhalli, *ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2017)*, Aug 2017.
56. Optimizing Trade-offs among Stakeholders in Real-time Bidding by Incorporating Multimedia Metrics, X. Chen, B. Chen and M.S. Kankanhalli, *ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2017)*, Aug 2017.
57. Multimedia Signatures for Vehicle Forensics, A. Mehrish, A.V. Subramanyam and M. Kankanhalli, *IEEE International Conference on Multimedia and Expo (ICME 2017)*, pp. 685-690, July 2017.
58. Multi-Camera Action Dataset for Cross-Camera Action Recognition Benchmarking, W. Li, Y. Wong, A.A. Liu, Y. Li, Y.T. Su and M. Kankanhalli, *IEEE Winter Conference on Applications of Computer Vision (WACV 2017)*, Mar 2017.
59. Analysis of Comparators for Binary Watermarks, H. Agarwal, B. Raman, P. Atrey and M. Kankanhalli, *International Conference on Computer Vision and Image Processing*. Advances in Intelligent Systems and Computing, Vol 460, Springer.
60. Multi-stream Deep Learning Framework for Automated Presentation Assessment, J. Li, Y. Wong and M.S. Kankanhalli, *IEEE International Symposium on Multimedia (ISM 2016)*, Dec 2016.
61. Concept Based Hybrid Fusion of Multimodal Event Signals, Y. Wang, C. von der Weth, Y. Zhang, K.H. Low, V.K. Singh and M.S. Kankanhalli, *IEEE International Symposium on Multimedia (ISM 2016)*, Dec 2016.
62. ConTagNet: Exploiting User Context for Image Tag Recommendation, Y.S. Rawat and M.S. Kankanhalli, *ACM International Conference on Multimedia*, pp. 1102-1106, Nov. 2016.



63. Marker-less 3D Human Motion Capture with Monocular Image Sequence and Height-maps, Y. Du, Y. Wong, Y. Liu, F. Han, Y. Gui, Z. Wang, M. Kankanhalli and W. Geng, *European Conference on Computer Vision (ECCV 2016)*, pp. 20-36, Oct 2016.
64. Near-Optimal Active Learning of Multi-Output Gaussian Processes, *AAAI Conference on Artificial Intelligence (AAAI 2016)*, Y. Zhang, T.N. Hoang, K.H. Low and M. Kankanhalli, Feb 2016.
65. SalAd: A Multimodal Approach for Contextual Video Advertising, *IEEE International Symposium on Multimedia (ISM2015)*, X. Chen, T. Nguyen and M. Kankanhalli. Dec 2015.
66. Multi-sensor Self-Quantification of Presentations, *ACM International Conference on Multimedia (ACMMM 2015)*, T. Gan, Y.K. Wong, B. Mandal, V. Chandrasekhar and M. Kankanhalli, Brisbane, Oct 2015.
67. Tweeting Cameras for Event Detection, Y. Wang and M. Kankanhalli, *International Conference on World Wide Web (WWW2015)*, pp. 1231-1241, Florence, Italy, May 2015.
68. A Multimodal Approach for Image De-fencing and Depth Inpainting, S. Jonna, V. Voleti, R. Sahay and M. Kankanhalli, *IEEE International Conference on Advances in Pattern Recognition (ICAPR2015)*, pp. 1-6, Jan 2015.
69. Discovering Person Identity via Large-Scale Observations, Y. Wong, L. Chaisorn and M. Kankanhalli, *Asian Conference on Computer Vision Workshops*, Singapore, Nov 2014.
70. Scalable Decision-Theoretic Coordination and Control for Real-time Active Multi-Camera Surveillance. P. Natarajan, T.H. Hoang, Y.K. Wong, K.H. Low and M. Kankanhalli, *ACM/IEEE International Conference on Distributed Smart Cameras (ICDSC 2014)*, Venezia, Italy, Nov 4-7, 2014.
71. Recovering Social Interaction Spatial Structure from Multiple First-person Views, T. Gan, Y.K. Wong, B. Mandal, V. Chandrasekhar, L. Li, J.H. Lim and M. Kankanhalli, *ACM Multimedia 2014 International Workshop on Socially Aware Multimedia (IWSAM 2014)*, Orlando, FL, USA, Nov 2014.
72. Song Recommendation for Social Singing Community, K. Mao, J. Fan, L. Shou, G. Chen and M. Kankanhalli, *ACM International Conference on Multimedia (ACMMM 2014)*, Orlando, Nov 2014.
73. Multi-View Action Recognition by Cross-domain Learning, W. Nie, A. Liu, J. Yu, Y. Su, L. Chaisorn, Y.K. Wong and M.S. Kankanhalli, *IEEE International Workshop on Multimedia Signal Processing (MMSP 2014)*, Sep 22-24, 2014.
74. View-Invariant Feature Discovering for Multi-Camera Human Action Recognition, H. Lin, L. Chaisorn, Y.K. Wong. A. Liu, Y. Su and M.S. Kankanhalli, *IEEE International Workshop on Multimedia Signal Processing (MMSP 2014)*, Sep 22-24, 2014.
75. Active Learning is Planning: Nonmyopic  $\epsilon$ -Bayes-Optimal Active Learning of Gaussian Processes. T.N. Hoang, K.H. Low, P. Jaillet and M. Kankanhalli, *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD-14) Nectar (New Scientific and Technical Advances in Research) Track, Part III*, LNCS 8726, pages 494-498, Sep 15-19, 2014.

