Ross Cutler

I. Contact and web sites

- Email: ross.cutler@outlook.com and ross.cutler@microsoft.com
- Microsoft: https://www.microsoft.com/en-us/research/people/rcutler
- Github: https://rosscutler.github.io
- LinkedIn: https://www.linkedin.com/in/rosscutler
- Google Scholar: https://scholar.google.com/citations?user=Qee1AwMAAAAJ
- Location: Bellevue, Washington, USA

II. Education

Ph.D. Computer Science 2000
University of Maryland, College Park, Maryland

M.S. Computer Science 1996
University of Maryland, College Park, Maryland

B.S. Computer Science, Physics, Mathematics 1992
University of Maryland, College Park, Maryland

III. Professional experience

Microsoft Corp.

Distinguished Engineer 2023 – Present

- As the manager of IC3-AI, I lead a team of applied scientists and engineers within the Intelligent Conversation and Communications Cloud (IC3) division of Office. We apply AI to enhance call quality and reliability, as well as to create innovative user experiences. Our technology is used by hundreds of millions of users worldwide, and our AI models ship in Teams, Skype, Windows, Azure, and XBox.

Partner Applied Scientist 2014 – 2023

- As the manager of IC3-AI, I lead a team of applied scientists and engineers within the Intelligent Conversation and Communications Cloud (IC3) division of Office. We apply AI to enhance call quality and reliability, as well as to create innovative user experiences. Our technology is used by hundreds of millions of users worldwide, and our AI models ship in Teams, Skype, Windows, Azure, and XBox.

Principal Architect 2005 - 2014

- As an Audio/Video Architect for Skype/Lync, I focused on enhancing the quality of AV calls. I led a team of data scientists and machine learning experts to achieve this goal. Additionally, I oversaw the AV certification team, ensuring that devices are fully compatible with Skype/Lync for optimal performance. Products shipped include Lync, Skype, Microsoft RoundTable, Video Kinect, and Polycom CX300.

System Architect 2003 - 2005

- I started the incubation of the RoundTable product, transforming it from a research project to a shipping product. My responsibilities included writing the business plan, fundraising, camera design, video processing, acoustics, active speaker detection, audio quality, and industrial design. I also managed the RoundTable IP strategy and successfully filed over 30 patents related to the product.

Researcher 2000 - 2003

- As a researcher at Microsoft Research, I developed innovative hardware and software technologies to enhance communication, including meeting room recording and teleconferencing. I initiated the RingCam project, which ultimately led to the RoundTable product. My research expertise includes omnidirectional video, camera calibration, sound source localization, and event detection.

University of Maryland, College Park, Maryland

Researcher, Dept. of Computer Science 1996 - 2000

- Airborne Video Surveillance project: developed real-time human/vehicle trackers, object classifiers, and video indexing. Lead integrator for activity monitoring system, which recognizes human and vehicle activities from airborne video.

- Designed and implemented the Keck Laboratory for the Analysis of Visual Motion (a 64-camera system designed for real-time vision applications).
- Conducted research on speaker detection, periodic motion, gesture recognition, and human activity monitoring. Developed video capture software for six different frame grabbers (the first PC-based system to capture uncompressed video to disk/memory).

University of Pennsylvania
Consultant 1999 - 2000

- Developed real-time stereo depth estimation software used in real-time 3D video conferencing (immersive telepresence).

ImageCorp, College Park, Maryland
Consultant 1999 - 2000

- Developed a real-time system to track head motion of drivers in vehicles. Also developed a 1394 camera driver and a real-time C++ video processing library.

Scientech, Rockville, Maryland
Consultant 1992 - 2000

- Developed risk analysis algorithms and applications for complex systems (e.g., nuclear reactors, large software systems).

Johns Hopkins University, Baltimore, Maryland
Research Staff, Dept. of Neuroscience 1988 - 2000

- Developed data acquisition, analysis, and experiment control applications for single/multi-neuron recording in animals and humans (laboratory and operating room). Used for research and treatment of pain, Alzheimer's, and Parkinson's disease.

