

Karan Ahuja

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I am a Wissner Slivka Assistant Professor in Computer Science at Northwestern University. My research group creates computing technologies that sense, track and understand humans to augment their interactions and assist them in their daily lives. These efforts overcome challenges in high-impact application areas of virtual and augmented reality, wearable computing, natural user interfaces, and health sensing.

EDUCATION

Carnegie Mellon University | PITTSBURGH, USA

2017 - 2023 | PhD | Human-Computer Interaction

Advisors: Chris Harrison and Mayank Goel

Indian Institute of Information Technology | GUWAHATI, INDIA

2013 - 2017 | B.Tech. | Computer Science and Engineering

GPA : 4/4 | Department Rank 1

AWARDS AND HONORS

Forbes 30 under 30	2024
MIT 35 under 35 Asia	2024
ACM SIGCHI Outstanding Dissertation Award	2024
Lisa Wissner-Slivka & Benjamin Slivka Chair in Computer Science, Northwestern University	2024
Honorable Mention Award (Top 5%) ACM CHI	2023
Heidelberg Laureate Forum Young Researcher	2022
Siebel Fellow	2022
Honorable Mention Award (Top 5%) ACM CHI	2022
Fast Company Innovation by Design Finalist	2021
Honorable Mention Award (Top 5%) ACM CHI	2021
Collegiate Inventors Competition Graduate Finalist	2020
Fast Company Innovation by Design Finalist	2020
Honorable Mention Award (Top 5%) ACM UIST	2019
President's Gold Medal India	2017
IBM Blue Scholar	2017

CURRENT APPOINTMENT

Northwestern University

Present | Evanston, USA | Lisa Wissner-Slivka & Benjamin Slivka Chair in Computer Science | Assistant Professor
Director of the Sensing, Perception, Interactive Computing, Experiences (SPICE) Lab in the Department of Computer Science at the McCormick School of Engineering leading.

RESEARCH AND CONSULTING APPOINTMENTS

Google

2023 - 24 | Seattle, USA | Visiting Research Scientist

Visiting Faculty Researcher at Google leading efforts on Augmented Reality and Experiences.

Apple

May – Aug 2022 | Cupertino, USA | Research Intern

Collaborators: Camera Incubation and Wireless Sensing Group | I investigated power-efficient human sensing and activity recognition techniques.

Meta Reality Labs

May – Aug 2021 | Redmond, USA | Research Intern

Collaborators: Wolf Kienzle, Eric Whitmire, and Joseph Greer | I worked on context-aware user digitization techniques using sparse on-body sensor configurations.

Microsoft Research

Jan – Apr 2020 | Pittsburgh, USA | Research Consultant

I worked on motion stylization techniques for mixed reality.

Microsoft Research

May – Aug 2019 | Redmond, USA | Research Intern

Collaborators: Andy Wilson, Eyal Ofek, Mar Gonzalez-Franco, and Christian Holz | I worked on novel sensing and interaction techniques for mixed reality.

IBM Research

May – Jul 2016 | New Delhi, India | Research Intern

Collaborators: Kuntal Dey | I built eye-gaze estimation algorithms for mobile devices.


IBM Research


May 2015 – Dec 2015 | New Delhi, India | Research Intern

Collaborators: Kuntal Dey | I developed human behavioral inference models for cognitive load analysis.

PUBLICATIONS

MAJOR CONFERENCE PUBLICATIONS (PEER-REVIEWED AND JOURNAL QUALITY)