76. No One is Left “Unwatched”: Fairness in Observation of Crowds of Mobile Targets in Active Camera Surveillance. P. Natarajan, K.H. Low and M. Kankanhalli, *European Conference on Artificial Intelligence (ECAI 2014), including Prestigious Applications of Intelligent Systems (PAIS-14)*, Prague, Czech Republic, August 18-22, 2014.
77. Super-resolution De-fencing: Simultaneous Fence Removal and High-resolution Image Recovery using Videos, C. Negi, K. Mandal, R. Sahay and M. Kankanhalli, *IEEE International Workshop on Mobile Multimedia Computing (MMC 2014)*, Chengdu, Jul 2014.
78. Action and Interaction Recognition in First-Person Videos, S. Narayan, M.S. Kankanhalli and K.R. Ramkrishnan, *IEEE CVPR Workshop on Egocentric (First-person) Vision*, Columbus, Jun 2014.
79. Mode of Teaching based Segmentation and Annotation of Video Lectures, Y. Rawat, C. Bhatt and M.S. Kankanhalli, *International Workshop on Content-Based Multimedia Indexing (CBMI 2014)*, Klagenfurt, June 2014.
80. Nonmyopic  $\epsilon$ -Bayes-Optimal Active Learning of Gaussian Processes. T.H. Hoang, K.H. Low, P. Jaillet and M. Kankanhalli. *International Conference on Machine Learning (ICML 2014)*, pages 739-747, Beijing, China, Jun 2014.
81. Decision-theoretic Approach to Maximizing Fairness in Multi-target Observation in Multi-camera Surveillance, P. Natarajan, K.H. Low and M. Kankanhalli, *International Conference on Autonomous Agents and MultiAgent Systems (AAMAS 2014)*, pp. 1521-1522, Paris, May 2014.
82. An Evaluation of Wearable Activity Monitoring Devices, F. Guo, Y. Li, M. Kankanhalli and M. Brown, *ACM Multimedia 2013 Workshop on Personal Data Meets Distributed Multimedia*, Barcelona, Oct 2013.
83. VIP: A Complete Framework for Computational Eye-gaze Research, K.T. Ma, T. Sim and M. Kankanhalli, *ACM Multimedia 2013 Workshop on Human Behavior Understanding*, Barcelona, Oct 2013.
84. Static Saliency vs. Dynamic Saliency: A Comparative Study, T. V. Nguyen, M. Xu, G. Gao, M. Kankanhalli, Q. Tian and S. Yan, *ACM International Conference on Multimedia (ACMMM 2013)*, Barcelona, Oct 2013.
85. Temporal Encoded F-formation System for Social Interaction Detection, T. Gan, Y. Wong, D. Zhang and M.S. Kankanhalli, *ACM International Conference on Multimedia (ACMMM 2013)*, Barcelona, Oct 2013.
86. Seeing Through the Fence: Image De-Fencing using a Video Sequence, V. Khare, R. Sahay and M. Kankanhalli, *IEEE International Conference on Image Processing*, Melbourne, Sep 2013.
87. Hazy Image Enhancement Based on the Full-Saturation Assumption, Y. Xiang, R. Sahay and M.S. Kankanhalli, *IEEE International Conference on Multimedia and Expo (ICME 2013)*, San Jose, Jul 2013.
88. Interactive Video Advertising: A Multimodal Affective Approach, K. Yadati, H. Katti and M.S. Kankanhalli, *International Conference on Multimedia Modeling (MMM 2013)*, Jan 2013.
89. A Multimodal Approach for Online Estimation of Subtle Facial Expression, X. Xiang and M.S. Kankanhalli, *Pacific-Rim Conference on Multimedia (PCM 2012)*, Singapore, Dec 2012.

