



**Yong Rui**  
**Lenovo Group**

Dr. Yong Rui is the Chief Technology Officer, Senior Vice President of Lenovo Group and Member of the Lenovo Executive Committee (LEC), Lenovo's highest-level decision-making body. He directs Lenovo's corporate technical strategy, research and development directions. Additionally, Dr. Rui leads the Lenovo Research organization that investigates AI, intelligent devices, cloud/edge, 5G, healthcare, blockchain, recommendation engine and smart education.

Prior to joining Lenovo, Dr. Rui spent 18 years with Microsoft where he held various leadership roles in R&D strategy, basic research, technology incubation and product development, and most recently served as Deputy Managing Director of Microsoft Research Asia.

A Fellow of ACM, IEEE, IAPR, SPIE, CCF and CAAI, and a Foreign Member of Academia Europaea, Dr. Rui is recognized as a leading expert in AI and multimedia analysis. He is a recipient of many awards, including the 2018 ACM SIGMM Technical Achievement Award, the 2017 IEEE SMC Society Andrew P. Sage Best Transactions Paper Award, the 2017 ACM TOMM Nicolas Georganas Best Paper Award, the 2016 IEEE Computer Society Edward J. McCluskey Technical Achievement Award, the 2016 IEEE Signal Processing Society Best Paper Award and the 2010 Most Cited Paper of the Decade Award from Journal of Visual Communication and Image Representation. He holds 67 US and international issued patents, has published 4 books, 12 book chapters, and 260 refereed journal and conference papers. With over 23,000 citations, and an h-Index of 71, his publications are among the most referenced.

Dr. Rui is an Associate Editor of ACM Trans. on Multimedia Computing, Communication and Applications (TOMM), and a founding Editor of International Journal of Multimedia Information Retrieval. He was the Editor-in-Chief of IEEE MultiMedia magazine (2014-2017), an Associate Editor of IEEE Trans. on Multimedia (2004-2008), IEEE Trans. on Circuits and Systems for Video Technologies (2006-2010), ACM/Springer Multimedia Systems Journal (2004-2006), International Journal of Multimedia Tools and Applications (2004-2006), and IEEE Access. He also serves on the Advisory Board of IEEE Trans. on Automation Science and Engineering.

Involved in many facets of the field, Dr. Rui is a member of numerous organizing and program committees for conferences including ACM Multimedia, ACM ICMR, IEEE ICME, SPIE ITCOM, and ICPR. He is General Co-Chair of ACM Multimedia in 2009 and 2014, ACM ICMR in 2006 and 2012, and ICIMCS in 2010, and Program Co-Chair of ACM Multimedia in 2006, Pacific Rim Multimedia (PCM) in 2006, and IEEE ICME in 2009. He is on the Steering Committees of ACM Multimedia, ACM ICMR, IEEE ICME and PCM. He is an Executive Member of ACM SIGMM, and the founding Chair of its China Chapter.

Dr. Rui has served as a member of review panels for the US National Science Foundation (NSF), the National Natural Science Foundation of China (NSFC) and the Australian Research Council.

Dr. Rui received his BS from Southeast University, his MS from Tsinghua University, and his PhD from University of Illinois at Urbana-Champaign (UIUC).

**CONTACT INFORMATION:**

Yong Rui, FACM, FIEEE, FIAPR, FSPIE, FCCF, FCAAI  
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Building 7, 2W-H14  
Morrisville, NC 27560  
Email: yongrui@lenovo.com  
Website: <http://research.lenovo.com/~yongrui/>

**EDUCATION:**

- Doctor of Philosophy in Electrical and Computer Engineering (February 1999)  
Advisor: Professor Thomas S. Huang  
University of Illinois at Urbana-Champaign (UIUC), Urbana, IL, USA
- Master of Science in Electrical Engineering (April 1994)  
Tsinghua University, Beijing, China
- Bachelor of Science in Electrical Engineering (July 1991)  
Southeast University, Nanjing, China

**RESEARCH INTERESTS:**

- Multimedia analysis, understanding, and retrieval
- Artificial intelligence, machine learning, computer vision and pattern recognition
- Big data and knowledge mining
- Social computing and urban computing

**EXPERIENCE:**

- CTO and Senior VP, Lenovo Group, 2016 -- Present
- Senior Director and Deputy Managing Director, Microsoft Research Asia (MSRA), 2012 -- 2016
- Senior Director and GM, Advanced Technology Center, Microsoft Asia-Pacific R&D Group, 2010 – 2012
- Director, Advanced Technology Center, Microsoft China R&D Group, 2008 – 2010
- Director, R&D Strategy, Microsoft Asia-Pacific R&D (ARD) Group, 2006 – 2008
- Researcher and Senior Researcher, Microsoft Research, Redmond, USA, 1999 – 2006
- Research Fellow and Research Assistant, University of Illinois at Urbana-Champaign, 1995 – 1999
- Research Engineer, Beijing Control Industrial Computer Corp., 1994 – 1994

