Aryabrata Basu

Curriculum Vitae

"Science is built up of facts, as a house is built of stones; but an accumulation of facts is no more a science than a heap of stones is a house."
– Henri Poincaré, Science and Hypothesis, 1905

Current Positions

2022–present **Assistant Professor (Tenure Track)**, *Department of Computer Science, University of Arkansas at Little Rock*, Little Rock, AR, United States

2022–present **Director of Immersive Interactive Technology Research**, *Donaghey Emerging Analytics Center, University of Arkansas at Little Rock*, Little Rock, AR, United States

Past Positions

2016–2022 **Visual Information Specialist**, *Emory Center for Digital Scholarship, Emory University*, Atlanta, GA, United States

2010–2016 **Graduate Research Assistant**, *University of Georgia*, Athens, GA, United States

2009–2010 **Graduate Teaching Assistant**, *University of Georgia*, Athens, GA, United States

Education

2009–2018 **Ph.D.** - **Computer Science**, *University of Georgia*, Athens, GA, United States

2003–2007 **Bachelor of Technology** - **Information Technology**, *West Bengal University of Technology*, Kolkata, West Bengal, India

PhD Dissertation

Dissertation Designing and evaluating ubiquitous wearable virtual reality

Advisor(s) Johnsen K, Potter D, Rasheed K, and Liu T

Research Interests

Topics Human-Computer Interaction, Virtual Reality + Augmented Reality = Extended Reality, Virtual Worlds, Virtual Avatars, Animation, Natural User Interfaces (2D/3D), Usability Analytics, Study Design, Computer Graphics, Artificial Intelligence, Robotics, Prototyping wearable hardware and its design, and Haptics.

Department of Computer Science, EIT-572, 2801 South University Avenue
Little Rock, AR - 72204
+1 (706) 254 7984 • *abasu@ualr.edu*
ualr.edu/computerscience/aryabrata-basu/ • *Google Scholar*

Awards

2014 **Best Paper Award** - 'Mixed Reality Virtual Pets to Reduce Childhood Obesity', IEEE Virtual Reality.

2013 **Best Poster Award** - 'Evolution and Usability of Ubiquitous Immersive 3D Interfaces', IEEE Symposium on 3D User Interfaces.

2010 **Best Poster Award ('Honorable Mention')** - 'Field Valid Probability Assessment in Uncertain and Multi-agent Settings', Research Day 2010, Department of Computer Science, University of Georgia.

Teaching

Fall 2024 **Professor**, *Computer Architecture (CPSC 7331); Distributed Computing (CPSC 4387/5387))*, UA Little Rock, Arkansas

Spring 2024 **Professor**, *Computer Networks (CPSC 3384); Database Concepts (CPSC 3375)*, UA Little Rock, Arkansas

Fall 2023 **Professor**, *Computer Architecture (CPSC 7331); Database Concepts (CPSC 3375); Distributed Computing (CPSC 4387/5387))*, UA Little Rock, Arkansas

Spring 2023 **Professor**, *Computer Networks (CPSC 3384)*, UA Little Rock, Arkansas

Fall 2022 **Professor**, *Distributed Computing (CPSC 4387/5387)*, UA Little Rock, Arkansas

2019 – 2022 **Lead Instructor**, *Introduction to 3D Visualization and Interactive Media Design (ARTHIST 393R)*, Emory University, Atlanta

Service

2024 **Community of Transformation (COT) Member**: UA Little Rock

2023–present **Faculty Advisor**: ACM Student Chapter, UA Little Rock

2023–present **Graduate Student Advising/Mentoring**: UA Little Rock

2021 **University Senate Committee Member**: COE

2020 **Reviewer**: NSF

2020–present **Associate Editor**: Presence

2020–present **Review Editor**: Frontiers in Virtual Reality

2020–present **Review Editor**: Springer Nature Virtual Reality

2020-21 **Program Committee Member**: International Symposium on Visual Computing

2020 **Session Chair**: Immersive Learning Research Network

2020 **Local Arrangements Chair, Usability Study Researcher**: IEEE Virtual Reality

2012-2013 **Student Volunteer**: IEEE Virtual Reality

2012 **Student Volunteer**: IEEE International Symposium on Mixed and Augmented Reality

Membership

- IEEE Senior Member
- ACM Lifetime Member

Department of Computer Science, EIT-572, 2801 South University Avenue
Little Rock, AR - 72204
+1 (706) 254 7984 • *abasu@ualr.edu*
ualr.edu/computerscience/aryabrata-basu/ • *Google Scholar*

Publications

Sunny, M. and Basu, A. Non-linear parameterization of spatial decision making in immersive virtual environment. In *2024 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, pages 389–395. IEEE, 2024.

Guthula, J. S. N. and Basu, A. Navigating gender biases in xr: Towards equitable technological future. In *2024 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, pages 326–329. IEEE, 2024.