90. Active Multi-Camera Surveillance of Targets in Uncertain, Partially Observable Environments, P. Natarajan, T. Hoang, K.H. Low and M.S. Kankanhalli, *International Conference on Distributed Smart Cameras (ICDSC 2012)*, Hong Kong, Oct 30 - Nov 2, 2012.
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  98. Finding Interesting Images in Albums using Attention, K. Vaiapury and M.S. Kankanhalli, *Journal of Multimedia*, Vol. 3, No. 4, pp. 2-13, Oct 2008.
  99. Coopetitive Multi-camera Surveillance using Model Predictive Control, V.K. Singh, P.K. Atrey and M.S. Kankanhalli, *Machine Vision and Applications Journal*, Vol. 19, No. 5-6, pp. 375-393, Oct 2008.
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  104. Multimedia Simplification for Optimized MMS Synthesis, W.Q. Yan and M.S. Kankanhalli, *ACM Transactions on Multimedia Computing, Communications and Applications*, Vol. 3, No. 1, Feb 2007.
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109. Experiential Sampling in Multimedia Systems, M.S. Kankanhalli, J. Wang and R. Jain, *IEEE Transactions on Multimedia*, Vol. 8, No. 5, pp. 937-946, 2006.
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112. Analogies Based Video Editing, W.Q. Yan, J. Wang and M.S. Kankanhalli, *Springer Multimedia Systems Journal*, Vol. 11, No. 1, pp. 3-18, 2005.
113. Progressive Color Visual Cryptography, D. Jin, W.Q. Yan and M.S. Kankanhalli, *Journal of Electronic Imaging*, Vol. 14, No. 3, Jul-Sep 2005.
114. Efficient and Robust Key Management for Large Mobile Ad-hoc Networks, B. Zhu, F. Bao, R.H. Deng, M.S. Kankanhalli and G. Wang, *Computer Networks Journal*, Vol. 48, No. 4, pp. 657-682, Jul 2005.
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118. Reversible Watermarking Using a Perceptual Model, M. Awrangjeb and M.S. Kankanhalli, *Journal of Electronic Imaging*, Vol. 14, No. 1, Jan-Mar 2005.
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132. Selectively Meshed Surface Representation, C. Zhou, R.B. Shu and M.S. Kankanhalli, *Computers & Graphics*. Vol. 19, No. 6, pp. 793-804, Dec 1995.
133. Adaptive Marching Cubes, R.B. Shu, C. Zhou and M.S. Kankanhalli, *The Visual Computer*, Vol. 11, No. 4, pp. 202-217, 1995.
134. Color Indexing for Efficient Image Retrieval, G.P. Babu, B.M. Mehtre and M.S. Kankanhalli, *Multimedia Tools and Applications*, Vol. 1, No. 4, pp. 327-348, Nov 1995.
135. Area and Perimeter Computation of the Union of a Set of Iso-rectangles in Parallel, M.S. Kankanhalli and W.R. Franklin, *Journal of Parallel and Distributed Computing*, Vol. 27, No. 2, pp. 107-117, Jun 1995.
136. Color Matching for Image Retrieval, B.M. Mehtre, M.S. Kankanhalli, A.D. Narasimhalu and G.C. Man, *Pattern Recognition Letters*, Vol. 16, pp. 325-331, Mar 1995.
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138. Efficient Linear Octree Generation from Voxels, R.B. Shu and M.S. Kankanhalli, *Image and Vision Computing*, Vol. 12, No. 5, pp. 297-303, Jun 1994.
139. Multidimensional On-line Bin-packing: An Algorithm and its Average-case Analysis, E.C. Chang, W. Wang and M.S. Kankanhalli, *Information Processing Letters*, Vol. 48, No. 3, pp. 121-125, Nov 1993.

140. An Adaptive Dominant Point Detection Algorithm for Digital Curves, M. Kankanhalli, *Pattern Recognition Letters*, Vol. 14, No. 5, pp. 385-390, May 1993.
141. Worst and Average Case Evaluation of Heuristics for Multi-processor Scheduling, R.B. Shu, M.S. Kankanhalli and W. Wang, *International Journal of High Speed Computing*, Vol. 4, No. 4, pp. 333-344, Dec 1992.
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143. Geometric Computing and Uniform Grid Technique, V. Akman, W.R. Franklin, M. Kankanhalli and C. Narayanaswami, *Computer-Aided Design*, Vol. 21, No. 7, pp. 410-420, Sep 1989.

- **Books**

- *Perspectives on Content-based Multimedia Systems*, J.K. Wu, M.S. Kankanhalli, J.H. Lim and D.Z. Hong, Kluwer Academic Publishers, Boston, 2000.

- **Edited Books**

- *Intelligent Multimedia Surveillance: Current Trends and Research*, P. K. Atrey, M. Kankanhalli, and A. Cavallaro (Eds.), Springer, 2013.