**DISTINCTIONS:**

- **Foreign Member of Academia Europaea, 2019**
- **CCF Fellow, 2018**
- **Highly Cited Researchers 2018**, Ranked by Clarivate Analytics, 2018
- **CAAI Fellow, 2018**
- **ACM SIGMM Technical Achievement Award, 2018**
- **People of ACM** (<https://www.acm.org/articles/people-of-acm/2018/yong-rui>), March 1st, 2018
- **China IT Person of the Year** (Outstanding Contribution Award of Artificial Intelligence), 2018
- **ACM Fellow** for contributions to image, video and multimedia analysis, understanding and retrieval, 2017

- **Andrew P. Sage Best Transactions Paper Award**, IEEE SMC Society (Systems, Man and Cybernetics Society), 2017 Oct., J Yu, D. Tao, M. Wang and Y. Rui, Learning to Rank Using Clicks and Visual Features for Image Retrieval, *IEEE Transactions on Cybernetics*, Vol.45, No.4, April 2015.
- **ACM TOMM Nicolas Georganas Best Paper Award**, X. Yang, T. Mei, Y. Xu, Y. Rui and S. Li, Automatic Generation of Visual-Textual Presentation Layout, *ACM Trans. on Multimedia Computing Communications and Applications (TOMM)*, Vol. 12, Issue 2, 2016.
- **Industrial Distinguished Leaders**, APSIPA, 2017
- **AI HERO**, Netease, 2017
- **IEEE Computer Society Edward J. McCluskey Technical Achievement Award** IEEE Computer Society Technical Achievement Award, 2016
- **IEEE Signal Processing Society Best Paper Award**, J. Yu, Y. Rui and D. Tao, Click prediction for Web image re-ranking using multimodal sparse coding, *IEEE Transactions on Image Processing*, Volume 23, No. 5, May 2014.
- **Most Cited Chinese Researchers** (top 3 in Computer Science) by Elsevier, 2016, 2015, 2014
- **Most Influential Scholars in Multimedia** (top 5) by AMiner, <https://aminer.org/mostinfluentialscholar/mm>
- **China IT Leader Award**, 1<sup>st</sup> Wulin CTO Summit (2016), Hangzhou, China, 2017
- **IEEE Trans. Multimedia Best Paper Award**, J. Yu, Y. Rui and B. Chen, Exploiting click constraints and multi-view features for image re-ranking, 2015
- **IEEE CASS Distinguished Speaker**, 2015
- **IT Leader Award**, China Digital Business Times, 2014
- **ACM Distinguished Speaker**, 2014
- **IAPR Fellow** for contribution to visual pattern analysis, recognition and retrieval, 2012
- **SPIE Fellow** for achievements in image processing, analysis and understanding, 2012
- **IEEE Fellow** for contributions to image and video analysis, indexing and retrieval, 2010
- **Most Cited Paper of the Decade Award** in 2010 from *Journal of Visual Communication and Image Representation*, Y. Rui, T. Huang and S.-F. Chang, "Image Retrieval: Current Techniques, Promising Directions, and Open Issues".
- **ACM Distinguished Scientist**, 2009
- **IEEE CASS Certificate of Appreciation**, 2008
- **ACM Recognition of Service Award**, 2006, 2009, 2012
- **ACM Certificate of Appreciation**, 2003
- **Best Paper Award**, G. Qi, X. Hua, Y. Rui, J. Tang, T. Mei, H. Zhang, "Correlative multi-label video annotation," *ACM Multimedia*, 2007
- **Outstanding Student Paper Award**, Y. Chen (student), Y. Rui and T. Huang, JPDAF Based HMM for Real-Time Contour Tracking, *IEEE Computer Vision and Pattern Recognition*, pp.1-543 to 550, Kauai, Hawaii, December 11-13, 2001
- **2<sup>nd</sup> Place in 2016 MSCOCO** image captioning competition, <http://mscoco.org/dataset/#captions-leaderboard> and then click on "Table C-5", (team tag: MSRA)
- **2<sup>nd</sup> place in 2015 THUMOS** video recognition competition, <http://www.thumos.info/results.html>, (team tag: MSR Asia)
- **1<sup>st</sup> Place in 2014 NIST TREC KBA** (knowledge base acceleration) vital entity linking competition (579,838,246 documents), <http://trec.nist.gov/pubs/trec23/papers/overview-kba.pdf> (team tag: MSR\_KMG)