34. Vasco Xu, Chenfeng Gao, Henry Hoffmann **Karan Ahuja** . "MobilePoser: Real-Time Full-Body Pose Estimation and 3D Human Translation from IMUs in Mobile Consumer Devices." To Appear In The ACM Symposium on User Interface Software and Technology (UIST '24). Association for Computing Machinery, New York, NY, USA.
33. Mustafa Doga Dogan, Eric J. Gonzalez, Andrea Colaco, **Karan Ahuja** , Ruofei Du, Johnny Lee, Mar Gonzalez-Franco, and David Kim. "Augmented Object Intelligence: Making the Analog World Interactable with XR-Objects." To Appear In The ACM Symposium on User Interface Software and Technology (UIST '24). Association for Computing Machinery, New York, NY, USA.
32. Anders Christensen, Nooshin Mojab, Khushman Patel, **Karan Ahuja** , Zeynep Akata, Ole Winther, Mar Gonzalez-Franco, and Andrea Colaco. "Geometry Fidelity for Spherical Images." To appear In European Conference on Computer Vision (ECCV) 2024
31. Alexander Kyu, Hongyu Mao, Junyi Zhu, Mayank Goel, and **Karan Ahuja** . 2024. EITPose: Wearable and Practical Electrical Impedance Tomography for Continuous Hand Pose Estimation. In Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '24). Association for Computing Machinery, New York, NY, USA, Article 402, 1–10.
30. Riku Arakawa, **Karan Ahuja** , Kristie Mak, Gwendolyn Thompson, Sam Shaaban, Oliver Lindhiem, and Mayank Goel. 2023. LemurDx: Using Unconstrained Passive Sensing for an Objective Measurement of Hyperactivity in Children with no Parent Input. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) 7, 2, Article 46 (June 2023), 23 pages. UbiComp '23.
-  29. Vimal Mollyn, Riku Arakawa, Mayank Goel, Chris Harrison, and **Karan Ahuja** . 2023. IMUPoser: Full-Body Pose Estimation using IMUs in Phones, Watches, and Earbuds. In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23). Association for Computing Machinery, New York, NY, USA, Article 529, 1–12. **Best Paper Nomination**
28. Riku Arakawa, Mayank Goel, Chris Harrison, and **Karan Ahuja** . 2022. RGBDGaze: Gaze Tracking on Smartphones with RGB and Depth Data. In Proceedings of the 2022 International Conference on Multimodal Interaction (ICMI '22). Association for Computing Machinery, New York, NY, USA, 329–336.
27. Vimal Mollyn, **Karan Ahuja** , Dhruv Verma, Chris Harrison, and Mayank Goel. 2022. SAMoSA: Sensing Activities with Motion and Subsampled Audio. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) 6, 3, Article 132 (September 2022), 19 pages. UbiComp '22.