- **Book Chapters**

- P. Mulhem, J.H. Lim, W.K. Leow and M.S. Kankanhalli, *Advances in Digital Home Photo Albums*, In “Multimedia Systems and Content-Based Image Retrieval”, edited by Sagarmay Deb, pp. 201-226, Idea Group Publishing, 2003.
- S. Emmanuel and M.S. Kankanhalli, *Digital Rights Management Issues for Video*, In “Multimedia Security Handbook”, edited by Borko Furht and Darko Kirovski, CRC Press, December 2004.
- P. K. Atrey, A. El Saddik, and M. S. Kankanhalli. *Digital Video Authentication*, In “Handbook of Research on Secure Multimedia Distribution”, IGI Publishers, 2008.
- W.Q. Yan and M.S. Kankanhalli, *A Cross-modal Approach for Karaoke Artefacts Correction*, In “Handbook of Digital Media in Entertainment and Arts”, Springer, 2009.
- P. Anandathirtha, K.R. Ramakrishnan, S.K. Raja and M.S. Kankanhalli, *Experiential Sampling for Object Detection in Video*, In “Multimedia Content Analysis: Theory and Applications”, Springer, 2009.
- N.C. Maddage, H.Z. Li and M.S. Kankanhalli, *A Survey of Music Structure Analysis Techniques for Music Applications*, In “Recent Advances in Multimedia Signal Processing and Communications”, Springer, 2009.
- W.Q. Yan and M.S. Kankanhalli, *Colour Image Sharing*, in “ Visual Cryptography and Image Sharing”, CRC Press, 2010.
- M. K. Saini, P. K. Atrey, and M. S. Kankanhalli. *Workload Modeling for Multimedia Surveillance Systems*, In “Emerging Trends in Machine Learning”, Eds. S. Ramanna, L. C. Jain and R. J. Howlett, (Chapter 16), Springer Press, pp 419-440, 2013.

## Patents

- A Method for Utilizing Medium Nonuniformities to Minimize Unauthorized Duplication of Digital Information, **United States Patent**, Issue Date 02-05-1995, US Patent No. 5,412,718. (co-inventors: A. Desai Narasimhalu and Weiguo Wang)
- Controlled Dissemination of Digital Information, **United States Patent**, Issue Date 16-03-1996, US Patent No. 5,499,298. (co-inventors: A. Desai Narasimhalu and Weiguo Wang)
- System, Method and Apparatus for Management of Agricultural Resource, **Singapore Patent**, Issue Date 20-05-2021, Singapore Patent No. 10201704222V. (co-inventors: I. Sen, D. Dasgupta, A. Joseph, A. Bhattacharya and S. Brown)

## Research Grants

- I was the *principal investigator* for the grant RP3999903/A (Digital Image and Video Album) which is a S\$1.24 million project over a period of three and a half years (1/2000 – 6/2003). This was a 50-50 co-funded project by the ASTAR (*Agency for Science, Technology and Research*) and MOE (Ministry of Education).
- I was awarded the ARF grant WBS No. 252-000-160-112 (Cryptographic Techniques for Media Security) which was a S\$43,000 grant for a period of three years (7/2003 – 7/2006).
- I was awarded the ARF grant WBS No. 252-000-255-112 (Coopetitive Visual Surveillance) which was a S\$77,520 grant for a period of three years (3/2006 – 3/2009).
- I was awarded the ARF grant WBS No. 252-000-208-112 (Event Based Family E-Chronicle) which was a S\$146,150 grant for a period of five years (3/2005 – 3/2010).
- I was awarded the NRF/MDA grant WBS No. 252-003-372-490 (Affective Video Analysis and Retrieval) which was a S\$40,500 grant for a period of three years (12/2008 – 12/2011).
- I was awarded the ARF grant WBS No. 252-000-419-112 (Real-time Best View Selection in Cyberphysical Environments) which was a S\$107,000 grant for a period of three years (04/2010 – 04/2013).
- I was awarded the ASTAR SERC PSF grant WBS No. 252-000-436-305 (Characterizing and Exploiting Human Visual Attention for Automated Image Understanding and Description) which was a S\$300,200 grant for a period of three years (08/2010 – 07/2013).
- I was awarded a S\$10 million research grant by NRF Interactive & Digital Media Programme Office for the period of 6 years (07/2012 – 09/2018) to lead the *Sensor-enhanced Social Media (SeSaMe) Centre*. Zhejiang University was its external collaborator.
- I have been awarded a S\$12 million research grant by NRF and IMDA's Smart Systems Research Programme Office for the period of 5 years (10/2018 – 09/2023) to lead the *NUS Centre for Research in Privacy Technologies (N-CRiPT)*.



- I have been awarded a S\$340,000 research grant by Lloyd’s Register Foundation Institute for the Public Understanding of Risk for 3 years (01-01-2019 – 31-12-2021) to develop a risk pulse monitor that can sense public risk perception from social media text, images and video.
- I have been awarded a S\$600,000 grant as a co-PI for the *Understanding from Unified Perceptual Grounding* work-package as part of the ASTAR AME project on “Human-Robot Collaborative AI for Advanced Manufacturing and Engineering” for a period of five years (11/2018 – 11/2023).
- I have been awarded a S\$250,000 research grant by NEC Lab Singapore for 2 years (04/2021 – 03/2023) to work with them for researching into privacy issues for a *GDPR-Compliant Video Surveillance System*.