IV. Refereed journal papers

1) N.-C. Ristea, B. Naderi, A. Saabas, R. Cutler, S. Braun, and S. Branets, "ICASSP 2024 speech signal improvement challenge," *Open Journal of Signal Processing*, 2025
2) L. Diener, S. Branets, A. Saabas, and R. Cutler, "The ICASSP 2024 audio deep packet loss concealment grand challenge," *Open Journal of Signal Processing*, 2025
3) Y. Hosseinkashi, J. Pool, L. Tankelevitch, R. Cutler, and C. Madan, "Meeting effectiveness and inclusiveness: large-scale measurement, identification of key features, and prediction in real-world remote meetings," *Proceedings of the ACM on Human-Computer Interaction (CSCW)*, 2024
4) H. Dubey, A. Aazami, V. Gopal, S. Braun, R. Cutler, A. Ju, M. Zohourian, M. Tang, M. Golestaneh, and R. Aichner, "ICASSP 2023 deep noise suppression challenge," *Open Journal of Signal Processing*, 2024
5) R. Cutler, A. Saabas, B. Naderi, N. Ristea, and S. Branets, "ICASSP 2023 Speech Signal Improvement Challenge," *Open Journal of Signal Processing*, 2024
6) R. Cutler, A. Saabas, T. Parnamaa, M. Purin, E. Indenbom, N.-C. Ristea, H. Gamper, S. Braun, and R. Aichner, "ICASSP 2023 acoustic echo cancellation challenge," *Open Journal of Signal Processing*, 2024
7) R. Cutler, Y. Hosseinkashi, J. Pool, S. Filipi, R. Aichner, Y. Tu, and J. Gehrke, "Meeting effectiveness and inclusiveness in remote collaboration," in *Proceedings of the ACM on Human-Computer Interaction*, vol. 5, pp. 1–29, ACM New York, NY, USA, 2021
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 Transactions on Multimedia*, vol. 10, no. 8, pp. 1541–1552, 2008
9) Z. Liu, M. Cohen, D. Bhatnagar, R. Cutler, and Z. Zhang, "Head-size equalization for improved visual perception in video conferencing," *IEEE Transactions on Multimedia*, vol. 9, no. 7, pp. 1520–1527, 2007
10) C. BenAbdelkader, R. G. Cutler, and L. S. Davis, "Gait recognition using image self-similarity," *EURASIP Journal on Advances in Signal Processing*, vol. 2004, no. 4, pp. 1–14, 2004
11) I. Haritaoglu, R. Cutler, D. Harwood, and L. S. Davis, "Backpack: Detection of people carrying objects using silhouettes," *Computer Vision and Image Understanding*, vol. 81, no. 3, pp. 385–397, 2001
12) R. Cutler and L. S. Davis, "Robust real-time periodic motion detection, analysis, and applications," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 22, no. 8, pp. 781–796, 2000

V. Refereed conference papers

1) B. Naderi, R. Cutler, J. Cho, N. Khongbantabam, and D. Ivkovic, "ICME 2025 grand challenge on video super-resolution for video conferencing," in *ICME*, 2025