Page, M., Kang, Y., Varner, S., Lee, K., Cors, A., Basu, A., Durante, K., and Burr, I. Methods and evaluation in the historical mapping of cities. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, 48:155–160, 2023.

Basu, A., Sunny, M. J. M., and Guthula, J. S. N. Privacy concerns from variances in spatial navigability in vr. *arXiv preprint arXiv:2302.02525*, 2023.

Basu, A. Stag: A tool for realtime replay and analysis of spatial trajectory and gaze information captured in immersive environments. In *2022 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, pages 43–45. IEEE, 2022.

Martin, A. J., Stearns, D., Whitten, M. J., Hage, M. M., Page, M., and Basu, A. First known trace fossil of a nesting iguana (pleistocene), the bahamas. *Plos One*, 2020.

Basu, A. Work-in-progress—augmented reality at scale: Using physical dimensionality of spaces to our advantage! In *6th International Conference of the Immersive Learning Research Network (iLRN)*, pages 373–376. IEEE, 2020.

Basu, A. Work-in-progress—tracking the untracked. *arXiv preprint arXiv:1909.05327*, 2019.

Basu, A. Work-in-progress—a brief chronology of virtual reality. *arXiv preprint arXiv:1911.09605*, 2019.

Basu, A. and Johnsen, K. Work-in-progress—navigating a maze differently-a user study. *arXiv preprint arXiv:1805.09454*, 2018.

Basu, A., Ball, C., Manning, B., and Johnsen, K. Effects of user physical fitness on performance in virtual reality. In *IEEE Symposium on 3D User Interfaces (3DUI)*, pages 233–234. IEEE, 2016.

Ahn, S. J., Johnsen, K., Robertson, T., Moore, J., Brown, S., Marable, A., and Basu, A. Using virtual pets to promote physical activity in children: An application of the youth physical activity promotion model. *Journal of Health Communication*, 20(7):807–815, 2015.

Johnsen, K., Ahn, S. J., Moore, J., Brown, S., Robertson, T. P., Marable, A., and Basu, A. Mixed reality virtual pets to reduce childhood obesity. *Visualization and Computer Graphics, IEEE Transactions on*, 20(4):523–530, 2014.

Department of Computer Science, EIT-572, 2801 South University Avenue
Little Rock, AR - 72204
+1 (706) 254 7984 • *abasu@ualr.edu*
ualr.edu/computerscience/aryabrata-basu/ • *Google Scholar*

Basu, A. and Johnsen, K. Ubiquitous virtual reality 'to-go'. In *IEEE Virtual Reality (VR)*, pages 161–162. IEEE, 2014.

Basu, A., Johnsen, K., Bogert, K., and Wins, P. Immersive virtual reality on-the-go. In *Virtual Reality (VR), IEEE*, pages 193–194. IEEE, 2013.

Basu, A., Johnsen, K., and Bogert, K. Poster: Evolution and usability of ubiquitous immersive 3d interfaces. In *IEEE Symposium on 3D User Interfaces (3DUI)*, pages 131–132. IEEE, 2013.

Wins, P., Basu, A., and Johnsen, K. Off-the-shelf electronics prototyping for virtual reality. In *IEEE VR Workshop on Off-the-Shelf Virtual Reality*, 2012.

Wins, P., Basu, A., and Johnsen, K. Do-it-yourself interface device prototyping for virtual reality. *International Journal of Virtual Reality*, 11(3):43–48, 2012.

Basu, A., Saupe, C., Refour, E., Raij, A., and Johnsen, K. Immersive 3dui on one dollar a day. In *IEEE symposium on 3D user interfaces (3DUI)*, pages 97–100. IEEE, 2012.

Basu, A., Raij, A., and Johnsen, K. Ubiquitous collaborative activity virtual environments. In *Proceedings of the ACM 2012 conference on Computer Supported Cooperative Work*, pages 647–650. ACM, 2012.

Mrázek, J., Chaudhari, T., and Basu, A. Perplot & perscan: tools for analysis of dna curvature-related periodicity in genomic nucleotide sequences. *Microbial informatics and experimentation*, 1(1):13, 2011.

Basu, A. and Nachtegael, M. Owa filters: A robust filtering method and its application to color images. In *IEEE Symposium on Computational Intelligence for Image Processing*, pages 8–13, 2009.

Basu, A. and Funk, S. An optimal scheme for multiprocessor task scheduling: a machine learning approach. *Work-In-Progress Proceedings, The 30th IEEE Real-Time Systems Symposium*, page 29, 2009.

Department of Computer Science, EIT-572, 2801 South University Avenue
Little Rock, AR - 72204
+1 (706) 254 7984 • abasu@ualr.edu
ualr.edu/computerscience/aryabrata-basu/ • Google Scholar