26. **Karan Ahuja** , Vivian Shen, Cathy Fang, Nathan Riopelle, Andy Kong, and Chris Harrison. 2022. ControllerPose: Inside-Out Body Capture with VR Controller Cameras. In CHI Conference on Human Factors in Computing Systems (CHI '22). Association for Computing Machinery, New York, NY, USA, Article 108, 1–13.
-  25. Craig Shultz, Daehwa Kim, **Karan Ahuja** , and Chris Harrison. 2022. TriboTouch: Micro-Patterned Surfaces for Low Latency Touchscreens. In CHI Conference on Human Factors in Computing Systems (CHI '22). Association for Computing Machinery, New York, NY, USA, Article 347, 1–13. **Best Paper Nomination**
24. **Karan Ahuja** , Eric Whitmire, Joseph Greer, and Wolf Kienzle. 2022. ActivityPoser: Activity driven Full-Body Pose Estimation from Sparse IMU Configurations. In Symposium on Spatial User Interaction (SUI '22). Association for Computing Machinery, New York, NY, USA, Article 19, 1–2.
23. **Karan Ahuja** , Paul Strelci, and Christian Holz. 2021. TouchPose: Hand Pose Prediction, Depth Estimation, and Touch Classification from Capacitive Images. In The 34th Annual ACM Symposium on User Interface Software and Technology (UIST '21). Association for Computing Machinery, New York, NY, USA, 997–1009.
22. Andy Kong, **Karan Ahuja** , Mayank Goel, and Chris Harrison. 2021. EyeMU Interactions: Gaze + IMU Gestures on Mobile Devices. In Proceedings of the 2021 International Conference on Multimodal Interaction (ICMI '21). Association for Computing Machinery, New York, NY, USA, 577–585.
21. **Karan Ahuja** , Eyal Ofek, Mar Gonzalez-Franco, Christian Holz, and Andrew D. Wilson. 2021. CoolMoves: User Motion Accentuation in Virtual Reality. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), Volume 5, Issue 2, Article 52 (June 2021), 23 pages. UbiComp '21.
-  20. **Karan Ahuja** , Sven Mayer, Mayank Goel, and Chris Harrison. 2021. Pose-on-the-Go: Approximating User Pose with Smartphone Sensor Fusion and Inverse Kinematics. In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21). Association for Computing Machinery, New York, NY, USA, Article 9, 1–12. **Fast Company Innovation by Design Finalist**
19. **Karan Ahuja** , Yue Jiang, Mayank Goel, and Chris Harrison. 2021. Vid2Doppler: Synthesizing Doppler Radar Data from Videos for Training Privacy-Preserving Activity Recognition. In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21). Association for Computing Machinery, New York, NY, USA, Article 292, 1–10.
18. **Karan Ahuja*** , Deval Shah*, Sujeath Pareddy, Franceska Xhakaj, Amy Ogan, Yuvraj Agarwal, and Chris Harrison. 2021. Classroom Digital Twins with Instrumentation-Free Gaze Tracking. In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21). Association for Computing Machinery, New York, NY, USA, Article 484, 1–9. (*Equal Contribution)
-  17. Yasha Iravantchi, **Karan Ahuja** , Mayank Goel, Chris Harrison, and Alanson Sample. 2021. PrivacyMic: Utilizing Inaudible Frequencies for Privacy Preserving Daily Activity Recognition. In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21). Association for Computing Machinery, New York, NY, USA, Article 198, 1–13. **Best Paper Nomination**
16. **Karan Ahuja** , Andy Kong, Mayank Goel, and Chris Harrison. 2020. Direction-of-Voice (DoV) Estimation for Intuitive Speech Interaction with Smart Devices Ecosystems. In Proceedings of the 33rd Annual ACM Symposium on User Interface Software and Technology (UIST '20). Association for Computing Machinery, New York, NY, USA, 1121–1131.
15. **Karan Ahuja** , Mayank Goel, and Chris Harrison. 2020. BodySLAM: Opportunistic User Digitization in Multi-User AR/VR Experiences. In Symposium on Spatial User Interaction (SUI '20). Association for Computing Machinery, New York, NY, USA, Article 16, 1–8.
14. **Karan Ahuja** , Abhishek Bose, Mohit Jain, Kuntal Dey, Anil Joshi, Krishnaveni Achary, Blessin Varkey, Chris Harrison, and Mayank Goel. 2020. Gaze-based Screening of Autistic Traits for Adolescents and Young Adults using Prosaic Videos. In Proceedings of the 3rd ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS '20). Association for Computing Machinery, New York, NY, USA, 324.
-  13. **Karan Ahuja** , Chris Harrison, Mayank Goel, and Robert Xiao. 2019. MeCap: Whole-Body Digitization for Low-Cost VR/AR Headsets. In Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology (UIST '19). Association for Computing Machinery, New York, NY, USA, 453–462. **Best Paper Nomination**
-  12. **Karan Ahuja** , Sujeath Pareddy, Robert Xiao, Mayank Goel, and Chris Harrison. 2019. LightAnchors: Appropriating Point Lights for Spatially-Anchored Augmented Reality Interfaces. In Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology (UIST '19). Association for Computing Machinery, New York, NY, USA, 189–196. **Collegiate Inventors Competition Finalist**
11. **Karan Ahuja*** , Dohyun Kim*, Franceska Xhakaj, Virag Varga, Anne Xie, Stanley Zhang, Jay Eric Townsend, Chris Harrison, Amy Ogan, and Yuvraj Agarwal. 2019. EduSense: Practical Classroom Sensing at Scale. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), Volume 3, Issue 3, Article 71 (September 2019), 26 pages. UbiComp '19. (*Equal Contribution)