2) R. Cutler, B. Naderi, V. Gopal, and D. Palle, "A multidimensional measurement of photorealistic avatar quality of experience," in *CSCW*, 2025
3) A. Gottipati, S. Khairy, G. Mittag, V. Gopal, and R. Cutler, "Offline to online learning for real-time bandwidth estimation," in *IEEE International Conference on Communications: Communication Software and Multimedia Symposium*, 2025
4) Y. Fan, J. Pool, S. Filipi, and R. Cutler, "Topic-conversation relevance (tcr) dataset and benchmarks," in *NeurIPS*, 2024
5) S. Khairy, G. Mittag, V. Gopal, F. Y. Yan, Z. Niu, E. Ameri, S. Inglis, M. Golestaneh, and R. Cutler, "ACM MMSys 2024 bandwidth estimation in real time communications challenge," in *Proceedings of the 15th ACM Multimedia Systems Conference*, pp. 339–345, 2024
6) N.-C. Ristea, A. Saabas, R. Cutler, B. Naderi, S. Braun, and S. Branets, "ICASSP 2024 speech signal improvement challenge," in *ICASSP*, 2024
7) L. Diener, S. Branets, A. Saabas, and R. Cutler, "The ICASSP 2024 audio deep packet loss concealment grand challenge," in *ICASSP*, 2024
8) I. Gurvich, I. Leichter, D. R. Palle, Y. Asher, A. Vinnikov, I. Abramovski, V. Gopal, R. Cutler, and E. Krupka, "A Real-Time Active Speaker Detection System Integrating an Audio-Visual Signal with a Spatial Querying Mechanism," in *ICASSP*, 2024
9) B. Naderi, R. Cutler, and N.-C. Ristea, "Multi-dimensional speech quality assessment in crowdsourcing," in *ICASSP*, 2024
10) B. Naderi and R. Cutler, "A crowdsourcing approach to video quality assessment," in *ICASSP*, 2024
11) B. Naderi, R. Cutler, N. S. Khongbantabam, Y. Hosseinkashi, H. Turbell, A. Sadovnikov, and Q. Zhou, "VCD: A Video Conferencing Dataset for Video Compression," in *ICASSP*, 2024
12) R. Bothra, A. Taneja, D. Bhattacharjee, R. Gandhi, V. Padmanabhan, R. Bhagwan, N. Natarajan, S. Guha, and R. Cutler, "Don't forget the user: It's time to rethink network measurements," in *HotNets*, 2023
13) E. Indenbom, N.-C. Ristea, A. Saabas, T. Pärnamaa, J. Gužvin, and R. Cutler, "DeepVQE: Real Time Deep Voice Quality Enhancement for Joint Acoustic Echo Cancellation, Noise Suppression and Dereverberation," in *INTERSPEECH*, 2023
14) L. Diener, M. Purin, S. Sootla, A. Saabas, R. Aichner, and R. Cutler, "PLCMOS - a data-driven non-intrusive metric for the evaluation of packet loss concealment algorithms," in *INTERSPEECH*, 2023
15) X. Gitiaux, A. Khant, C. Reddy, J. Gupchup, and R. Cutler, "Aura: Privacy-preserving augmentation to improve test set diversity in noise suppression applications," in *ICASSP*, 2023
16) Q. Fu, S.-W. Fu, Y. Fan, Y. Wu, Z. Chen, J. Gupchup, and R. Cutler, "Real-time speech interruption analysis: From cloud to client deployment," in *ICASSP*, 2023
17) G. Mittag, B. Naderi, V. Gopal, and R. Cutler, "LSTM-based Video Quality Prediction Accounting for Temporal Distortions in Videoconferencing Calls," in *ICASSP*, 2023
18) S.-W. Fu, Y. Fan, Y. Hosseinkashi, J. Gupchup, and R. Cutler, "Improving meeting inclusiveness using speech interruption analysis," in *ACM Multimedia*, 2022
19) C. K. Reddy, V. Gopal, H. Dubey, S. Matusevych, R. Cutler, and R. Aichner, "Musicnet: Compact convolutional neural network for real-time background music detection," in *INTERSPEECH*, 2022
20) P. Panda, M. J. Nicholas, M. Gonzalez-Franco, K. Inkpen, E. Ofek, R. Cutler, K. Hinckley, and J. Lanier, "Alltogether: Effect of avatars in mixed-modality conferencing environments," in *2022 Symposium on Human-Computer Interaction for Work*, pp. 1–10, 2022
21) G. Yi, W. Xiao, Y. Xiao, B. Naderi, S. Möller, G. Mittag, R. Cutler, Z. Zhang, D. S. Williamson, F. Chen, F. Yang, and S. Shang, "Non-intrusive Objective Speech Quality Assessment (NISQA) Challenge for Online Conferencing Applications," in *INTERSPEECH*, 2022
22) L. Diener, S. Sootla, A. Saabas, S. Branets, and R. Cutler, "INTERSPEECH 2022 Audio Deep Packet Loss Concealment Challenge," in *INTERSPEECH*, 2022
23) R. Cutler, A. Saabas, T. Parnamaa, M. Purin, H. Gamper, S. Braun, K. Sørensen, and R. Aichner, "ICASSP 2022 Acoustic Echo Cancellation Challenge," in *ICASSP*, 2022
24) H. Dubey, V. Gopal, R. Cutler, S. Matusevych, S. Braun, S. E. Eskimez, M. Thakker, T. Yoshioka, H. Gamper, and A. Robert, "ICASSP 2022 Deep Noise Suppression Challenge," in *ICASSP*, 2022
25) M. Purin, S. Sootla, M. Sponza, A. Saabas, and R. Cutler, "Aecmos: A speech quality assessment metric for echo impairment," in *ICASSP*, 2022
26) C. K. Reddy, V. Gopal, and R. Cutler, "DNSMOS P.835: A non-intrusive perceptual objective speech quality metric to evaluate noise suppressors," in *ICASSP*, 2022
27) R. Cutler, A. Saabas, T. Parnamaa, M. Loide, S. Sootla, M. Purin, H. Gamper, S. Braun, K. Sorensen, R. Aichner, *et al.*, "INTERSPEECH 2021 acoustic echo cancellation challenge," in *INTERSPEECH*, 2021
28) B. Naderi and R. Cutler, "Subjective evaluation of noise suppression algorithms in crowdsourcing," in *INTERSPEECH*, 2021
29) B. Naderi, S. Möller, and R. Cutler, "Speech quality assessment in crowdsourcing: Comparison category rating method," in *QoMEX*, 2021
30) C. K. Reddy, H. Dubey, V. Gopal, R. Cutler, S. Braun, H. Gamper, R. Aichner, and S. Srinivasan, "ICASSP 2021 deep

