

Bindita Chaudhuri

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Education

- University of Washington** **2016–2021**
 - Ph.D. (and M.S.), Computer Science and Engineering, Grade: 3.72/4.0 Seattle, USA
 - Advisors: Prof. Linda Shapiro (Graphics and Imaging Laboratory) and Dr. Alex Colburn (Apple)
 - Research Interests: Computer Vision, Computer Graphics, Machine Learning
 - Thesis: Deep Facial Expression Modeling and 3D Motion Retargeting from 2D Images
- Indian Institute of Technology Bombay** **2014–2016**
 - M.Tech., Communication and Signal Processing, Electrical Engineering, Grade: 9.83/10.0 Mumbai, India
 - Advisor: Prof. Subhasis Chaudhuri (Vision and Image Processing Laboratory)
 - Thesis: Region-based Retrieval of Remote Sensing Images using Graph-Theoretic Approaches
- Jadavpur University** **2010–2014**
 - B.E., Electronics and Telecommunication Engineering, Grade: 9.65/10.0 Kolkata, India
 - Advisor: Prof. Iti Saha Misra (Operations and Networking Laboratory)
 - Thesis: Low Cost Low Bandwidth Virtual Education Platform Design for Underserved People (SIGHT, IEEE)

Work Experience

- Facebook Reality Labs** **July 2021 - present**
 - Research Scientist, AI on Device Team Redmond, WA
 - Computational photography and image processing for AR
- Facebook Reality Labs** **Summer 2020**
 - Research Intern, Virtual Humans Team Sausalito, CA
 - Photorealistic texture synthesis for 3D Humans
- Microsoft Cloud+AI** **2019–2020**
 - Research Contractor, Cognition Team Redmond, WA
 - High-fidelity personalized face avatar generation and stabilized 3D face tracking for in-the-wild videos
- Microsoft Research** **Summer 2018**
 - Research Intern, Visual Intelligence Group Redmond, WA
 - Multi-task deep learning framework for real time facial motion retargeting; **Puppets** feature of **SwiftKey** [[media](#)]
- Intel Labs** **Summer 2017**
 - Graduate Intern Technical, Computational Imaging Lab Santa Clara, CA
 - Deep view synthesis from HD multi-camera array images using optical flow prediction and image super-resolution
- University of Trento** **Summer 2015**
 - Visiting Researcher, Department of Information Engineering and Computer Science Trento, Italy
 - Unsupervised and semi-supervised graph-theoretic approaches to content-based retrieval of remote sensing images
- Variable Energy Cyclotron Centre, R&D unit, Government of India** **Summer 2013**
 - Intern, Accelerator Instrumentation and Control section Kolkata, India
 - Design and implementation of a digital integrator using FPGA

Publications

Conference Proceedings.....

- Semi-supervised Synthesis of High-Resolution Editable Textures for 3D Humans**
Bindita Chaudhuri, Nikolaos Sarafianos, Linda Shapiro, Tony Tung
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021 [[webpage](#)]

2. **Personalized Face Modeling for Improved Face Reconstruction and Motion Retargeting**
Bindita Chaudhuri, Noranart Vesdapunt, Linda Shapiro, Baoyuan Wang
IEEE European Conference on Computer Vision (ECCV), 2020 [**Spotlight**] [[webpage](#)]
3. **Joint Face Detection and Facial Motion Retargeting for Multiple Faces**
Bindita Chaudhuri, Noranart Vesdapunt, Baoyuan Wang
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2019 [[webpage](#)]
- GestureCalc: An Eyes-Free Calculator for Touch Screens**
4. Bindita Chaudhuri*, Leah Perlmutter*, Justin Petelka, Philip Garrison, James Fogarty, Jacob O. Wobbrock, Richard E. Ladner (*equal contribution)
ACM SIGACCESS Conference on Computers & Accessibility (ASSETS), 2019 [[pdf](#)] [[demo paper](#)]
5. **Learning to Generate 3D Stylized Character Expressions from Humans**
Deepali Aneja, Bindita Chaudhuri, Alex Colburn, Gary Faigin, Linda Shapiro, Barbara Mones
IEEE Winter Conference on Applications of Computer Vision (WACV), 2018 [[webpage](#)]

Journal Articles.....

