

Priyadarshini K

Vision and Image Processing Lab, IIT Bombay

priyadarshini.kri15@gmail.com

<https://www.ee.iitb.ac.in/student/~priyadarshini/>

RESEARCH INTERESTS

Multisensory Perception Modeling, Data-Efficient Learning, Bayesian Machine Learning, Uncertainty Estimation, Reinforcement Learning

EDUCATION

Indian Institute of Technology Bombay

January 2016-present

Ph.D. in Electrical Engineering

Thesis: *Label-Efficient Metric Learning*

Advisor: Prof. Subhasis Chaudhuri and Prof. Siddhartha Chaudhuri

Indian Institute of Technology Bombay

June 2013

M.Tech in Electrical Engineering

Thesis: *Multimodal Rendering of Cultural Heritage Objects*

Advisor: Prof. Subhasis Chaudhuri

Heritage Institute of Technology, Kolkata

June 2011

B.Tech in Electronics and Communications Engineering

AWARDS AND HONORS

- TCS Research Fellowship, 2016 - 2019
- Qualcomm Innovation Fellowship Finalist, 2019
- Department Excellence in Teaching Assistantship (TA), 2018

PUBLICATIONS

- 1.* **Priyadarshini Kumari**, Siddhartha Chaudhuri, Vivek Borkar and Subhasis Chaudhuri. A unified batch selection policy for active metric learning, ECML-PKDD , 2021
- 2.* **Priyadarshini Kumari**, Ritesh Goru, Siddhartha Chaudhuri, and Subhasis Chaudhuri. Batch Decorrelation for Active Metric Learning, IJCAI-PRICAI, 2020.
- 3.* **Priyadarshini Kumari**, Siddhartha Chaudhuri, and Subhasis Chaudhuri. PerceptNet: Learning Perceptual Similarity of Haptic Textures in Presence of Unorderable Triplets. IEEE World Haptics Conference (IEEE WHC), 2019.

4. **Priyadarshini Kumari** and Subhasis Chaudhuri. Haptic Rendering of Thin, Deformable Objects with Spatially Varying Stiffness. EuroHaptics, 2016.
5. Praseedha K., Sreeni K., **Priyadarshini Kumari**, Subhasis Chaudhuri. Combined Hapto-Visual and Auditory Rendering of Cultural Heritage Objects. Asian Conference on Computer Vision (ACCV) e-Heritage Workshop, 2014.
6. **Priyadarshini Kumari**, Sreeni K.G. and Subhasis Chaudhuri. Scalable Rendering of Variable Density Point Cloud Data. IEEE World Haptics Conference (IEEE WHC), 2013.
7. Sreeni K.G., **Priyadarshini Kumari**, A.K. Praseedha and Subhasis Chaudhuri. Haptic Rendering of Cultural Heritage Objects at Different Scales. EuroHaptics, 2012.

Preprints

1. **Priyadarshini Kumari** and Subhasis Chaudhuri. Boosted Semantic Embedding based Discriminative Feature Generation for Texture Analysis. <http://www.arxiv.org/abs/2010.02002>

BOOK CHAPTER

Subhasis Chaudhuri and **Priyadarshini Kumari**. Cultural Heritage Object: Bringing Them Alive Through Virtual Touch, *Digital Hampi: Preserving Indian Cultural Heritage*, Springer, 2018.

EXPERIENCES

- **CitiCorp Service India Ltd, Pune.** *Risk Analyst.* July 2013-October 2014
- **Indian Institute of Technology, Bombay.** *Project Research Engineer.* August 2015-December 2015
- **CTTC, BSNL.** *Intern.* May 2009-July 2009

TEACHING

- **Teaching assistant for graduate courses:** Computer Vision [Spring 2016, Spring 2017, Spring 2018], Statistical Signal Analysis [Fall 2019], Wavelet [Spring 2020]
- **Teaching assistant for undergraduate courses:** Signals and System [Fall 2017, Fall 2018], Digital Signal Processing [Spring 2019], Communication Lab [Fall 2016]

COURSEWORK

- **Mathematics:** Applied linear algebra, Matrix computation, Linear optimization, Convex optimization, Probability and stochastic process,
- **Machine Learning:** Foundation of machine learning, Advanced machine learning, Reinforcement learning

- **Signal Processing:** Computer vision, Image processing, Computer graphics, Digital signal processing, Signal and system, Wavelet, Adaptive signal processing

Technical SKILLS

- **Languages:** Python, C, C++, MATLAB, and L^AT_EX
- **Libraries:** PyTorch, NumPy, Pandas, OpenCV, and OpenGL
- **Platforms:** Linux, Windows

M.Tech Thesis

Combined Hapto-Visual-Auditory Rendering of 3D Objects at Different Scales

- **Summary:** Implemented a multimodal rendering framework to provide a **sense of touch** to the user (especially visually-impaired people) to explore and interact with virtual environments. Successfully developed a novel proxy-based hapto-visual-auditory rendering algorithm to digitally interact with 3D point cloud model adaptively at run time in conjunction with a stereoscopic visual display. To enhance realism, I incorporated additional features such as scaling, rotation, translation, and friction, which allowed users to interact with different parts of the objects at varying levels of details.
- **Domains involved:** Image Processing, Computer Graphics, Computer Vision, Haptics and Signal Processing.

Travel Grants

- NeurIPS 2020 Financial Assistance Award
- Awarded IJCAI Student Travel Grant 2020
- Awarded TCS Travel Grant 2019 for WHC 2019
- Awarded EE, IIT Bombay Travel Grant for EuroHaptics 2016