noise suppression challenge," in *ICASSP*, pp. 6623–6627, IEEE, 2021
31) R. Cutler, B. Naderi, M. Loide, S. Sootla, and A. Saabas, "Crowdsourcing approach for subjective evaluation of echo impairment," in *ICASSP*, pp. 406–410, IEEE, 2021
32) C. K. Reddy, V. Gopal, and R. Cutler, "DNSMOS: A non-intrusive perceptual objective speech quality metric to evaluate noise suppressors," in *ICASSP*, pp. 6493–6497, IEEE, 2021
33) K. Sridhar, R. Cutler, A. Saabas, T. Parnamaa, M. Loide, H. Gamper, S. Braun, R. Aichner, and S. Srinivasan, "Icassp 2021 acoustic echo cancellation challenge: Datasets, testing framework, and results," in *ICASSP*, pp. 151–155, IEEE, 2021
34) C. K. Reddy, H. Dubey, K. Koishida, A. Nair, V. Gopal, R. Cutler, S. Braun, H. Gamper, R. Aichner, and S. Srinivasan, "INTERSPEECH 2021 deep noise suppression challenge," in *INTERSPEECH*, 2021
35) C. K. Reddy, V. Gopal, R. Cutler, E. Beyrami, R. Cheng, H. Dubey, S. Matusevych, R. Aichner, A. Aazami, S. Braun, *et al.*, "The INTERSPEECH 2020 deep noise suppression challenge: Datasets, subjective testing framework, and challenge results," in *INTERSPEECH*, 2020
36) Y. Xia, S. Braun, C. K. Reddy, H. Dubey, R. Cutler, and I. Tashev, "Weighted speech distortion losses for neural-network-based real-time speech enhancement," in *ICASSP*, pp. 871–875, IEEE, 2020
37) R. Cutler, R. Mehran, S. Johnson, C. Zhang, A. Kirk, O. Whyte, and A. Kowdle, "Multimodal active speaker detection and virtual cinematography for video conferencing," in *ICASSP*, pp. 4527–4531, IEEE, 2020
38) B. Naderi and R. Cutler, "An open source implementation of ITU-T recommendation P.808 with validation," in *INTERSPEECH*, 2020
39) J. Pool, E. Beyrami, V. Gopal, A. Aazami, J. Gupchup, J. Rowland, B. Li, P. Kanani, R. Cutler, and J. Gehrke, "Lumos: A library for diagnosing metric regressions in web-scale applications," in *Proceedings of the 26th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (KDD)*, pp. 2562–2570, 2020
40) G. Mittag, R. Cutler, Y. Hosseinkashi, M. Revow, S. Srinivasan, N. Chande, and R. Aichner, "DNN No-Reference PSTN Speech Quality Prediction," in *ICASSP*, 2020
41) C. K. Reddy, R. Cutler, and J. Gehrke, "Supervised classifiers for audio impairments with noisy labels," in *INTERSPEECH*, 2020
42) C. K. Reddy, E. Beyrami, J. Pool, R. Cutler, S. Srinivasan, and J. Gehrke, "A scalable noisy speech dataset and online subjective test framework," in *INTERSPEECH*, 2020
43) A. R. Avila, H. Gamper, C. Reddy, R. Cutler, I. Tashev, and J. Gehrke, "Non-intrusive speech quality assessment using neural networks," in *ICASSP*, pp. 631–635, IEEE, 2019
44) J. Gupchup, E. Beyrami, M. Ellis, Y. Hosseinkashi, S. Johnson, and R. Cutler, "On design of problem token questions in quality of experience surveys," in *2018 Tenth International Conference on Quality of Multimedia Experience (QoMEX)*, pp. 1–3, IEEE, 2018
45) J. Gupchup, Y. Hosseinkashi, P. Dmitriev, D. Schneider, R. Cutler, A. Jefremov, and M. Ellis, "Trustworthy experimentation under telemetry loss," in *Proceedings of the 27th ACM International Conference on Information and Knowledge Management (CIKM)*, pp. 387–396, 2018
46) J. Gupchup, Y. Hosseinkashi, M. Ellis, S. Johnson, and R. Cutler, "Analysis of problem tokens to rank factors impacting quality in voip applications," in *2017 Ninth International Conference on Quality of Multimedia Experience (QoMEX)*, pp. 1–6, IEEE, 2017
47) Y. Chang, R. Cutler, Z. Liu, Z. Zhang, A. Acero, and M. Turk, "Automatic head-size equalization in panorama images for video conferencing," in *2005 IEEE International Conference on Multimedia and Expo*, pp. 506–509, IEEE, 2005
48) H. S. Malvar, L.-w. He, and R. Cutler, "High-quality linear interpolation for demosaicing of bayer-patterned color images," in *ICASSP*, vol. 3, pp. iii–485, IEEE, 2004
49) R. Cutler, "The distributed meetings system," in *2003 IEEE International Conference on Acoustics, Speech, and Signal Processing, 2003. Proceedings.(ICASSP'03).*, vol. 4, pp. IV–756, IEEE, 2003
50) R. Cutler, Y. Rui, A. Gupta, J. J. Cadiz, I. Tashev, L.-w. He, A. Colburn, Z. Zhang, Z. Liu, and S. Silverberg, "Distributed meetings: A meeting capture and broadcasting system," in *Proceedings of the Tenth ACM International Conference on Multimedia (ACM MM)*, pp. 503–512, 2002
51) C. BenAbdelkader, R. Cutler, and L. Davis, "Motion-based recognition of people in eigengait space," in *Proceedings of Fifth IEEE International Conference on Automatic Face Gesture Recognition*, pp. 267–272, IEEE, 2002
52) C. BenAbdelkader, R. Cutler, and L. Davis, "Stride and cadence as a biometric in automatic person identification and verification," in *Proceedings of Fifth IEEE International Conference on Automatic Face Gesture Recognition*, pp. 372–377, IEEE, 2002
53) C. BenAbdelkader, R. Cutler, and L. Davis, "Person identification using automatic height and stride estimation," in *Object Recognition Supported by User Interaction for Service Robots*, vol. 4, pp. 377–380, IEEE, 2002
54) C. BenAdbelkader, R. Cutler, and L. Davis, "Motion-based recognition of people using image self-similarity," in *Proceedings of the 5th IEEE International Conference on Automatic Face and Gesture Recognition*, pp. 254–259, 2002
55) C. BenAbdelkader, R. Cutler, H. Nanda, and L. Davis, "Eigengait: Motion-based recognition of people using image self-similarity," in *International Conference on Audio and Video-based Biometric Person Authentication*, pp. 284–294,