## Postdocs

1. Weiqi Yan (2001-2005), Associate Professor, Auckland University of Technology, New Zealand.
2. Hadi Hassan Al Saadi (2001-2002), Assistant Professor, University of Petra, Jordan.
3. Palaiahnakote Shivakumara (2005-2007), Associate Professor, University of Malaya, Kuala Lumpur.
4. Ramanathan Subramanian (2008-2010), Associate Professor, University of Canberra, Australia.
5. Rajiv Sahay (2010-2011), Assistant Professor, Indian Institute of Technology, Kharagpur
6. Debashis Sen (2011-2014), Assistant Professor, Indian Institute of Technology, Kharagpur
7. Cheng Zhiyong (2016-2019), Professor, Shandong Academy of Sciences, China.
8. Christian von der Weth (2014-2020), Lecturer, NUS School of Computing.
9. Zhuo Tao (2015-2021), Associate Professor, Shandong Academy of Sciences, China.
10. Jithin Vachery (2019-2021), Lecturer, NUS School of Computing
11. Yong Kang Wong (2014-present)
12. Shaojing Fan (2015-present)
13. Murari Mandal (2020-present)
14. Hehe Fan (2020-present)
15. Kajal Kansal (2021-present)

## PhD Students

1. Sabu Emmanuel, Digital Rights Management for Video Broadcasting, 2002.
2. Zhu Baoshi, Digital Rights Management for Electronic Documents, 2004. (co-advised with Jiankang Wu)
3. Zhu Yongwei, Content-based Music Retrieval by Acoustic Query, 2004.
4. Zhu Bo, Security and Privacy for Large Ad-Hoc Networks, 2005. (co-advised with Robert Deng)
5. Namunu C. Maddage, Content Based Music Structure Analysis, 2005. (co-advised with Changsheng Xu)
6. Pradeep K. Atrey, Information Assimilation in Multimedia Surveillance and Monitoring Systems, 2006.
7. Shao Xi, Content-based Music Summarization, Classification and Retrieval, 2006. (co-advised with Changsheng Xu)
8. Mukesh Saini, Privacy Aware Surveillance System Design, 2012.
9. Chidansh Bhatt, Probabilistic Temporal Multimedia Datamining, 2012.
10. Harish Katti, Human Visual Perception, Study and Applications to Understanding Images and Videos, 2012. (co-advised with Tat-Seng Chua)
11. Wang Xiangyu, Multimedia Decision Fusion, 2012.
12. Prabhu Natarajan, Decision-Theoretic Approach for Controlling and Coordinating Multiple Active Cameras in Surveillance (co-advised with Bryan Low), 2013.
13. Xiang Yangyang, Computational Media Aesthetics for Media Synthesis, 2013.
14. Xiang Xiaohong, Affect Analysis in Video, 2014.
15. Gan Tian, Social Interaction Analysis using a Multi-Sensor Approach, 2015.
16. Yogesh Rawat, Real-Time Assistance in Photography Using Social Media, 2017.
17. Wang Yuhui, Fusing Physical and Social Sensors for Situation Awareness, 2017.
18. Zhang Yehong, Data-Efficient Machine Learning with Multiple Output Types and High Input Dimensions, 2017. (co-advised with Bryan Low)
19. Xiang Chen, Computational Multimedia Advertisement, 2019.
20. Junnan Li, Label Efficient Learning Beyond Manual Annotations, 2019.
21. Bingjie Xu, Human-centered Social Scene Understanding, 2019.
22. Zhang Jingfeng, Robust Learning and Prediction in Deep Learning, 2020.
23. Andrey Sakryukin, Modular Neural Networks, 2021.
24. Lei Yifan, Solving the Distance-aggregation Query in Sub-linear Time, 2021. (co-advised with Anthony Tung)
25. Ashraf Abdul (on-going) (co-advised with Brian Lim)

26. Ziwei Chen (on-going)
27. Wu Shuang (on-going) (co-advised with Anthony Tung)
28. Zhiqi Shen (on-going)
29. Xudong Chen (on-going)
30. Guangzhi Wang (on-going)