10. **Karan Ahuja***, Rushil Khurana*, Zac Yu, Jennifer Mankoff, Chris Harrison, and Mayank Goel. 2018. GymCam: Detecting, Recognizing and Tracking Simultaneous Exercises in Unconstrained Scenes. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), Volume 2, Issue 4, Article 185 (December 2018), 17 pages. UbiComp '19. (*Equal Contribution)
9. Jason Wu, **Karan Ahuja**, Richard Li, Victor Chen, and Jeffrey Bigham. 2019. ScratchThat: Supporting Command-Agnostic Speech Repair in Voice-Driven Assistants. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), Volume 3, Issue 2, Article 63 (June 2019), 17 pages. UbiComp '19.
8. **Karan Ahuja**, Rahul Islam, Varun Parashar, Kuntal Dey, Chris Harrison, and Mayank Goel. 2018. EyeSpyVR: Interactive Eye Sensing Using Off-the-Shelf, Smartphone-Based VR Headsets. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), Volume 2, Issue 2, Article 57 (June 2018), 10 pages. UbiComp '18.
7. Gierad Laput, **Karan Ahuja**, Mayank Goel, and Chris Harrison. 2018. Ubioustics: Plug-and-Play Acoustic Activity Recognition. In Proceedings of the 31st Annual ACM Symposium on User Interface Software and Technology (UIST '18). Association for Computing Machinery, New York, NY, USA, 213–224. **Fast Company Innovation by Design Finalist**
6. Aanand Nayyar, Utkarsh Dwivedi, **Karan Ahuja**, Nitendra Rajput, Seema Nagar, and Kuntal Dey. 2017. OptiDwell: Intelligent Adjustment of Dwell Click Time. In Proceedings of the 22nd International Conference on Intelligent User Interfaces (IUI '17). Association for Computing Machinery, New York, NY, USA, 193–204.
5. **Karan Ahuja**, Anubhav Pandey, Ferdous A. Barbhuiya, Seema Nagar, and Kuntal Dey. "SmallStore: A region-of-interest based adaptive system for compressing human face videos." In TENCON 2017-2017 IEEE Region 10 Conference, pp. 1004-1009. IEEE, 2017.
4. **Karan Ahuja**, Rahul Islam, Ferdous A. Barbhuiya, and Kuntal Dey. "A preliminary study of CNNs for iris and periocular verification in the visible spectrum." In 2016 23rd International conference on pattern recognition (ICPR), pp. 181-186. IEEE.
3. **Karan Ahuja**, Rahul Islam, Ferdous A. Barbhuiya, and Kuntal Dey. "Convolutional neural networks for ocular smartphone-based biometrics." Pattern Recognition Letters 91 (2017): 17-26.
2. **Karan Ahuja**, Ruchika Banerjee, Seema Nagar, Kuntal Dey, and Ferdous Barbhuiya. "Eye center localization and detection using radial mapping." In 2016 IEEE International Conference on image processing (ICIP), pp. 3121-3125. IEEE, 2016.
1. **Karan Ahuja**, Abhishek Bose, Seema Nagar, Kuntal Dey, and Ferdous Barbhuiya. "ISURE: User authentication in mobile devices using ocular biometrics in visible spectrum." In 2016 IEEE International Conference on Image Processing (ICIP), pp. 335-339. IEEE, 2016.