Springer, Berlin, Heidelberg, 2001
56) R. Cutler and L. Davis, "Robust periodic motion and motion symmetry detection," in *Proceedings IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, vol. 2, pp. 615–622, IEEE, 2000
57) R. Cutler and L. Davis, "Look who's talking: Speaker detection using video and audio correlation," in *2000 IEEE International Conference on Multimedia and Expo (ICME)*, vol. 3, pp. 1589–1592, IEEE, 2000
58) R. Cutler and L. Davis, "Real-time periodic motion detection, analysis, and applications," in *Proceedings. 1999 IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR)*, vol. 2, pp. 326–332, IEEE, 1999
59) I. Haritaoglu, R. Cutler, D. Harwood, and L. S. Davis, "Backpack: Detection of people carrying objects using silhouettes," in *Proceedings of the Seventh IEEE International Conference on Computer Vision (ICCV)*, vol. 1, pp. 102–102, IEEE Computer Society, 1999
60) R. Cutler and L. Davis, "View-based detection and analysis of periodic motion," in *Proceedings. Fourteenth International Conference on Pattern Recognition (ICPR)*, vol. 1, pp. 495–500, IEEE, 1998
61) R. Cutler and M. Turk, "View-based interpretation of real-time optical flow for gesture recognition," in *Proceedings Third IEEE International Conference on Automatic Face and Gesture Recognition*, pp. 416–421, IEEE, 1998