## Masters Students

1. Chang Ee Chien (MS, ISS-NUS), Probabilistic Analysis & Parallelization of Bin-Packing Algorithms, 1993. (co-advised with Weiguo Wang)
2. Zhou Chen (MS, ISS-NUS), Techniques for Efficient Surface Rendering in Volume Visualization, 1994.
3. Jiang Xunda (MS, ISS-NUS), Efficient Data Representation and Spatial Relations Computation, 1995.
4. Sun Xinding (MS, ISS-NUS), Feature-based Video Indexing, 1998.
5. Rajmohan (ME, IISc), Robust Watermarking of Digital Images, 1998.
6. J. Sreelatha (ME, IISc), Distributed MPEG/Video Player with QoS Requirements, 1998.
7. Girish C. Sabat (ME, IISc), Client-Server based Advanced Software VCR, 1998.
8. Saraju P. Mohanty (ME, IISc), Adaptive Visible Watermarking of Images, 1999. (co-advised with K R Ramakrishnan)
9. Lin Yi (MS, NUS), Temporal Multiresolution Analysis for Video Segmentation, 2000. (co-advised with Tat-Seng Chua)
10. Zhi Degui (MS, NUS), The Detection and Classification of Gradual Transitions in Digital Video, 2000. (co-advised with Tat-Seng Chua)
11. Shantanu Paknikar (MS, IISc), A Caching and Streaming Framework for Multimedia, 2000. (co-advised with K R Ramakrishnan)
12. Prashant Agrawal (MS, NUS), Development of a Framework for Sensor Networks, 2002.
13. Radhakrishna Achanta (MS, NUS), Object-tracking in Compressed Domain MPEG Video, 2002.
14. Sudeep Kumar (MComp, NUS), Intellibid: An XML-based Framework for Tender Modeling, Publishing and Evaluation, 2002.
15. Sriram Rajagopalan (MComp, NUS), Peer-to-Peer Project Management, 2002.
16. Zhang Qiuying (MS, NUS), XML-based Video Annotation and Querying, 2002.
17. Chen Jiayi (MS, NUS-I2R), Image Indexing and Retrieval Using Speech Annotation, 2002.

18. Jek Charlson So Yu (MS, NUS), Semantic Video Summarization in Compressed Domain MPEG Video, 2002.
19. Jun Wang Jun (MS, NUS), Detecting and Tracking Human Faces in Compressed Video for Content Based Video Indexing, 2002.
20. Ji Yi (MS, NUS), Video Features for Video-Audio Mixing, 2003.
21. Chitra L. Madhwacharyula (MS, NUS), XML Document Instance Transformations, 2003.
22. Abhinav Singh (MS, NUS), Fast and Reliable Techniques for Camera Motion Analysis in Video Documents, 2003.
23. Jin Duo (MS, NUS), Visual Cryptography, 2003.
24. Xu Min (MS, NUS-I2R), Content-based Sports Video Analysis using Multiple Modalities (co-advised with Tian Qi & Xu Changsheng), 2003.
25. Meera G. Nayak (MS, NUS), Music Synthesis for Home Videos, 2004.
26. Mohammad Awrangjeb (MS, NUS), Reversible Watermarking for Content Authentication of Digital Images, 2004.
27. Gaurav Gupta (MComp, NUS), A Framework for Non-intrusive Information Hiding on the World Wide Web, 2004.
28. Kang Yulin (MS, NUS-I2R), Multimodal Video Event Detection (co-advised with Tian Qi & Lim Joo Hwee), 2004.
29. Shen Hui (MS, NUS), Motion Texture for Video, 2004.
30. Song Yaxiao (MS, NUS), Database Watermarking (co-advised with Ooi Beng Chin), 2004.
31. Sun Haiping (MS, NUS-I2R), Semantic Soccer Video Analysis (co-advised with Tian Qi & Lim Joo Hwee), 2004)
32. Fu Wei Gang (MComp, NUS), Digital Audio Scrambling & Integrity Checking, 2005.
33. Vivek Kumar Singh (MComp, NUS), Cooperative Visual Surveillance using Model Predictive Control, 2005.
34. Hady Gunawan (MS, NUS), Buyer-Seller Watermarking Protocol in Digital Cinema, 2005.
35. Karthikeyan Vaiapury (MS, NUS), Finding Interesting Photos in Albums using Attention, 2007.
36. Florence Wang Ying (MS, NUS), Real Time Best View Selection in Cyber-Physical Environments, 2010.
37. Karthik Yadati (MComp, NUS), Affective Video Advertisement Insertion: A Computational and Marketing Perspective, 2012 and (MS, NUS), Online Multimedia Advertising, 2013.
38. Skanda Muralidhar (MComp, NUS), Affective State Determination: A Physiological Perspective, 2014.
39. Ashraf Abdul (MComp, NUS), Enabling Cyberphysical Social Networks through Opportunistic Intent-based Matching on the Web, 2016.

40. Akanksha Tiwari (MComp, NUS), Multimodal Multiplatform Social Media Summarization, 2016.
41. Fu Zixiang (MComp, NUS), Sentigrade: A Linguistic Framework for Sentiment Analysis on Social Media, 2017.
42. Abhinav Kashyap (MComp, NUS), Aspect-based Multimodal Restaurant Review Summarization, 2017.
43. Mannu Malhotra (MComp, NUS), Revealing What Worries the World, 2019.
44. Reyha Verma (MComp, NUS), Identifying Worry in Twitter: Beyond Emotion Analysis, 2020.
45. Anshu Singh (MComp, NUS), Human Attributes Prediction from Privacy-preserving Image Data, 2020.