CONFERENCE ADJUNCT PUBLICATIONS (PEER-REVIEWED)

3. Eric J. Gonzalez, Kushman Patel, **Karan Ahuja** and Mar Gonzalez-Franco, "XDTK: A Cross-Device Toolkit for Input & Interaction in XR," 2024 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), Orlando, FL, USA, 2024, pp. 467-470.
2. Eric J Gonzalez, Ishan Chatterjee, Mar Gonzalez-Franco, Andrea Colaço, and **Karan Ahuja**. 2024. Intent-driven input device arbitration for XR. In Extended Abstracts of the 2024 CHI Conference on Human Factors in Computing Systems (CHI EA '24). Association for Computing Machinery, New York, NY, USA, Article 199, 1–5.
1. Utkarsh Dwivedi, **Karan Ahuja**, Rahul Islam, Ferdous A. Barbhuiya, Seema Nagar, and Kuntal Dey. 2017. EYamKayo: Interactive Gaze and Facial Expression Captcha. In Proceedings of the 22nd International Conference on Intelligent User Interfaces Companion (IUI '17 Companion). Association for Computing Machinery, New York, NY, USA, 53–56.

PATENTS

20. E Ofek, M Franco, A Wilson, K Ahuja, C Holz. Real time styling of motion for virtual environments. US Patent App. 11,055,891. **Patent granted**
19. K Ahuja, S Pareddy, R Xiao, C Harrison, M Goel. System and method using light sources as spatial anchors. US Patent App. US 16/868,061 filed Nov 2020.
18. G Laput, K Ahuja, M Goel, C Harrison. System and method for acoustic activity recognition. US Patent App. 11,069,334. **Patent granted**
17. R Vaculin, U Dwivedi, K Ahuja, S Nagar, K Dey. Product placement optimization using blind-spot analysis in retail environments. US Patent App. 11,120,459. **Patent granted**
16. K Ahuja, K Dey, S Mukherjee, S Nagar. Selective display of objects based on eye gaze attributes. US Patent App. 11,119,572. **Patent granted**

15. K Ahuja, R Banerjee, K Dey, SKV Sessa, S Nagar. System and method for creating shoppers gaze, implicit interest, identity and social network based information disbursement system and combo deals. US Patent App. 15/430,603 filed Feb 2017.
14. K Ahuja, H Bansal, K Dey, S Nagar. Pre-Cooling and Pre-Heating Transportation Vehicles Using Predictive Crowd Estimation Techniques. US Patent App. 15/407,816. **Patent granted**
13. K Ahuja, H Bansal, K Dey, S Nagar, R Vaculin. Regulating environmental conditions within an event venue. US Patent App. 15/836,802 filed Jan 2017.
12. K Ahuja, K Dey, U Dwivedi, S Nagar, R Vaculin. System, method and computer program product for stateful instruction-based dynamic man-machine interactions for humanness validation. US Patent App. 15/400,458 filed Jan 2017.
11. K Ahuja, K Dey, S Nagar, R Vaculin. Using dynamic facial landmarks for head gaze estimation. US Patent App. US15/841,653 filed Dec 2017.
10. K Ahuja, K Dey, S Nagar, R Vaculin. Analyzing team game play interactions using gaze data. US Patent App. 9,999,805. **Patent granted**
9. K Ahuja, K Dey, S Nagar, R Vaculin. System, Method and Recording medium for tracking gaze with respect to a moving plane with a camera with respect to a moving plane. US Patent 9,874,934. **Patent granted**
8. K Ahuja, K Dey, S Nagar, R Vaculin. System, method, and recording medium for tracking gaze using only a monocular camera from a moving screen. US Patent 9,996,744. **Patent granted**
7. K Ahuja, K Dey, S Nagar, R Vaculin. Determining Player Performance Statistics Using Gaze Data. US Patent App. 15/184,229 filed June 2016. **Patent granted**
6. K Ahuja, K Dey, S Nagar, R Vaculin. Analyzing and Interpreting a Referee's Actions Using Gaze Data. US Patent App. 15/184,239 filed June 2016.
5. K Ahuja, K Dey, S Nagar, R Vaculin. System, method, and recording medium for advertisement remarketing. US Patent App. 15/180,260 filed June 2016.
4. K Ahuja, K Dey, S Nagar, R Vaculin. System, method, and recording medium for location-based advertisement. US Patent App. 15/180,256 filed June 2016.
3. K Ahuja, R Banerjee, K Dey, S Nagar. Gaze Point Detection Using Dynamic Facial Reference Points Under Varying Lighting Conditions. US Patent App. 10,082,866. **Patent granted**
2. K Ahuja, R Banerjee, K Dey, S Nagar. Managing power, lighting, and advertising using gaze behavior data. US Patent App. 15/002,746 filed Jan 2016.
1. K Ahuja, U Dwivedi, K Dey, S Nagar, R Vaculin. Gaze based classroom notes generator. US Patent App. 15/842,334. **Patent granted**