6. **Multi-Label Remote Sensing Image Retrieval using a Semi-Supervised Graph-Theoretic Method**
Bindita Chaudhuri, Begüm Demir, Subhasis Chaudhuri, Lorenzo Bruzzone
IEEE Transactions on Geoscience and Remote Sensing, vol. 56, no. 2, pp. 1144-1158, Feb 2018 [[webpage](#)] [[pdf](#)]
7. **Region-Based Retrieval of Remote Sensing Images using an Unsupervised Graph-Theoretic Approach**
Bindita Chaudhuri, Begüm Demir, Lorenzo Bruzzone, Subhasis Chaudhuri
IEEE Geoscience and Remote Sensing Letters, vol. 13, no. 7, pp. 987-991, July 2016 [[pdf](#)]

Patents, Workshops and others.....

- View interpolation of multi-camera array images with flow estimation and image super resolution using deep learning**
8. Bindita Chaudhuri, Fan Zhang, Oscar Nestares
US Patent 10,547,823, 2020 [[pdf](#)]
9. **Face Recognition under varying conditions using Discrete Wavelet Transform and Supervised Learning**
Bindita Chaudhuri, Digbalay Bose, Ullash Bhattacharya
Workshop on Applications of Wavelets/Time-Frequency Methods/Multirate Systems, April 2015 [[poster](#)]

Academic Projects

- o Local collision avoidance using laser sensor data for a nano-drone
- o Comparative study of model-free reinforcement learning methods for continuous control
- o Video stabilization and real-time tracking of non-rigid objects
- o Image reconstruction from compressive measurements
- o Code optimization in designing a compiler (English grammar parser)
- o Survey on effects of electromagnetic radiation from mobile towers, Wi-Fi hotspots etc. at various locations in Kolkata [[The Times of India article](#)]

Technical skills

- o **Programming Languages:** Python, C/C++, MATLAB, Visual C#, Javascript, VHDL
- o **Software/Tools:** Tensorflow, PyTorch, CUDA, OpenCV, OpenGL, OpenAI Gym, ModelSim, Circuit Maker
- o **Hardware:** Spartan-3A DSP 1800, Spartan-3E, DSP TMS320C54X, eZDSP TMS320C5515

Honors and Awards

- o People's Choice Award, UW CSE Affiliates Research Day, 2017 ([link](#))
- o Department Academic Excellence Award, Annual Convocation, IIT Bombay, 2016

- *University Gold Medal & 7 others*, Annual Convocation, JU, 2014 ([details](#))
- *The Supriya Basu Scholarship & 2 others*, Topper across all engineering majors, JU, 2012 & 2013 ([details](#))

Academic Activities

- **Teaching Assistant**, UW CSE (2016-2021) and IIT Bombay EE (2014-2016)
Courses taught: Computer Vision, Artificial Intelligence, Algorithms, Compilers, Digital Communication, Digital Signal Processing (grading, labs and quizzes)
- **Area Chair (student)**, UW CSE Graduate Admissions Committee, 2020
- **Reviewer** [[Publons profile](#)]:
 - ACM SIGGRAPH Asia, 2021
 - International Conference on Learning Representations (ICLR), 2021 (Rethinking ML Papers Workshop)
 - IEEE Transactions on Geoscience and Remote Sensing
 - IEEE Geoscience and Remote Sensing Letters
 - SPIE Journal of Applied Remote Sensing
 - IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
 - Wiley Computer Animation and Virtual Worlds
 - IET Image Processing, IEEE Access, The Visual Computer (Springer Nature)

Extracurricular Activities

- *Best Swimmer*, Special Mention and Citation for Sports in Inter-IIT swimming competition, IIT Bombay
- *Departmental Representative & Treasurer* and Member of cultural team, Jadavpur University

References

- [Prof. Linda Shapiro](#)
- [Dr. Baoyuan Wang](#)
- [Dr. Tony Tung](#)