## Teaching

- CS3235: Computer Security [Sem I: 2001]
- CS3242: Hypermedia Information Processing [Sem II: 1999; 2000; 2001]
- CS4241: Multimedia Information Retrieval [Sem I: 1998; 1999; 2000; 2001]
- CS5231: Cryptographic Techniques and Data Security [Sem I: 2002; 2003; 2004; 2005]
- CS5240: Theory and Practice of Multimedia [Sem I: 2006; 2007; 2008]
- CS5342: Multimedia Computing and Applications [Sem I: 2009, Sem II: 2010, 2011, 2013]

## Service

1. Journal Editorial Boards:
  - Associate Editor-in-Chief, IEEE Multimedia [01/2018 - present]
  - Senior Associate Editor, ACM Transactions on Multimedia Computing, Communications and Applications [01/2014 - present]
  - Associate Editor, Springer Multimedia Systems Journal [06/2005 - present]
  - Editorial Board Member, Springer LNCS Transactions on Data Hiding and Multimedia Security [3/2005 - present]
  - Editorial Board Member, Springer Multimedia Tools and Applications [06/2009 - present]
  - Editorial Board Member, Springer Journal of Big Data [02/2013 - present]
  - Associate Editor, Pattern Recognition [08/2006 - present]
  - Advisory Board Member, Elsevier Journal of Information Security and Applications [03/2014 - present]
  - Associate Editor, Elsevier Journal of Information Security and Applications [01/2012 - 03/2014]
  - Associate Editor, ACM Transactions on Multimedia Computing, Communications and Applications [11/2005 - 12/2013]
  - Associate Editor, IEEE Transactions on Multimedia [03/2006 - 03/2010]

- Associate Editor, IEEE Transactions on Information Forensics and Security [01/2005 - 03/2009]
- Associate Editor, ETRI Journal [10/2006 - 09/2009]
- Associate Editor, International Journal of Virtual Technology and Multimedia (Inderscience) [10/2004 - 2/2015]
- Associate Editor, International Journal of Security and Networks (Inderscience) [6/2005 - 2/2015]

## 2. Conference Organization:

- Tutorial & Special Sessions Chair, IEEE Pacific-Rim Conference on Multimedia 2001
- Program Co-chair, International Workshop on Advanced Image Technology 2002
- Program Co-Chair, ACM International Conference on Multimedia 2005
- Program Co-Chair, International Conference on Distributed Multimedia Systems 2006
- Area Chair, Asian Conference on Computer Vision ACCV 2006
- Regional Chair, IEE International Conference on Visual Information Engineering 2006
- Program Co-Chair, International Conference on Distributed Multimedia Systems 2007
- Panels Chair, ACM International Conference on Multimedia 2007
- Regional Chair, IEE International Conference on Visual Information Engineering 2007
- Program Co-Chair, ACM International Conference on Image and Video Retrieval 2008
- Organizer, ACM International Workshop on Events in Multimedia 2009
- Brave New Topics Co-Chair, ACM International Conference on Multimedia 2009
- General Co-Chair, IEEE International Symposium on Multimedia 2009
- Organizer, ACM International Workshop on Events in Multimedia 2010
- Tutorial Chair, ACM/IEEE Pacific-Rim Conference on Multimedia 2011
- Liaison Chair, IEEE International Conference on Advanced Video and Signal-Based Surveillance 2011
- Track Chair, IEEE International Conference on Multimedia and Expo 2011
- General Co-Chair, Pacific-Rim Conference on Multimedia 2012
- Best Papers Co-Chair, IEEE International Symposium on Multimedia 2012
- Liaison Chair, IEEE International Conference on Advanced Video and Signal-Based Surveillance 2012
- Publicity Co-Chair, IEEE/ACM International Conference on Distributed Smart Cameras 2013
- Program Co-Chair, IEEE International Conference on Multimedia and Expo 2013
- Panels Co-Chair, IEEE International Symposium on Multimedia 2013

- Program Co-Chair, ACM International Conference on Multimedia Retrieval 2014
- Best Papers Co-Chair, IEEE International Symposium on Multimedia 2014
- Area Chair, ACM International Conference on Multimedia 2014
- Program Co-Chair, IEEE International Conference on Semantic Computing 2015
- Best Papers Co-Chair, IEEE International Conference on Multimedia Big Data 2015
- Panels Co-Chair, IEEE International Symposium on Multimedia 2015
- Liaisons Committee, IEEE/ACM International Conference on Distributed Smart Cameras 2015
- Publicity Co-Chair, IEEE International Conference on Multimedia Big Data 2016
- Area Chair, ACM International Conference on Multimedia 2015
- General Co-Chair, IEEE International Symposium on Multimedia 2016
- Publicity Co-Chair, IEEE International Conference on Semantic Computing 2016
- General Co-Chair, IEEE International Symposium on Multimedia 2017
- Program Co-Chair, IEEE International Conference on Multimedia Information Processing and Retrieval 2018
- Workshops Co-Chair, IEEE International Conference on Multimedia and Expo 2018
- Area Chair, ACM International Conference on Multimedia 2018
- Area Chair, International Conference on Pattern Recognition 2018
- General Co-Chair, IEEE International Conference on Advanced Video and Signal-based Surveillance 2018
- General Co-Chair, IEEE International Symposium on Multimedia 2018
- Honorary Chair, IEEE International Conference on Multimedia Big Data 2019
- General Co-Chair, IEEE International Conference on Multimedia Information Processing and Retrieval 2019
- General Co-Chair, IEEE International Conference on Multimedia Big Data 2020
- Publicity Co-Chair, ACM International Conference on Multimedia 2020
- Best Papers Co-Chair, IEEE International Conference on Multimedia Information Processing and Retrieval 2021
- Doctoral Symposium Co-Chair, ACM International Conference on Multimedia 2021
- General Co-Chair, ACM International Conference on Multimedia Retrieval 2021
- General Co-Chair, IEEE International Conference on Image Processing 2023