PAPER REVIEWING

ACM CHI	2019, 2020, 2021, 2022, 2023, 2024
ACM UIST	2019, 2020, 2021, 2022, 2023, 2024
ACM IMWUT	2018, 2019, 2020, 2021, 2022, 2023
ACM MobileHCI	2019, 2021, 2022
IEEE/ACM ISMAR	2020, 2021, 2022
ACM ISS	2020, 2022
ACM TOCHI	2022
ACM SIGGRAPH	2021
IEEE TBIOM	2021
IET Image Processing	2018
Elsevier CVIU	2017

ACADEMIC SERVICE

Organizing Committee , Interactivity Co-Chair, ACM CHI	2025
Organizing Committee , Workshop Co-Chair, ACM UIST	2024
Program Committee, Associate Chair (AC) , ACM UIST Papers	2024

Best Paper Selection Committee , ACM UIST Papers	2024
Organizing Committee , Posters, IEEE Body Sensor Networks	2024
PhD Admissions Committee , Computer Science, Northwestern University	2024
PhD Admissions Committee , Technology and Social Behaviour, Northwestern University	2024
Program Committee, Associate Chair (AC) , ACM CHI Papers	2024
Editor-in-Chief , ACM XRDS (formally Crossroads)	2021-23
Session Chair , ACM UIST, XR Interactions	2022
Program Committee, Associate Chair (AC) , ACM MobileHCI Papers	2022
Program Committee, Associate Chair (AC) , ACM UIST Papers	2022
Best Paper Selection Committee , ACM MobileHCI Papers	2021
Session Chair , ACM UIST, Applications in Mixed Reality	2021
Session Chair , ACM MobileHCI, Augmented and Virtual Reality	2021
Session Chair , ACM CHI, Input, Spatial Interaction and Practice Support	2021
Session Chair , ACM CHI, UX, Interaction Design and Research	2021
Program Committee, Associate Chair (AC) , ACM UIST Papers	2021
Organizing Committee , Video Co-Chair, ACM UIST	2021
Program Committee, Associate Chair (AC) , ACM MobileHCI Papers	2021
Program Committee, Associate Chair (AC) , ACM CHI Late-Breaking Work	2021
Organizing Committee , Video Chair, ACM UIST	2020
Program Committee, Associate Chair (AC) , ACM CHI Late-Breaking Work	2020

ACADEMIC TEACHING EXPERIENCE

Machine Learning and Sensing , Co-Instructor, Carnegie Mellon University	2022
User-Centered Research and Evaluation , Teaching Assistant, Carnegie Mellon University	2021
Building User-Focused Sensing Systems , Teaching Assistant, Carnegie Mellon University	2021