## INVITED TALKS:

- **Invited speaker**, The alphabet of AI, AITech (International Intelligent Technology Summit), Mar. 2018
- **Keynote speaker**, The ABCD for AI system, CCF-BigData 2017, Shenzhen, Oct., 2017.
- **Invited speaker**, IEEE Multimedia, ChinaMM 2017, Nanjing, Sep., 2017.
- **Keynote speaker**, The ABCD for AI System, World INS Conference 2017, Beijing, Sep., 2017.
- **Keynote speaker**, The ABCD of PC<sup>3</sup>, China Association of Artificial Intelligence (CAAI) Global Artificial Intelligence Technology Conference (GAITC 2017), Beijing, May 2017.
- **Invited speaker**, AI 2.0 Outlook and Lenovo's Strategy, AI 2.0 Summit, MOST (Ministry of Science and Technology) of China, Mar. 2017.
- **Keynote speaker**, Intelligent Devices plus Cloud Powered by AI, China CTO Summit, Hangzhou, Jan. 2017.
- **Keynote speaker**, Computer Vision: From Recognition to Understanding, CCF-GAIR 2016, Shenzhen, Aug. 2016.
- **Keynote speaker**, The trend of Artificial Intelligence, Tsinghua AI Forum, Beijing, Jun 2016.
- **Keynote speaker**, The 5 AIs, Global Mobile Internet Conference, Beijing, April 2016
- **Keynote speaker**, From AI to AI, China Association of Artificial Intelligence (CAAI) Global Artificial Intelligence Technology Conference (GAITC 2016), Beijing, April 2016.
- **Keynote speaker**, Computer Vision: From Recognition to Understanding, IEEE VCIP 2015, Singapore, Dec. 2015.
- **Invited speaker**, From AI to AI, Intel China R&D Center lecture series, Nov. 2015.
- **Keynote speaker**, From 3D Technologies to Virtual Reality, Chinese Computer Federation (CCF) YOCSEF lecture series, BeiHang University, Oct. 2015.
- **Keynote speaker**, Between Text, Images and videos, ACM ICIMCS, Zhangjiajie, Aug. 2015.
- **Keynote speaker**, From Big Data to Knowledge Discovery, Chinese Computer Federation (CCF) distinguished lecture series (ADL), Tsinghua University, July 2015.
- **Keynote speaker**, Innovation Lights Up People's Life, Digital Business Summit, Beijing, China, Oct. 2014.
- **Invited speaker**, Computing in 21<sup>st</sup> Century, Academia Sinica, Taiwan, Dec. 2013.
- **Keynote speaker**, Knowledge Mining and Semantic Search, Pacific Rim Multimedia (PCM), Dec. 2013.
- **Keynote speaker**, Standing on top of Cloud Computing, The 5<sup>th</sup> Chinese Conference on Cloud Computing (CCCC), Guanzhou, Nov. 2013.
- **Invited speaker**, Innovation brightens people's life, Xi'an JiaoTong Univeristy and Xi Dian University, Oct. 2013
- **Keynote speaker**, Transforming the Impossible to the Natural, Tsinghua University, 2013.
- **Keynote speaker**, Knowledge Mining and Semantic Search, Nanjing University, 2013.
- **Invited speaker**, Management and Culture for Technology Innovation, Advanced Seminar for Heads of Top Research Institutions in China, Tsinghua Management and Business School, 2010, 2011, 2012, 2013.
- **Keynote speaker**, Digital Media Riding on New Computing Trends, Symposium of Intelligent Computing for Creative Media, Grand Opening of CityU Run Run Shaw Creative Media Center, City University of Hong Kong, 2012.
- **Keynote speaker**, The History of Image Search, CVGIP (Computer Vision, Graphics and Image Processing) Forum, Taiwan, Aug. 2010.

- **Keynote speaker**, Innovation in Microsoft, Zhejiang Province Innovation Program, 2010, Hangzhou
- **Invited speaker**, The Evolution of Image Search, National University of Singapore (NUS) and Nanyang Technological University (NTU), Singapore, Dec. 2009.
- **Keynote speaker**, Learning Concepts by Modeling Relationships, The First International Conference on Internet Multimedia Computing and Services (ICIMCS), Nov 23-25, 2009, Kunming, China.
- **Invited speaker**, Learning Multimedia Concepts, The University of Queensland, Australia, Nov., 2009
- **Keynote speaker**, Mobile Computing in Digital Life, Workshop on Visual Information Processing, Nov 7-9, 2006, Chinese Academy of Sciences, Beijing, China.
- **Keynote speaker**, Ubiquitous Mobile Computing in Digital Life, 15th International Packet Video Workshop, April 20-21, 2006, Hangzhou, China.
- **Invited speaker**, Collaboration: Applications and Technologies, National Seoul University, Jan 2004.
- **Invited speaker**, Summarization and Browsing Interface for Digital Video, the Sixth Multimedia and Networking Technology Conference , Newark, NJ, Nov 19 -20, 1999
- **Invited speaker**, Learning in a Multimedia Enhanced Environment, Symposium on Technology for Video-based Learning and Communication, IBM Almaden Research Center, San Jose, CA, 9/2/1999
- **Keynote speaker**, Video Analysis and Representation, the 42nd MPEG Meeting, San Jose, 1998

#### **EDITORIAL SERVICES:**

- **Associate Editor**, ACM Transactions on Multimedia Computing Communication and Applications (TOMM), 2007 - present
- **Founding Editor**, International Journal of Multimedia Information Retrieval , 2011 - present
- **Advisory Board Member**, IEEE Multimedia Magazine, 2018 – present
- **Editor-in-Chief**, IEEE Multimedia Magazine, 2014 – 2017
- **Associate Editor**, IEEE Access, 2013 - 2016
- **Editor**, Springer/ACM Multimedia Systems Journal, 2005 - 2007
- **Associate Editor**, IEEE Trans. CSVT, 2006 - 2010
- **Associate Editor**, IEEE Trans. Multimedia, 2004 - 2008
- **Associate Editor-in-Chief**, IEEE Multimedia Magazine, 2009 - 2014
- **Editorial Board Member**, IEEE Multimedia Magazine, 2007 - 2009
- **Editorial Board Member**, International Journal of Multimedia Tools and Applications, 2005 - 2007
- **Guest Editor**, Multimedia Tools and Applications Special Issue on Internet Multimedia Computing and Service, July 2012
- **Guest Editor**, IEEE Multimedia Magazine Special Issue on Advances in Multimedia Computing, July 2007
- **Advisory Board Member**, IEEE Trans. Automation Science and Engineering, 2006 - 2016