### 3. Conference Program Committee Membership:

- IEEE Pacific-Rim Conference on Multimedia (PCM 2001, 2018)

- SPIE/IST Conference on Multimedia Content Access: Algorithms and Systems (2007)
- International Workshops on Digital Watermarking (IWDW 2002-2019)
- IEEE International Conference on Multimedia (ICME 2001-2019)
- International Conference on Multimedia Modeling (MMM 2003-2020)
- ACM International Conference on Multimedia (ACMMM 2004-2019)
- ACM Workshop on Video Surveillance and Sensor Networks (2003-2006)
- Asian Conference on Computer Vision (ACCV 2006, 2014, 2018)
- International Conference on Image and Video Retrieval (CIVR 2006-2009)
- International Conference on Cyberworlds (CYBERWORLDS 2005-2020)
- IEEE International Conference On Image Processing (ICIP 2004, 2009, 2010, 2012, 2014-2018,2021)
- IEEE International Conference on Computer Vision (ICCV 2015, 2017, 2021)
- International Conference on Computer Vision and Pattern Recognition (CVPR 2014, 2015-2019, 2021)
- IEEE Winter Conference on Applications of Computer Vision (WACV 2015-2018)
- ACM International Conference on Research and Development in Information Retrieval (SIGIR 2016)
- ACM International Conference on Multimedia Retrieval (ICMR 2015-2021)
- International Conference on Neural Information Processing Systems (NeurIPS 2020,2021)
- IEEE International Conference on Advanced Video and Signal-based Surveillance (AVSS 2022)

#### 4. Other Service:

- Management Committee Member, Institute for Mathematical Sciences, NUS, 2016-present
- Management Board Member, Institute of Systems Science, NUS, 2016-present
- Management Committee Co-Chair, NUS-SingTel Corporate Lab on Cybersecurity, 2016-present.
- Management Committee Chair, Asian Institute of Digital Finance, NUS, 2020-present.
- Member, Taskforce on the Review of Healthcare Professional Education, NUS, 2021-present
- Member, NUS President's Young Professorship Appointment Committee, 2019-present
- Member, Dean Search Committee, NUS Faculty of Engineering, 2019.
- Member, Dean Search Committee, NUS School of Business, 2019.
- Chair, Committee for the Establishment of NUS Graduate School, 2019
- Member, UCEP Sub-Committee on Graduate Education, 2010.



## Awards

### 1. Professional Recognition

- Elected as *Fellow of IEEE* for contributions to multimedia content processing and security, 2014.

### 2. Teaching-related Awards

- NUS Excellent Teacher Award 2004.
- NUS Excellent Teacher Award 2003.
- Teaching Excellence Award, NUS School of Computing, 2000.
- Innovative Teaching Award, NUS School of Computing, 1999.

### 3. Research-related Awards

- Best Student Paper Award, *Human-imperceptible Privacy Protection Against Machines*, Zhiqi Shen, Shaojing Fan, Yongkang Wong, Tian-Tsong Ng and Mohan Kankanhalli, ACM International Conference on Multimedia 2019. (Best Paper Award Runner-up)
- Associate Editor of the Year, ACM Transactions on Multimedia Computing, Communications and Applications, 2013
- Editorial Board Member of the Year, Springer Multimedia Systems Journal, 2010.
- Best Reviewer Award, ETRI Journal, 2010.
- Best Paper Award, *Motivating Contributors in Social Media Networks*, Vivek Singh, Ramesh Jain and Mohan Kankanhalli, ACM SIGMM Workshop on Social Media, 2009.
- Best Paper Award, *Robust and Reversible Numerical Set Watermarking*, Gaurav Gupta, Josef Pieprzyk and Mohan Kankanhalli, International Conference on Signal Processing and Multimedia Applications, 2009.

### 4. Other Awards

- Public Administration Medal (Silver), 2021, National Day Award by the President of Republic of Singapore (awarded for outstanding contributions to computing education in Singapore)
- Public Administration Medal (Bronze), 2015, National Day Award by the President of Republic of Singapore (awarded for outstanding contributions to graduate education in Singapore)
- Lifetime Achievement Award, 2011, Kannada Association Singapore (awarded for outstanding achievements amongst the Indian community from the State of Karnataka in Singapore)