

## Fields of Interest

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Extended Reality, adaptive interfaces, multimodal interactions

## Education

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- 08/2022 - Present **Carnegie Mellon University**  
*Pittsburgh, PA* Ph.D. in Human-Computer Interaction. Advisor: David Lindlbauer
- 09/2017 - 12/2021 **Swarthmore College**  
*Swarthmore, PA* B.A. in Computer Science, GPA: 4.0/4.0
- 10/2019 - 06/2020 **Wadham College, University of Oxford**  
*Oxford, UK* Visiting Student

## Publications

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### Conference

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- C.16 **Y. Cheng**, J. Bloch, A. Wang, A. Bianchi, A. Withana, A. Guo, L. Heller, D. Lindlbauer. Auditorily Embodied Conversational Agents: Effects of Spatialization and Situated Audio Cues on Presence and Social Perception. ACM CHI 2026.  
<https://arxiv.org/abs/2601.22082>
- C.15 H. Zhou, X. Huang, W. Wijaya, **Y. Cheng**, D. Lindlbauer, E. Velloso, A. Bianchi, Z. Sarsenbayeva, A. Withana. One Body, Two Minds: Alternating VR Perspective During Remote Teleoperation of Supernumerary Limbs. ACM CHI 2026.  
<https://arxiv.org/abs/2602.00493>
- C.14 **Y. Cheng**, H. Shirado, S. Kasahara. Conversational Agents on Your Behalf: Opportunities and Challenges of Shared Autonomy in Voice Communication for Multitasking. ACM CHI 2025.  
<https://dl.acm.org/doi/10.1145/3706598.3714017>
- C.13 **Y. Cheng**, D. Lindlbauer. Sensing Noticeability in Ambient Information Environments. ACM CHI 2025.  
<https://dl.acm.org/doi/10.1145/3706598.3713511>
- C.12 **Y. Cheng**, L. Heller, S. Cho, D. Lindlbauer. First or Third-Person Hearing? A Controlled Evaluation of Auditory Perspective on Embodiment and Sound Localization Performance. IEEE ISMAR 2024.  
<https://ieeexplore.ieee.org/document/10765161>
- C.11 M. Wu, **Y. Cheng**, D. Lindlbauer. New Ears: An Exploratory Study of Audio Interaction Techniques for Performing Search in a Virtual Reality Environment. IEEE ISMAR 2024.  
<https://ieeexplore.ieee.org/document/10765432>
- C.10 Z. Li, **Y. Cheng**, Y. Yan, D. Lindlbauer. Predicting the noticeability of dynamic virtual elements in virtual reality. ACM CHI 2024.

<https://dl.acm.org/doi/abs/10.1145/3613904.3642399>

- C.09 A. Wang, **Y. Cheng**, D. Lindlbauer. MARingBA: Music-Adaptive Ringtones for Blended Audio Notification Delivery. ACM CHI 2024.
- C.08 **Y. Cheng**, C. Gebhardt, C. Holz. InteractionAdapt: Interaction-driven Workspace Adaptation for Situated Virtual Reality Environments. ACM UIST 2023. <https://dl.acm.org/doi/10.1145/3586183.3606717>
- C.07 M. Beyer, **Y. Cheng**, C. Holz. Cross-Device Shortcuts: Seamless Attention-guided Content Transfer via Opportunistic Deep Links between Apps and Devices. ACM ICMI 2023. <https://dl.acm.org/doi/10.1145/3577190.3614145>
- C.06 P. Strel, R. Armani, **Y. Cheng**, C. Holz. HOOV: Hand Out-Of-View Tracking for Proprioceptive Interaction using Inertial Sensing. ACM CHI 2023. <https://dl.acm.org/doi/abs/10.1145/3544548.3581468>
- C.05 **Y. Cheng**, T. Luong, A. Fender, P. Strel, C. Holz. ComforTable User Interfaces: Surfaces Reduce Input Error, Time, and Exertion for Tabletop and Mid-air User Interfaces. IEEE ISMAR 2022. <https://ieeexplore.ieee.org/abstract/document/9995404>
- C.04 **Y. Cheng**, H. Yin, Y. Yan, J. Gugenheimer, D. Lindlbauer. Towards Understanding Diminished Reality. ACM CHI 2022. <https://dl.acm.org/doi/abs/10.1145/3491102.3517452>
- C.03 **Y. Cheng**, Y. Yan, X. Yi, Y. Shi, D. Lindlbauer. SemanticAdapt: Optimization-based Adaptation of Mixed Reality Layouts Leveraging Virtual-Physical Semantic Connections. ACM UIST 2021. <https://dl.acm.org/doi/abs/10.1145/3472749.3474750>
- C.02 F. Han, **Y. Cheng**, M. Strachan, X. Ma. Hybrid Paper-Digital Interfaces: A Systematic Literature Review. ACM DIS 2021. <https://dl.acm.org/doi/abs/10.1145/3461778.3462059>
- C.01 M. Nebeling, S. Rajaram, L. Wu, **Y. Cheng**, J. Herskovitz. XRStudio: A Virtual Production Technology Probe for Immersive Instructional Experiences. ACM CHI 2021. <https://dl.acm.org/doi/10.1145/3411764.3445323>