SELECTED INVITED TALKS AND KEYNOTES

Apple Human-Centered ML , The Human API: Understanding Ourselves Through Our Digital Self	2024
SIGCHI Awards , The Human API: Understanding Ourselves Through Our Digital Self	2024
Seoul National University, Keynote Speaker , HCI Day	2023
Samsung , Building Practical and Deployable User Digitization Technologies	2023
Northwestern University , Intro to Grad Studies	2023
University of Michigan , HCI Colloquium	2023
Google Research , Enabling Practical and Rich User Digitization	2023
University of Pittsburgh , School of Nursing, Eye-tracking for Health Sensing	2023
EPFL , Enabling Practical and Rich User Digitization	2023
MIT , Enabling Practical and Rich User Digitization	2023
Northwestern , Enabling Practical and Rich User Digitization	2023
Cornell , Enabling Practical and Rich User Digitization	2023
UW Madison , Enabling Practical and Rich User Digitization	2023
UMass Amherst , Enabling Practical and Rich User Digitization	2023
ETH Zurich , Enabling Practical and Rich User Digitization On-the-Go	2023
MBZUAI , Enabling Practical and Rich User Digitization On-the-Go	2023
University of California Los Angeles , Invited Lecture, Embedded Systems	2023
Stanford , HCI Lunch Seminar, Enabling Practical User Digitization On-the-Go	2022

U Chicago , Enabling Practical User Digitization On-the-Go	2022
UT Austin , Enabling Practical User Digitization On-the-Go	2022
CMU Summit, Keynote Speaker , AR/VR Panel	2022
New York Augmented Reality Meetup , User Digitization in XR	2022
University of California Los Angeles , Invited Lecture, Engineering Interactive System	2022
Indian Institute of Technology Gandhinagar , Privacy Sensitive Sensing	2021
Semiconductor Research Corporation , Spatially-Anchored Augmented Reality Interfaces	2021
CONIX , Exploring Interactions and User-digitization in Extended Reality	2021
Facebook Reality Labs , User digitization and activity recognition	2021
AREA Research , Sensing Human Gestures	2020
Carnegie Mellon University , Edge Computing, Privacy Sensitive Sensing	2020
CONIX , Interactions in Augmented Reality	2020
Microsoft Research , AI Breakthroughs, Privacy Sensitive Sensing	2020
Apple Machine Hearing and Sensing , Direction-of -Voice Estimation	2020
Apple AI and Machine Interaction , Direction-of -Voice Estimation	2020
Semiconductor Research Corporation , LightAnchors	2020
Qualcomm , Ad Hoc Spatially-Anchored Augmented Reality Interfaces	2020
Carnegie Mellon University , Invited Lecture, Machine Learning and Sensing	2020
AREA Research , Spatially-Anchored Augmented Reality Interfaces	2019

PHD STUDENTS ADVISED

Vasco Xu	2023 - Present
Jesse Gao	2024 - Present

UNDERGRADUATE AND MASTERS STUDENTS ADVISED

Anjie Yang , Undergraduate, Computer Science	2024 - Present
Taeyoung Yeon , Undergraduate, Computer Science	2024 - Present
Bishnu Dev , Masters, Computer Science	2024 - Present
Hongyu Mao , Masters, Computational Design	2023 - Present
Alexander Kyu , Masters, Human-Computer Interaction	2023
Vimal Mollyn , Masters, Engineering Design and Data Science (Currently PhD Student at CMU)	2022-23
Daehwa Kim , Masters, Computer Science (Currently PhD Student at CMU)	2022
Andy Kong , Undergraduate, Computer Science	2020-21
Riku Arakawa , Masters, Computer Science (Currently PhD Student at CMU)	2021
Dhruv Verma , Undergraduate, Computer Science (Currently PhD Student at U Toronto)	2020
Andey Ng , Undergraduate, Information Systems	2019

SELECTED PRESS COVERAGE

CNBC Forbes 30 Under 30 Asia: Here are Indians who are revolutionising healthcare and science	2024
NDTV Forbes 30 Under 30 Asia List Out. These Indians Made It	2024
Hindustan Times Forbes 30 Under 30 Asia 2024: Meet 86 Indians who made it to the coveted list	2024
Firstpost Forbes 30 under 30 Asia list: Which young Indians made the cut?	2024
Northwestern News Karan Ahuja Wins ACM SIGCHI Outstanding Dissertation Award	2024
Gizmodo You Could Soon Move Around in VR With an iPhone, an Apple Watch, and Some AirPods	2023