VI. Workshop papers

1) J. Chee, S. Braun, V. Gopal, and R. Cutler, "Performance optimizations on u-net speech enhancement models," in *IEEE MMSP*, 2022
2) G. Toderici, R. Timofte, J. Ballé, E. Agustsson, N. Johnston, F. Mentzer, Z. Sinno, A. Norkin, K. Rapaka, E. Noury, R. Cutler, and L. Versari, "CVPR Challenge on Learned Image Compression," in *CVPR Challenge on Learned Image Compression*, 2022
3) J. Gupchup, A. Aazami, Y. Fan, S. Filipi, T. Finley, S. Inglis, M. Asteborg, L. Caroll, R. Chari, M. Cozowicz, *et al.*, "Resonance: Replacing software constants with context-aware models in real-time communication," in *Machine Learning for Systems, NeurIPS*, 2020
4) H. Gamper, C. K. Reddy, R. Cutler, I. J. Tashev, and J. Gehrke, "Intrusive and non-intrusive perceptual speech quality assessment using a convolutional neural network," in *2019 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, pp. 85–89, IEEE, 2019
5) J. Fang, M. Ellis, B. Li, S. Liu, Y. Hosseinkashi, M. Revow, A. Sadovnikov, Z. Liu, P. Cheng, S. Ashok, *et al.*, "Reinforcement learning for bandwidth estimation and congestion control in real-time communications," in *Machine Learning for Systems, NeurIPS*, 2019
6) A. Mondal, R. Cutler, C. Huang, J. Li, and A. Kuzmanovic, "Surecall: Towards glitch-free real-time audio/video conferencing," in *2010 IEEE 18th International Workshop on Quality of Service (IWQoS)*, pp. 1–9, IEEE, 2010
7) C. Zhang, P. Yin, Y. Rui, R. Cutler, and P. Viola, "Boosting-based multimodal speaker detection for distributed meetings," in *2006 IEEE Workshop on Multimedia Signal Processing*, pp. 86–91, IEEE, 2006
8) S. Leorin, L. Lucchese, and R. G. Cutler, "Quality assessment of panorama video for videoconferencing applications," in *2005 IEEE 7th Workshop on Multimedia Signal Processing*, pp. 1–4, IEEE, 2005
9) C. BenAbdelkader, R. Cutler, and L. Davis, "View-invariant estimation of height and stride for gait recognition," in *International Workshop on Biometric Authentication*, pp. 155–167, Springer, Berlin, Heidelberg, 2002
10) H. Nanda and R. Cutler, "Practical calibrations for a real-time digital omnidirectional camera," in *CVPR Technical Sketch*, vol. 20, 2001
11) R. Cutler, C. S. Shekhar, B. Burns, R. Chellappa, R. C. Bolles, and L. S. Davis, "Monitoring human and vehicle activities using airborne video," in *28th AIPR Workshop: 3D Visualization for Data Exploration and Decision Making*, vol. 3905, pp. 146–153, International Society for Optics and Photonics, 2000
12) L. Davis, E. Borovikov, R. Cutler, D. Harwood, and T. Horprasert, "Multi-perspective analysis of human action," in *In Third Int. Workshop on Cooperative Distributed Vision*, 2000
13) R. Cutler and L. Davis, "Developing real-time computer vision applications for Intel Pentium III based Windows NT workstations," in *Workstations," FRAME-RATE: Frame-rate Applications, Methods and Experiences with Regularly Available Technology and Equipment, in conjunction with IEEE International Conference on Computer Vision (ICCV)*, 1999
14) R. Cutler and L. Davis, "View-based detection and analysis of periodic motion," in *DARPA Image Understanding Workshop*, 1998
15) L. Davis, R. Chelappa, A. Rosenfeld, D. Harwood, I. Haritaoglu, and R. Cutler, "Visual surveillance and monitoring," in *DARPA Image Understanding Workshop*, 1998
16) R. Cutler and L. Davis, "Qualitative analysis of human actions," in *DARPA Image Understanding Workshop*, 1997