## Journal

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- J.04 **Y. Cheng**, A. Carden, H. Cho, C. Fidalgo, J. Wieland, D. Lindlbauer. Augmented Reality Productivity In-the-Wild: A Diary Study of Usage Patterns and Experiences of Working With AR Laptops in Real-World Settings. IEEE TVCG, Vol. 31, Issue 10, 2025. <https://ieeexplore.ieee.org/document/11097055>
- J.03 T. Luong, **Y. Cheng**, M. Möbus, A. Fender, C. Holz. Controllers or Bare Hands? A Controlled Evaluation of Input Techniques on Interaction Performance and Exertion in Virtual Reality. IEEE TVCG, Vol. 29, Issue 11, 2023. <https://ieeexplore.ieee.org/document/10269728>
- J.02 J. Herskovitz, **Y. Cheng**, A. Guo, A. Sample, M. Nebeling. XSpace: An Augmented Reality Toolkit for Enabling Spatially-Aware Distributed Collaboration. PACMHCI, Vol. 6, Issue ISS, 2022. <https://dl.acm.org/doi/abs/10.1145/3567721>

- J.01 **Y. Cheng**, M. Strachan, Z. Weiss, M. Deb, D. Carone, V. Ganapati. Illumination Pattern Design with Deep Learning for Single-shot Fourier Ptychographic Microscopy. Optics Express Vol. 27, Issue 2, 2019. <https://www.osapublishing.org/oe/abstract.cfm?uri=oe-27-2-644>

## Posters, Demos, and Workshop Papers

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- P.01 A. Normoyle, **Y. Cheng**. The Q\*Bird Level Designer: User-Assisted Level Design in Augmented Reality. ACM Motion, Interaction, and Games 2019. <https://dl.acm.org/doi/10.1145/3359566.3364686>

## Experience

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- 08/2022 - Present **Augmented Perception Lab, Carnegie Mellon University**  
Pittsburgh, PA, USA *Ph.D. Student*  
Research on context-aware adaptive interfaces for Extended Reality.  
Advised by David Lindlbauer
- 05/2025 - 08/2025 **Google**  
Mountain View, CA, USA *Student Researcher*  
Research on data-driven methods for understanding and modeling Extended Reality productivity interactions.  
Advised by David Kim
- 06/2024 - 08/2024 **Cybernetic Humanity Studio, Sony CSL**  
Okinawa, Japan *Research Intern*  
Research on mediating voice communication with computational agents.  
Advised by Shunichi Kasahara
- 01/2022 - 08/2022 **Sensing, Interaction, and Perception Lab, ETH Zurich**  
Zurich, Switzerland *Research Intern*  
Research on context-aware adaptive interfaces for Extended Reality.  
Advised by Christian Holz
- 05/2021 - 09/2021 **Augmented Perception Lab, Carnegie Mellon University**  
Virtual *Research Intern*  
Research on context-aware adaptive interfaces for Extended Reality.  
Advised by David Lindlbauer and Jan Guggenheimer
- 05/2020 - 10/2020 **Information Interaction Lab, University of Michigan**  
Virtual *Research Intern*  
Research on authoring tools for collaboration and education in Augmented and Virtual Reality.  
Advised by Michael Nebeling
- 07/2019 - 09/2019 **Human-Computer Interaction Initiative, Hong Kong University of Science and Technology**  
Hong Kong *Research Intern*  
Research on integrating interactive digital content into physical paper.  
Advised by Xiaojuan Ma
- 01/2019 - 07/2019 **Department of Computer Science, Swarthmore College**  
Swarthmore, PA *Research Intern*  
Research on procedural generation of games in Augmented Reality.  
Advised by Aline Normoyle
- 01/2018 - 08/2018 **Department of Engineering, Swarthmore College**

