

# RITWICK CHAUDHRY

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## EDUCATION

Carnegie Mellon University-School of Computer Sc.  
**Master of Science in Computer Science**

📅 December 2020

📊 GPA - 4.29/4.33

Indian Institute of Technology (IIT) Bombay

**B. Tech. in Computer Science and Engineering (Honors)**

📅 June 2018

📊 GPA - 9.55/10

## EXPERIENCE

Uber ATG

📅 June – Aug 2020

**Software Engineering Intern**

📍 Pittsburgh, PA

- Designed joint perception-prediction models with fused latent sensor inputs for actor behavior prediction.
- Demonstrated through thorough quantitative and qualitative evaluation, how incorporating visual cues can improve prediction models.

Adobe Research

📅 June 2018 – Aug 2019

**Research Engineer**

📍 Bengaluru, India

- Designed algorithms and developed prototypes for new technologies to automate Adobe's products; Worked on problems ranging from Multimodal Q&A to learning structured image representations.
- Served as a **Machine Learning Tutor** for over 200 engineers.
- Filed **5 patents** as an inventor in the US Patent Office.

Adobe Research

📅 May – July 2017

**Research Intern**

📍 Bengaluru, India

- Designed 'CoLearn', a Memory Augmented Deep Network that can improve learning on E-Learning platforms by tracking the knowledge state of students along with their hint taking behaviour.
- Published our work in **EDM 2018**, and filed a **patent** in the U.S. Patent Office. Received the **Best Overall Project Award**.

Johns' Hopkins University

📅 May – July 2016

**Visiting Scholar**

📍 Baltimore, MD

- Worked under the guidance of **Prof. Suchi Saria** on using Bayesian Optimization for Optimal Hyperparameter Setting.
- Organised a tutorial for the lab members on Model Selection.

## PUBLICATIONS

- Maheshwari P.<sup>†</sup>, Chaudhry, R.<sup>†</sup>, Vinay V., "Scene Graph Embeddings Using Relative Similarity Supervision", **AAAI 2021**
- Chaudhry, R., et. al., "LEAF-QA: Locate, Encode and Attend for Figure Question Answering", **IEEE WACV 2020**
- Ghosh, A. <sup>†</sup>, Chaudhry, R. <sup>†</sup> and Rajwade, A., "Ab initio tomography with object heterogeneity and unknown viewing parameters". **IEEE ICIP 2019 (Oral)** <sup>†</sup>Joint first authors
- Davila K., Urala B., Setlur S., Govindraju Venu., Tensmeyer S., Shekhar S., Chaudhry R. "CHART: Competition on Harvesting Raw Tables from Infographics" **IEEE ICDAR 2019**
- Chaudhry, R. et. al., "Modeling Hint-Taking Behavior and Knowledge State of Students with Multi-Task Learning" **EDM 2018**

## SKILLS

**Programming Languages:** Python, C++, C, MATLAB, SQL, Java

**Tools & Frameworks:** PyTorch, Tensorflow, OpenCV, AWS, MXNet

## HONORS & AWARDS

- Graduate Teaching Assistant** for Machine Learning and Computer Vision at CMU
- Institute Academic Excellence Award** - Honored for securing **Rank 1** at IIT Bombay for 2017-18
- Narotam Sekhsaria Scholarship** Awardee - Graduate Scholarship (19 out of 11000)
- Led a team of 6 members at Inter-IIT Technical Meet, winning the **Silver Medal**
- Technical Person of The Year** - Award for exceptional technical activities at IIT Bombay
- Served as a Teaching Assistant for 5 undergraduate courses; Received **Best TA award** at IIT Bombay
- All India Rank 74** in Joint Entrance Examination 2014 among **1.7 million** candidates

## SELECTED PROJECTS

**3D Moving Object Discovery by Neural Background Subtraction** Prof. K. Fragkiadaki, CMU

- Designed an unsupervised object discovery algorithm using 3D neural background subtraction. Submitted our work to **CVPR 2021**.

**LEAF-QA: Locate, Encode and Attend for Figure Question Answering** Adobe Research

- Synthesized a densely annotated Chart Q&A corpus. Designed a novel architecture for Q&A on charts, improving over state-of-the-art by 10% points. Published our work in **WACV 20'** and organized a chart parsing competition in **ICDAR 19'**.

**Scene Graph Embeddings using Relative Similarity Supervision** Adobe Research

- Learning structured image embeddings for semantic image retrieval using a novel ranking loss via weak supervision. Presented our work at **AAAI 2021**.

**Self-Supervised Learning of Affordable Scene Layouts** Prof. Abhinav Gupta, CMU

- Introduced scene affordance as a novel task for identifying natural indoor scenes from egocentric views. Used simulated annealing with a scene affordance network to generate new aesthetic scenes.

**Predicting Video Memorability** Adobe Research

- Designed a network to predict how much a viewer remembers a video after watching it. Represented Adobe Research in the **MediaEval Workshop**. Stood **6<sup>th</sup> out of 21** leading companies and universities.

**Ab Initio Molecular Structure Estimation with Electron Cryomicroscopy** IIT Bombay

- Developed a statistical algorithm, to reconstruct the 3D structure of molecules, robust to the presence of heterogeneous particles, outliers and extreme noise. Published our work in **ICIP 2019**.

## COURSEWORK

Visual Learning & Recognition, Computer Vision, Intermediate Deep Learning, Convex Optimization, Multimodal Machine Learning, Intro. to Machine Learning