Hackster.io Body Tracking on a Budget	2023
Today Show Step into the Metaverse: How the virtual world may change reality	2022
NBC Nightly News Inside the metaverse: what does the future of virtual reality feel like?	2022
CNN These researchers came up with a solution for one of VR's biggest issues: tracking your legs	2022
Gizmodo A Bump-Covered Screen Protector Can Surprisingly Make Touchscreens React Faster to Swipes	2022
ACM TechNews A Solution for One of VR's Biggest Issues: Tracking Your Legs	2022
RoadToVR Researchers Show Full-body VR Tracking with Controller-mounted Cameras	2022
VR Times Researchers Demonstrate Body Tracking via Modded VR Controllers in Meta Quest 2	2022
RealVirtual ControllerPose: full body capture with cameras on the controllers	2022
UploadVR Researchers Demonstrate Body Tracking From Cameras On VR Controllers	2022
TechCrunch Controlling your phone with your eyes	2022
TechXplore Your eyes can control your smartphone via new gaze-tracking tool	2022
ACM CACM The Eyes Have It	2022
BiometricUpdate Carnegie Mellon research develops gaze-tracking smartphone tool	2022
TechHive In the future, we might control our smart homes with just our eyes	2022
Devdiscourse New gaze-tracking tool lets you control your smartphone with your eyes	2022
Daijiworld New gaze-tracking tool to help your eyes control your smartphone	2022
Android Police This neat eye-tracking experiment looks like a weirdly convenient way to interact with your phone	2022
HotHardware Researchers Develop EyeMU Tech That Lets You Control Your Phone With Your Eyes	2022
Business Wire Siebel Scholars Foundation Announces Class of 2022	2021
Silicon Valley Daily Siebel Scholars Names 2022 Class	2021
Pittsburgh Post-Gazette As smart technology expands, focus is on privacy safeguards	2021
TechCrunch CMU researchers show potential of privacy-preserving activity tracking using radar	2021
Cult of Mac Full-body Animoji? Smart tech uses iPhone camera to track body motion	2021
MLive Worried your smart home device is listening to you?	2021
Engadget AI could tell smart speakers what direction your voice is coming from	2020
Hackaday Robots can finally answer, are you talking to me?	2020
The Register Hey, over here, I'm talking. Academics help computers figure out which way you're facing when you speak	2020
PRNewsWire 2020 Collegiate Inventors Competition Finalists Show Future of American Innovation	2020
Digital Trends Think your house is smart now? Here's a peek at what it'll be like with AR	2019
The Register LightAnchors array: LEDs in routers, power strips, and more, can ship data to this smartphone app	2019
Hackaday Modulated Pilot LightsAnchor AR to real world	2019
NPR (Wesa.fm) CMU Researchers Developing Tech To Help College Professors Be Better Teachers	2019
TechXplore , EduSense: Researchers develop comprehensive classroom sensing system	2019
New Atlas Computer vision system tracks instructors' performance	2019
Display Daily MeCap Can Add Low Cost Whole Body Digitization to VR/AR Headsets	2019
ACM Technews GymCam Tracks Exercises That Wearable Monitors Cannot	2019
Market Research Finance GymCam Counts Your Reps And Sets Just Like A Personal Trainer	2019
I-programmer GymCam Tracks Your Workout	2019
Medgadget GymCam Automatically Classifies, Counts Exercise Reps	2019
ZDnet This camera watches while you work out	2019
Hackaday GymCam knows exactly what you've been doing in the gym	2019
New Atlas Computer vision system tracks workouts when wearables can't	2019
Engadget Speculative gadgets at the Future Interfaces Group	2018
TechCrunch This robot uses lasers to 'listen' to its environment	2018

The Register (UK)	Alexa heard what you did last summer– AI Recognizes Activities from Sound	2018
Science Daily	Sound, Vibration Recognition Boost Context-Aware Computing	2018
Futurity	Sound and Vibrations Let Smart Devices Know Where They Are	2018