#### **CONFERENCE ORGANIZATION COMMITTEES:**

- **Steering Committee Member**, ACM International Conference on Multimedia, 2011 - present
- **Steering Committee Member**, IEEE International Conference on Multimedia Expo (ICME), 2010 - 2013
- **Steering Committee Member**, ACM International Conference on Multimedia Retrieval (ICMR), 2006 - present
- **Steering Committee Member**, Pacific Rim Conference on Multimedia (PCM), 2006 - present
- **Publicity Chair**, 2017 ACM Multimedia Conference, San Jose, USA
- **Program Co-Chair**, 2016 Chinese Association of Artificial Intelligence (CAAI) Conference, Beijing, China
- **History Preservation Chair**, 2016 ACM Multimedia Conference, Amsterdam, The Netherlands
- **Industry and Practitioners Chair**, 2016 ACM ICMR, New York City, USA
- **Brave New Topic Chair**, 2015 ACM Multimedia Conference, Brisbane, Australia
- **General Chair**, 2015 International Conference on Image and Graphics (ICIG), Tianjin, China
- **General Chair**, 2014 ACM Multimedia Conference, Orlando, USA
- **Panel Chair**, 2013 ACM Multimedia Conference, Barcelona, Spain
- **General Chair**, 2012 International Conference on Multimedia Retrieval (ICMR), Hong Kong
- **Panel Chair**, 2012 ACM Multimedia Conference, Nara, Japan
- **General Chair**, 2011 Pacific Rim Multimedia (PCM) Conference, Sydney, Australia
- **General Chair**, 2010 International Conference on Internet Multimedia Computing and Services, Harbin, China
- **Publicity Chair**, 2010 ACM Multimedia Conference, Florence, Italy
- **General Chair**, 2009 ACM Multimedia Conference, Beijing, China
- **Technical Program Chair**, 2009 IEEE International Conference on Multimedia and Expo (Cancun, Mexico)
- **Special Session Chair**, 2008 IEEE International Conference on Multimedia and Expo (Hannover, Germany)
- **Publicity Chair**, 2008 ACM Multimedia Conference, Vancouver, Canada
- **Asia Liaison and Program Committee Member**, 2007 ACM Multimedia Conference, Augsburg, Germany
- **Advisory Committee Member**, 2007 Asia-Pacific Workshop on Visual Information Processing, Tainan, Taiwan
- **North America Liaison**, 2007 IEEE International Conference on Multimedia Expo (Beijing, China)
- **Program Chair**, 2006 ACM Multimedia Conference, Santa Barbara, CA
- **General Chair**, 2006 The 5th International Conference on Image and Video Retrieval (CIVR), Tempe, AZ
- **Program Chair**, 2006 Pacific Rim Multimedia (PCM) Conference, Hangzhou, China
- **Panel Chair and Program Committee Member**, 2005 ACM Multimedia Conference, Singapore
- **Area Chair**, 2005 IEEE International Conference on Multimedia and Expo, Amsterdam, Netherlands
- **Tutorial Chair and Program Committee Member**, 2004 ACM Multimedia Conference, New York, NY, USA

- **Technical Demo Chair and Program Committee Member**, 2003 ACM Multimedia Conference, Berkeley, CA, USA
- **General Chair**, 2003 IEEE Int'l. Workshop on Multimedia Technologies in E-Learning and Collaboration, Nice, France
- **Organizer**, Special session on Multi-Stream Audio-Video Processing for Telepresence, 2003 IEEE International Conference on Multimedia Expo, Baltimore, USA
- **Area Chair**, 2002 IEEE International Conference on Multimedia and Expo, Lausanne, Switzerland
- **Panelist**, IEEE CVPR Workshop on Content-Based Access of Image and Video Libraries (CBAIVL'01) , Kauai, Hawaii, December 14, 2001

#### **CONFERENCE TECHNICAL COMMITTEES:**

- International Conference on Embedded and Multimedia Computing (EMC) 2010
- IEEE CVPR 2008 and 2001
- ACM Multimedia 2007, 2006, 2005, 2004, 2003 and 2001
- IEEE ICCV 2007 and 2001
- WWW-Hypermedia 2006
- International Conference on Image and Video Retrieval (CIVR) 2005, 2004, 2003, and 2002
- SPIE/IS&T Storage and Retrieval Methods and Applications for Multimedia 2005, 2004, 2003, 2002, 2001 and 2000
- Int. Conf. on Pattern Recognition (ICPR 2004)
- ACM International Workshop on Multimedia Databases 2004 and 2003
- IEEE ECCV 2004
- IEEE ACCV 2004
- IEEE ISCAS 2015, 2014, 2013, 2012, 2010, 2000
- IEEE ICIP 2004 and 2003
- IEEE ICME 2010, 2003
- IEEE International Conference on Distributed Computing Systems 2003