VII. Theses

1) R. G. Cutler, *On the detection and analysis of oscillatory motions in video sequences*. PhD thesis, University of Maryland, College Park, 2000

VIII. Posters and technical reports

1) R. G. Cutler, R. Duraiswami, J. H. Qian, L. S. Davis, *et al.*, "Design and implementation of the University of Maryland Keck Laboratory for the analysis of visual movement," tech. rep., 2002
2) R. G. Cutler, "Face recognition using infrared images and eigenfaces," tech. rep., 1996

IX. Book chapters

1) R. Cutler and K. S. Candan, "Multimedia authoring systems," in *Multimedia Database Systems*, pp. 279–296, Springer, Berlin, Heidelberg, 1996

X. Industry publications

1) R. G. Cutler and et. al, "Microsoft Teams and Skype for Business specifications for USB peripherals, PCs, and Microsoft Teams Room systems, versions 1-3." https://docs.microsoft.com/en-us/skypeforbusiness/certification/test-spec, 2016
2) R. G. Cutler and et. al, "Microsoft Lync Specifications for USB peripherals, PCs, and Lync room systems, versions A-F." https://docs.microsoft.com/en-us/skypeforbusiness/certification/test-spec, 2011

XI. Invited talks

1) IEEE VCIP Keynote 2024: Photorealistic avatars for video conferencing
2) IEEE IEMCON Keynote 2022: Developing Machine Learning-Based Speech Enhancement Models for Teams and Skype
3) RTC @ Scale 2022: Developing Machine Learning-Based Speech Enhancement Models for Teams and Skype
4) Intel Speech Conference 2021: Developing Machine Learning-Based Speech Enhancement Models for Teams and Skype
5) INTERNOISE Keynote 2021: Developing Machine Learning-Based Speech Enhancement Models for Teams and Skype

XII. Patents

1) R. Cutler, H. Dubey, and V. Gopal, "Adaptive enhancement of audio or video signals," July 8 2025. US Patent 12,354,582
2) R. Cutler, V. Gopal, and C. Reddy, "Quality estimation models for various signal characteristics," Nov. 26 2024. US Patent 12,153,648
3) M. Ellis, J. Fang, R. Cutler, D. Zhao, and T. Duong, "Reinforcement learning in real-time communications," July 11 2023. US Patent 11,699,084
4) M. Ellis, J. Fang, J. Cho, and R. Cutler, "Service issue prioritisation based on impact using software telemetry," Apr. 18 2023. US Patent 11,632,286
5) R. Cutler, "Dynamic detection and correction of light field camera array miscalibration," Jan. 10 2023. US Patent 11,553,123
6) R. Cutler, "Systems and methods of selection acknowledgement for interfaces promoting obfuscation of user operations," Dec. 13 2022. US Patent 11,526,273
7) J. Fang, R. Cutler, M. Ellis, D. Zhao, and T. Duong, "Reinforcement learning in real-time communications," June 28 2022. US Patent 11,373,108
8) R. G. Cutler, "Panoramic camera system," June 7 2022. US Patent 11,356,586
9) R. G. Cutler, "Systems and methods for obfuscating user selections," Apr. 12 2022. US Patent 11,301,056
10) R. G. Cutler, "Dynamic detection and correction of light field camera array miscalibration," Mar. 8 2022. US Patent 11,270,464
11) R. G. Cutler, "Systems and methods for input interfaces promoting obfuscation of user navigation and selections," Dec. 28 2021. US Patent 11,209,979
12) E. Martin, J. Fang, J. H. Cho, and R. G. Cutler, "Service issue prioritisation based on impact using software telemetry," Nov. 23 2021. US Patent 11,184,218
13) R. G. Cutler, "Systems and methods of selection acknowledgement for interfaces promoting obfuscation of user operations," Sept. 28 2021. US Patent 11,132,069
14) R. G. Cutler, "Systems and methods for identifying user-operated features of input interfaces obfuscating user navigation," Sept. 7 2021. US Patent 11,112,881
15) R. G. Cutler, "Telepresence devices operation methods," Aug. 10 2021. US Patent 11,089,265
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