Swarthmore, PA *Research Intern*  
Research on deep learning methods for Fourier Ptychography.  
Advised by Vidya Ganapati

## Mentoring

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- 01/2026 - Present **Jeongin Park** (Seoul National University visiting Master's student)
- 01/2026 - Present **Vlad Miloserdov** (CMU undergraduate student)
- 01/2026 - Present **Jay Wankhede** (CMU undergraduate student)
- 01/2026 - Present **Jocelyn Wang** (CMU undergraduate student)
- 09/2025 - Present **Trey Tuscai** (CMU MHCI student)
- 09/2025 - 12/2025 **Viviana Staicu** (CMU undergraduate student)
- 05/2025 - 09/2025 **Jarod Bloch** (CMU undergraduate student)
- 05/2025 - 08/2025 **Jose Lima** (CMU undergraduate student)
- 09/2024 - 12/2024 **Henrique Lee** (CMU undergraduate student)
- 01/2024 - 05/2024 **Muzhe Wu** (CMU METALS student) | now: Ph.D. student at University of Michigan
- 05/2023 - 09/2023 **Alexander Wang** (CMU M.S. student in Music and Technology) | now: Ph.D. student at Carnegie Mellon University
- 01/2023 - 05/2023 **Joyce Zhang** (CMU undergraduate student) | now: Riot Games
- 05/2021 - 09/2021 **Hesper Yin** (CMU undergraduate student) | now: Ph.D. at University of California, San Diego

## Awards

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- 2022 **Croucher Scholarship for Doctoral Study**  
\$90,000 academic scholarship
- 2021 **Dean's Office Conference Funding**  
\$150 award for attending ACM Symposium on User Interface Software and Technology  
**Baltimore/Broad Summer Research Fellowship**  
\$4,800 award for conducting summer research
- 2020 **Baltimore/Broad Summer Research Fellowship**  
\$4,800 award for conducting summer research
- 2019 **Dean's Office Conference Funding**  
\$500 award for travel assistance to ACM Motion, Interaction, and Games  
**Cilento Technology Fund**  
\$4,800 award for conducting summer research
- 2018 **Surdna Summer Research Fellowship**  
\$4,800 award for conducting summer research

## Academic Service

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- 2026 **ACM UIST Student Volunteer Chair**
- 2021-2026 **Reviewer**  
ACM CHI, ACM UIST, IEEE ISMAR, IEEE VR
- 2025 **ACM CHI Subcommittee Chair Assistant**  
**ACM UIST Student Volunteer**
- 2024 **ACM CHI Student Volunteer**
- 2023 **ACM CHI Student Volunteer**

## Teaching

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- 2023 **Teaching Assistant**, Carnegie Mellon University  
Programming User Interfaces (Graduate)  
Designing Human-Centered Systems (Undergraduate)
- 2021 **Computer Science Mentor**, Swarthmore College  
**Teaching Assistant & Tutor**, Swarthmore College  
1st/2nd year course on digital and embedded systems (ENGR 015)
- 2019 **Teaching Assistant**, Swarthmore College  
1st/2nd year course on mechanics (ENGR 006)
- 2018 **Engineering Tutor**, Swarthmore College  
1st/2nd year course on digital and embedded systems (ENGR 015)