

Rachel A. Brown

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RESEARCH INTERESTS	Human perception and computer graphics: stereoscopic and peripheral vision, novel displays, eye tracking, machine learning, computer vision, and automation of human-focused tasks	
EMPLOYMENT & EDUCATION	Lewis & Clark College , Portland, OR Adjunct Professor, August 2023 - Present NVIDIA Corporation , Santa Clara, CA Senior Research Scientist, February 2017 - September 2023 The University of California, Berkeley , Berkeley, CA Lecturer, School of Information, Jan 2022 - Present PhD. in Vision Science, May 2018 M.S. in Computer Science, May 2016 The College of William & Mary , Williamsburg, VA B.S. in Psychology, May 2011 B.S. in Biology, May 2011	
TEACHING EXPERIENCE	DSCI 140: Introduction to Data Science <i>Adjunct Professor at Lewis & Clark College</i>	Fall 2023
	DATASCI 281: Computer Vision <i>Instructor for an advanced graduate course in the Berkeley School of Information</i>	Spring 2022 - Present
	VS 217: Oculomotor Functions and Neurology <i>Graduate Student Instructor for a hands-on lab course in the School of Optometry</i>	Spring 2013 & 2014
	VS 219: Binocular Vision and Space Perception <i>Graduate Student Instructor for hands-on lab course in the School of Optometry</i>	Spring 2013 & 2014
	Introduction to Python <i>Co-Instructor for a free Biophysics module course open to the public</i>	September 2014
	CS 194-26/294-26: Computer Vision and Computational Photography <i>Graduate Student Instructor for a mixed graduate and undergraduate project-based course</i>	Fall 2015
	CS 184/284: Computer Graphics & Imaging <i>Reader for a mixed graduate and undergraduate core course</i>	Spring 2016
INVITED TALKS	Portland Brain & Cognitive Sciences Symposium <i>What You See Where You're Not Looking</i>	August 2021
	Pacific University School of Optometry <i>Gaze Contingent Rendering and Human Perception</i>	November 2019
	GTC San Jose <i>60 ms To Get It Right</i>	March 2019
	Grace Hopper Conference <i>Latency Requirements for Foveated Rendering in Virtual Reality</i>	September 2018

PUBLICATIONS

- Duinkharjav, Budmonde, et al. The Shortest Route Is Not Always the Fastest: Probability-Modeled Stereoscopic Eye Movement Completion Time in VR. *ACM Transactions on Graphics (TOG)* 41.6 (2023): *In Press*.
- Duinkharjav, Budmonde, et al. Image features influence reaction time: a learned probabilistic perceptual model for saccade latency. *ACM Transactions on Graphics (TOG)* 41.4 (2022): 1-15.
- Brown, Rachel, et al. Efficient Dataflow Modeling of Peripheral Encoding in the Human Visual System. *arXiv preprint arXiv:2107.11505* (2021).
- Spjut J, Boudaoud B, Kim J, Greer T, Albert R, Stengel M, Akit K, Luebke D. Toward standardized classification of foveated displays. *IEEE transactions on visualization and computer graphics*. 2020 Feb 14;26(5):2126-34.
- Albert RA, Godinez A, Luebke D. Reading speed decreases for fast readers under gaze-contingent rendering. In *ACM Symposium on Applied Perception 2019* 2019 Sep 19 (pp. 1-6).
- Zhang L, Albert R, Kim J, Luebke D. Developing a peripheral color tolerance model for gaze-contingent rendering. *Journal of Vision*. 2019 Sep 6;19(10):298c-.
- Kim J, Spjut J, McGuire M, Majercik A, Boudaoud B, Albert R, Luebke D. Esports arms race: Latency and refresh rate for competitive gaming tasks. *Journal of Vision*. 2019 Sep 6;19(10):218c-.
- Kim J, Jeong Y, Stengel M, Akit K, Albert R, Boudaoud B, Greer T, Kim J, Lopes W, Majercik Z, Shirley P. Foveated AR: dynamically-foveated augmented reality display. *ACM Transactions on Graphics (TOG)*. 2019 Jul 12;38(4):1-5.
- Kim J, Stengel M, Wu JY, Boudaoud B, Spjut J, Akit K, Albert R, Greer T, Jeong Y, Lopes W, Majercik Z. Matching prescription & visual acuity: Towards ar for humans. In *ACM SIGGRAPH 2019 Emerging Technologies 2019* Jul 28 (pp. 1-2).
- Akit K, Chakravarthula P, Rathinavel K, Jeong Y, Albert R, Fuchs H, Luebke D. Manufacturing application-driven foveated near-eye displays. *IEEE transactions on visualization and computer graphics*. 2019 Feb 14;25(5):1928-39.
- Albert RA, Chan DY, Goldman DB, O'Brien JF. Approximate svbrdf estimation from mobile phone video. In *Proceedings of the Eurographics Symposium on Rendering: Experimental Ideas & Implementations 2018* Jul 1 (pp. 11-22).
- Albert R, Patney A, Luebke D, Kim J. Latency requirements for foveated rendering in virtual reality. *ACM Transactions on Applied Perception (TAP)*. 2017 Sep 14;14(4):1-3.
- Narain R, Albert RA, Bulbul A, Ward GJ, Banks MS, O'Brien JF. Optimal presentation of imagery with focus cues on multi-plane displays. *ACM Transactions on Graphics (TOG)*. 2015 Jul 27;34(4):1-2.
- Albert R, Efros AA. Post-Post-Modern Photography: Capture-Time Perceptual Matching For More Faithful Photographs. [Masters Thesis]
- Albert RA, Bulbul A, Narain R, O'Brien JF, Banks MS. Can 3D Shape be Estimated from Focus Cues Alone?. *Journal of Vision*. 2014 Aug 3;14(10):732-.
- Zannoli M, Albert RA, Bulbul A, Narain R, O'Brien JF, Banks M. Correct blur and accommodation information is a reliable cue to depth ordering. *Journal of Vision*. 2014 Aug 3;14(10):138-.
- Banks M, Bulbul A, Albert R, Narain R, O'Brien J, Ward G. The perception of surface material from disparity and focus cues. *Journal of Vision*. 2014 Aug 3;14(10):1315-.
- Albert RA, Sheremata SL, Silver MA, Robertson LC. The role of the parietal cortex in feature binding in visual search. *Journal of vision*. 2013 Jul 2;13(9):158-.