#### **INTERNATIONAL AND NATIONAL PROFESSIONAL SERVICES:**

- **Executive Member**, ACM SIG Multimedia, 2009 – 2010, and 2013 – 2016
- **Member at Large**, ACM China Council, 2016 – Present
- **Member**, ACM China Award Subcommittee, 2016 – Present
- **Executive Committee Member**, China Computer Federation (CCF), 2016 – Present
- **Board Member**, Expert Committee of China Voice Valley, 2017 - Present
- **Board Member**, Expert Committee of Chinese Academy of Science Special Task Force “AI and Intelligent Society” (《支撑创新驱动转型的技术预见》信息技术领域“人工智能与智能社会”组), 2017 - Present
- **Board Member**, Technical Advisory Board of National Engineering Lab for Medical Big Data Application Technology, 2017 - Present
- **Board Member**, Academic Committee of Key Laboratory of Intelligent Information Processing, Chinese Academy of Science, 2017 – Present
- **Founding Chair**, ACM SIG Multimedia China Chapter, 2009 – 2016
- **Board Member**, IEEE Publication Board (2014 – 2018)
- **Chair**, ACM SIG Multimedia Best PhD Thesis Award Committee, 2017
- **Award Committee Member**, IEEE CASS MMTC, 2015 - 2017
- **Review Committee Member**, China’s National Thousand-People Talent Program,

Ministry of Science and Technology, 2009, 2010, 2013, 2014, 2015

- **Review Committee Member**, China's National 973 Program, Ministry of Science and Technology, 2013
- **Board Member**, Technical Advisory Board of National Lab of Pattern Recognition (NLPR), Chinese Academy of Sciences, 2014 - Present
- **Board Member**, Technical Advisory Board of Multimedia Engineering Research Center (MERC) of City University of HK, 2014 - Present
- **Review Committee Member**, National Distinguished Young Scholars Program, NSFC, 2012, 2013
- **Review Committee Member**, US NSF CISE/IIS Program Review Panel, May, 2001
- **Review Committee Member**, China NSF Review Panel on Multimedia Computing, 2006, 2010, 2011
- **Assessor**, Australian Research Council, 2011, 2012
- **Panel Member**, Research Grants Council of Hong Kong, 2012
- **Member**, International Association of Pattern Recognition (IAPR) Hong Kong Organization, 2011 -- 2014
- **Member**, IEEE Circuits and Systems Society Technical Committee on Multimedia Systems and Applications, 2009 - 2017
- **Member**, The Seventh Symposium of Frontiers of Engineering, National Academy of Engineering, Irvine, California, September 13 - 15, 2001



## Commercial Products Shipped:

- **Lenovo intelligent Computing Orchestration (LiCO)**, as CTO who oversaw the project and technology, 2018
- **ThinkCloud**, as CTO who oversaw the project and technology, 2018
- **Microsoft Sway** (<https://sway.com/> and <https://www.youtube.com/watch?v=Jw-g6luBVJE>), as Deputy Managing Director who oversaw the project and as a researcher who developed the technologies in automatic image/text layout, 2016. (As of June 23, 2017, 50M distinct visitors, 6.5M authors, 25M viewers, and 12M Sways created. 60 countries had 1000+ authors in January. May MAU authors = 444k, May MAU users = 2M. 2.2% of all the authors used this feature)
- **Microsoft HoloLens**, as Deputy Managing Director who oversaw the project and as a researcher who developed the technologies in 3D object capturing, 2015 - 2016
- **Microsoft Cognitive Services**, as Deputy Managing Director who oversaw the project and as a researcher who developed the technologies in face, image and video analytics, 2015 – 2016. (millions of calls to Face APIs per day)
- **Microsoft Xiaoice (微软小冰)**, as the Senior Director who oversaw the project and as a researcher who developed the technologies in image object recognition and image chat, 2015 – 2016. (50M registered users. ImageChat: 2M total images uploaded. 100k images/month)
- **Microsoft Bing Multimedia Search**, as the Senior Director who oversaw the technology transfer, and as a researcher who developed the core algorithms, 2012 – 2016 (users of Bing multimedia search exceeded 100M in 2015)
- **Microsoft Bing Search**, as the Senior Director who oversaw the technology transfer, and as a researcher who developed the knowledge mining algorithms, 2013 – 2014 (contributed to Bing knowledge graph Sotari with over 1M entities and facts)
- **Microsoft Cortana**, as the Senior Director who oversaw the technology transfer, and as a researcher who developed the knowledge mining algorithms, 2014 – 2016 (developed the people, location and time entity, as well as tickets and package delivery extraction)
- **Microsoft Office**, as the Senior Director who oversaw the technology transfer, and as a researcher who developed the knowledge mining algorithms, 2013 – 2014 (entity linking for office documents)
- **Microsoft Coral** (regional healthcare product), as the Senior Director who oversaw the incubation, design, and development of the product, 2011
- **Microsoft Interactive Classroom 2.0**, as the China Product Director who oversaw the design, development and release of the product, 2010
- **Microsoft Office**, as the China Product Director who oversaw the design, development and release of the Office OneNote Linked Note Taking, 2010
- **Microsoft Academic Toolkit V1**, as the China Product Director who oversaw the design, development and release of the product, 2009
- **Microsoft Semblio Platform V1**, as the China Product Director who oversaw the design, development and release of the product, 2009
- **Microsoft RoundTable**, as a co-founder who initiated the product and also developed audio source localization algorithm, 2007 (hundreds of millions dollars revenue in the first year)
- **Microsoft Live Communications Server 2005**, as a researcher who developed the available bandwidth estimation algorithm, 2004
- **Microsoft MovieMaker**, as a researcher who developed the shot boundary detection algorithm, 1999

