

# ISHITA DASGUPTA

## PhD student

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## EXPERIENCE

### WORK EXPERIENCE

#### Adobe Research (Research Scientist, Systems Technology Lab)

March 2023 – current

San Jose, CA

- Advance research in the field of multimedia and related machine learning applications. This role requires developing, documenting and presenting novel solutions to real-world problems in alignment with Adobe's products.

#### Adobe Research (Research Intern - Multimedia Systems)

May – Dec 2022, May – Dec 2021

San Jose, CA (Remote)

- Reduced streaming latency in **deep-learning** based state-of-the-art detectors by implementing attention-based knowledge distillation methods.
- Implemented residual **encoding** methods on top of **superresolution** to improve content quality in Digitally Augmented Live Video Streaming.

### RESEARCH EXPERIENCE

#### Advisor: Michael Zink

Jun 2018 – Present

UMass Amherst

- Optimizing QoE for live video streaming systems:** Built a hybrid infrastructure using **Software Defined Networks & Network Function virtualization** that incorporates the benefits of both traditional IP as well as future Internet (Named Data networking) to optimize **quality of experience** for live-streaming video clients. Additionally, identified the drawbacks of caching with **adaptive bitrate streaming** algorithms and designed solutions to overcome them.

Aug 2016 – May 2018

UMass Amherst

- Optimizing the Performance of A Flood Forecast model on cloud:** Introduced **parallelization** to the workflow of a hydrological forecasting model and reduced its processing time upto 34% with pre-stored data and upto 17% with real-time data.

#### Advisor: Prashant Shenoy

Feb – Aug 2016

UMass Amherst

- Real-time Water-quality monitoring:** Built a cost-effective & real-time solution for alerting users with unconsumable water quality.

#### Advisor: J. Elliot B. Moss

Jan – Aug 2015

UMass Amherst

- Java Virtual Machine Bytecode Optimization:** The work involved identifying and removing redundancies from compiled JAVA class files that effectively reduced the runtime of JVM

### TEACHING

#### Advisor: Arun Venkataramani

Aug 2020 – Dec 2020

UMass Amherst

- Teaching Assistant for Advanced Computer Networks (CS 653)

## TECHNICAL SKILLS

- Coding: python, LINUX, BASH scripting, pytorch, MATLAB
- Cloud: Docker, Cloud testbeds (Cloudlab, Chameleon, AWS, Google cloud)
- Video Streaming: QoE analysis and optimization, DASH, ABR, ffmpeg
- Computer vision: Deep learning, Transformers, Knowledge Distillation, Object Detection, mmdetection, OpenCV, CUDA
- Networking: TCP/IP, Information centric networking, SDN, NFV
- Others: JAVA, MySQL, C/C++, javascript, HTML, Arduino(Photon), ArcGIS

## EDUCATION

### MS/Ph.D in COMPUTER SCIENCE

#### University of Massachusetts, Amherst

2016 – Feb 2023)

- GPA: 3.693/4.00

### Masters in COMPUTER SCIENCE

#### University of Massachusetts, Amherst

2014 – 2016

Massachusetts, US

- GPA: 3.75/4.00

### Bachelor of Technology in COMPUTER SCIENCE and ENGINEERING

#### West Bengal University of Technology

2013

West Bengal, India

- GPA: 8.8/10.0

## PUBLICATIONS

- I. Dasgupta, S. Shannigrahi and M. Zink, "A Hybrid NDN-IP Architecture for Live Video Streaming: From Host-Based to Content-Based Delivery to Improve QoE," International Journal of Semantic Computing (2022) pp. 163-187 <https://doi.org/10.1142/S1793351X22400074>
- R. Thompson, E. Lyons, I. Dasgupta, S. Mastorakis, M. Zink and S. Shannigrahi, "An Information Centric Framework for Weather Sensing Data," RAFNet at ICC 2022
- I. Dasgupta, S. Shannigrahi and M. Zink, "A hybrid NDN-IP Architecture for Live Video Streaming: A QoE Analysis," 2021 IEEE International Symposium on Multimedia (ISM), 2021, pp. 148-157. [doi.org/10.1109/ISM52913.2021.00032](https://doi.org/10.1109/ISM52913.2021.00032)
- H. Habibi, I. Dasgupta, S. Noh, S. Kim, M. Zink, D. Seo, M. Bartos, B. Kerkez "High-resolution hydrologic forecasting for very large urban areas", Journal of Hydroinformatics(2019). [doi.org/10.2166/hydro.2019.100](https://doi.org/10.2166/hydro.2019.100)

## LEADERSHIP SKILLS AND AWARDS

- Oct 2022: Program committee member at IEEE ISM 2022
- July 2022: Won Best Documentation award at Code Quality Jam, held at Adobe
- June 2019: Student Volunteer at MMSys 2019
- Sept 2017: PhD Social Chair at CICS,UMass Amherst
- Oct 2015: Volunteered in Women in Engineering and Computing Career Day
- May 2015-2016: President of Indian Student Association at UMass Amherst