## SELECTED PUBLICATIONS

Here are some papers from Dr. Rui to illustrate his publication's depth and breadth. These papers are highly cited, award-winning or whose technologies resulted in significant patents and products.

1. **Y. Rui**, T. S. Huang, M. Ortega, and S. Mehrotra, "Relevance Feedback: A Power Tool in Interactive Content-Based Image Retrieval," *IEEE Trans. on Circuits and Systems for Video Technology*, vol.8, no.5, pp.644-655, 1998.  
A key insight this paper made was to bridge the gap between low-level features and high-level semantics by integrating user relevance feedback into the image retrieval process. This paper led to the establishment of a whole new research area "relevance feedback in image retrieval". In almost all of the subsequent multimedia conferences, e.g., ACM Multimedia and IEEE ICME, there have been dedicated sessions on "relevance feedback". It also the **No.1 cited paper** in all of IEEE Trans CSVT papers in 1998 (<http://tcsvt.polito.it/editor/top-cited-TCSVT.htm>) [**2300** citations].
2. **Y. Rui**, T. S. Huang, and S.-F. Chang, "Image Retrieval: Current Techniques, Promising Directions and Open Issues," *Journal of Visual Communication and Image Representation (JVCIR)*, vol.10, pp.39-62, 1999.  
This publication provided a timely guidance in the late 90s on open research issues and future promising research directions. It has significantly shaped the research activities in the multimedia retrieval field from 1999 to now, and has since become a must read for both researchers and practitioners. It won the **Most Cited Paper of the Decade Award** in 2010 from JVCIR <http://research.lenovo.com/~yongrui/ps/JVISAward.pdf>. [**3100** citations]
3. **Y. Rui**, T. S. Huang, and S. Mehrotra, "Constructing Table-of-Content for Videos," *Springer/ACM Multimedia Systems Journal*, Vol.7, No.5, pp359-368, Sept. 1999.  
This paper developed an effective semantic level ToC construction technique based on unsupervised clustering modeling both time locality and scene structure. One of the first MPEG-7 proposals ISO/IEC JTC1/SC29/WG11 M3110 <http://research.lenovo.com/~yongrui/ps/M3110.pdf>. [**380** citations]
4. **Y. Rui**, A. Gupta, and A. Acero, "Automatically Extracting Highlights for TV Baseball Programs," *Proc. of ACM Multimedia Conference 2000*, Los Angeles, CA.  
This paper is among the first that introduced automatic video highlight extraction using audio-visual features. US patents 7028325 and 7403894. [**575** citations]
5. R. Cutler, **Y. Rui**, A. Gupta, JJ Cadiz, I. Tashev, L. He, A. Colburn, Z. Zhang, Z. Liu, S. Silverberg Distributed Meetings: A Meeting Capture and Broadcasting System, *Proc. of ACM Multimedia 2002*, Dec. Juan-les-Pins, France  
This paper is the first that described a meeting capture and broadcasting system that used multiple low-cost board cameras via video stitching. The key technologies developed in this paper resulted in Microsoft Office Roundtable®, a leading product in distributed meetings released in 2007. [**332** citations]
6. Y. Chen, **Y. Rui**, and T. S. Huang, "Multicue HMM-UKF for Real-Time Contour Tracking," *IEEE Trans. PAMI*, vol.28, no. 9, pp.1525-1529, 2006.  
This paper is the first to introduce unscented Kalman filter (UKF) into video tracking for accurate meeting video indexing. An earlier version of this paper won the **Outstanding Student Paper Award** in IEEE CVPR 2001 and also resulted in US patents 7130446, 7151843 and 7433495.
7. Y. Chen and **Y. Rui**, "Real-time Speaker Tracking Using Particle Filter Sensor Fusion," *Proceedings of the IEEE*, vol.92, no.3, pp.485-494, Mar. 2004.  
This publication is among the first to conduct speaker tracking and indexing in meeting videos by developing a particle filter based sensor fusion framework, and also resulted

- in US patents 6882959 and 7035764. [122 citations]
8. C. Zhang, P. Yin, **Y. Rui**, R. Cutler, P. Viola, X. Sun, N. Pinto and Z. Zhang, "Boosting-Based Multimodal Speaker Detection for Distributed Meeting Videos", *IEEE Trans. Multimedia*, 10(8), 2008, pp.1541-1552.  
This paper proposed an industry-strength joint audio-video tracking technique based on boosting and led to several key patents and features in Microsoft Office Roundtable®, a leading product in distributed meetings released in 2007.
  9. G. Qi, X. Hua, **Y. Rui**, J. Tang, T. Mei, H. Zhang, "Correlative Multi-Label Video Annotation with Temporal Kernels," *ACM Trans. Multimedia Computing Communication and Applications*, 5(1), pp32-58, 2008.  
This paper is the first to simultaneously classify video concepts and model correlations between them in an integrated way by proposing a novel correlative multi-label framework in video annotation. An earlier version of this paper won the **Best Paper Award** in the ACM Multimedia Conference 2007, the flagship conference of ACM SIG Multimedia.
  10. L. Liu, **Y. Rui**, L. Sun, B. Yang, J. Zhang, S. Yang, Topic mining on web-shared videos, *Proc. of IEEE ICASSP 2008*, pp. 2145-2148, March 30 - April 4, 2008, Las Vegas, Nevada, USA.  
This paper developed an iterative weight-updated co-clustering scheme to filter "noisy" tags and mine the "hot" topics for web videos. The scheme integrates a text-based and a visual-based clustering approach to topic center. L. Liu was the **Best Student Paper Award finalist** in IEEE ICASSP 2008.
  11. J. Yu, Y. Rui and B. Chen, Exploiting click constraints and multi-view features for image re-ranking, **2015 IEEE Trans. Multimedia Best Paper Award**, 2015
  12. J. Yu, Y. Rui and D. Tao, Click prediction for Web image re-ranking using multimodal sparse coding, *IEEE Transactions on Image Processing*, Volume 23, No. 5, May 2014, **2016 IEEE Signal Processing Society Best Paper Award**
  13. J Yu, D. Tao, M. Wang and Y. Rui, Learning to Rank Using Clicks and Visual Features for Image Retrieval, *IEEE Transactions on Cybernetics*, Vol.45, No.4, April 2015, **2017 Andrew P. Sage Best Transactions Paper Award**, IEEE SMC Society (Systems, Man and Cybernetics Society)
  14. X. Yang, T. Mei, Y. Xu, Y. Rui and S. Li, Automatic Generation of Visual-Textual Presentation Layout, *ACM Trans. on Multimedia Computing Communications and Applications (TOMM)*, Vol. 12, Issue 2, 2016. **2017 ACM TOMM Nicolas Georganas Best Paper Award**

#### **PUBLICATIONS (partial list before 2014)**

For a **complete** publication list of all my research papers, please visit Google Scholar ([http://scholar.google.co.jp/citations?user=uOJH\\_AEAAAAJ&hl=en](http://scholar.google.co.jp/citations?user=uOJH_AEAAAAJ&hl=en)) and DBLP (<http://dblp.uni-trier.de/pers/hd/r/Rui:Yong>).

#### **Books**

1. Yueting Zhuang, Shiqiang Yang, Yong Rui, and Qinming He (Eds.), *Advances in multimedia information processing -- PCM 2006 (7th Pacific Rim Conference on Multimedia)*, LNCS 4261, Springer Berlin / Heidelberg, ISSN: 0302-9743, ISBN-10 3-540-48766-2 ISBN-13 978-3-540-48766-1 1040pp. Nov 2006
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2. Yong Rui, Thomas S. Huang, and Sharad Mehrotra, Suggestions to the Draft of MPEG-7 Requirements, ISO/IEC JTC1/SC29/WG11 M3107, MPEG98
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### Patents

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PAT.NO.	Title
1	<a href="#">10,123,140</a>  <a href="#">Dynamic calibration of an audio system</a>
2	<a href="#">10,057,764</a>  <a href="#">Privacy preserving sensor apparatus</a>
3	<a href="#">9,807,473</a>  <a href="#">Jointly modeling embedding and translation to bridge video and language</a>
4	<a href="#">9,754,188</a>  <a href="#">Tagging personal photos with deep networks</a>
5	<a href="#">9,729,984</a>  <a href="#">Dynamic calibration of an audio system</a>
6	<a href="#">9,560,445</a>  <a href="#">Enhanced spatial impression for home audio</a>
7	<a href="#">9,338,440</a>  <a href="#">User interface for three-dimensional modeling</a>
8	<a href="#">8,817,645</a>  <a href="#">Methods and systems for estimating network available bandwidth using packet pairs and spatial filtering</a>
9	<a href="#">8,510,110</a>  <a href="#">Identification of people using multiple types of input</a>
10	<a href="#">8,234,113</a>  <a href="#">Identification of people using multiple types of input</a>
11	<a href="#">8,131,086</a>  <a href="#">Kernelized spatial-contextual image classification</a>
12	<a href="#">8,111,282</a>  <a href="#">System and method for distributed meetings</a>
13	<a href="#">8,086,549</a>  <a href="#">Multi-label active learning</a>
14	<a href="#">8,085,302</a>  <a href="#">Combined digital and mechanical tracking of a person or object using a single video camera</a>
15	<a href="#">8,068,436</a>  <a href="#">Methods and systems for estimating network available bandwidth using packet pairs and spatial filtering</a>
16	<a href="#">8,024,189</a>  <a href="#">Identification of people using multiple types of input</a>
17	<a href="#">7,996,762</a>  <a href="#">Correlative multi-label image annotation</a>
18	<a href="#">7,916,848</a>  <a href="#">Methods and systems for participant sourcing indication in multi-party conferencing and for audio source discrimination</a>
19	<a href="#">7,892,079</a>  <a href="#">Detect-point-click (DPC) based gaming systems and techniques</a>
20	<a href="#">7,885,463</a>  <a href="#">Image segmentation using spatial-color Gaussian mixture models</a>
21	<a href="#">7,852,369</a>  <a href="#">Integrated design for omni-directional camera and microphone array</a>
22	<a href="#">7,783,075</a>  <a href="#">Background blurring for video conferencing</a>
23	<a href="#">7,774,703</a>  <a href="#">Virtual shadow awareness for multi-user editors</a>
24	<a href="#">7,739,109</a>  <a href="#">System and process for muting audio transmission during a computer network-based, multi-party teleconferencing session</a>
25	<a href="#">7,725,395</a>  <a href="#">System and method for devising a human interactive proof that determines</a>

- [whether a remote client is a human or a computer program](#)
- 26 [7,671,940](#) **T** [Dual panel display and method for improving display performance thereof](#)
  - 27 [7,634,533](#) **T** [Systems and methods for real-time audio-visual communication and data collaboration in a network conference environment](#)
  - 28 [7,620,552](#) **T** [Annotating programs for automatic summary generation](#)
  - 29 [7,613,686](#) **T** [Image retrieval based on relevance feedback](#)
  - 30 [7,612,955](#) **T** [Multi-function lens module](#)
  - 31 [7,612,794](#) **T** [System and method for applying digital make-up in video conferencing](#)
  - 32 [7,607,816](#) **T** [Light guide plate and backlight module adopting same](#)
  - 33 [7,589,760](#) **T** [Distributed presentations employing inputs from multiple video cameras located at multiple sites and customizable display screen configurations](#)
  - 34 [7,580,054](#) **T** [Automated online broadcasting system and method using an omni-directional camera system for viewing meetings over a computer network](#)
  - 35 [7,515,172](#) **T** [Automated online broadcasting system and method using an omni-directional camera system for viewing meetings over a computer network](#)
  - 36 [7,512,883](#) **T** [Portable solution for automatic camera management](#)
  - 37 [7,506,356](#) **T** [Skimming continuous multimedia content](#)
  - 38 [7,493,340](#) **T** [Image retrieval based on relevance feedback](#)
  - 39 [7,433,495](#) **T** [Automatic detection and tracking of multiple individuals using multiple cues](#)
  - 40 [7,428,315](#) **T** [Automatic detection and tracking of multiple individuals using multiple cues](#)
  - 41 [7,428,000](#) **T** [System and method for distributed meetings](#)
  - 42 [7,417,983](#) **T** [Decentralized architecture and protocol for voice conferencing](#)
  - 43 [7,403,894](#) **T** [Annotating programs for automatic summary generations](#)
  - 44 [7,379,848](#) **T** [Event-based system and process for recording and playback of collaborative electronic presentations](#)
  - 45 [7,349,008](#) **T** [Automated camera management system and method for capturing presentations using videography rules](#)
  - 46 [7,349,005](#) **T** [Automated video production system and method using expert video production rules for online publishing of lectures](#)
  - 47 [7,313,808](#) **T** [Browsing continuous multimedia content](#)
  - 48 [7,305,095](#) **T** [System and process for locating a speaker using 360 degree sound source localization](#)
  - 49 [7,293,280](#) **T** [Skimming continuous multimedia content](#)
  - 50 [7,254,241](#) **T** [System and process for robust sound source localization](#)
  - 51 [7,231,064](#) **T** [Mode-based multi-hypothesis tracking using parametric contours](#)
  - 52 [7,171,025](#) **T** [Automatic detection and tracking of multiple individuals using multiple cues](#)
  - 53 [7,151,843](#) **T** [Automatic detection and tracking of multiple individuals using multiple cues](#)
  - 54 [7,130,446](#) **T** [Automatic detection and tracking of multiple individuals using multiple cues](#)
  - 55 [7,127,071](#) **T** [System and process for robust sound source localization](#)
  - 56 [7,113,605](#) **T** [System and process for time delay estimation in the presence of correlated noise and reverberation](#)
  - 57 [7,099,798](#) **T** [Event-based system and process for recording and playback of collaborative electronic presentations](#)



- 58 [7,039,200](#)  [System and process for time delay estimation in the presence of correlated noise and reverberation](#)
- 59 [7,039,199](#)  [System and process for locating a speaker using 360 degree sound source localization](#)
- 60 [7,035,764](#)  [System and process for tracking an object state using a particle filter sensor fusion technique](#)
- 61 [7,028,325](#)  [Annotating programs for automatic summary generation](#)
- 62 [6,999,599](#)  [System and method for mode-based multi-hypothesis tracking using parametric contours](#)
- 63 [6,999,593](#)  [System and process for robust sound source localization](#)
- 64 [6,937,266](#)  [Automated online broadcasting system and method using an omni-directional camera system for viewing meetings over a computer network](#)
- 65 [6,934,370](#)  [System and method for communicating audio data signals via an audio communications medium](#)
- 66 [6,882,959](#)  [System and process for tracking an object state using a particle filter sensor fusion technique](#)
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