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YASH SHARMA

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EDUCATION

Cornell University *Ithaca, NY* **Aug 2022 – May 2024 (ongoing)**

- **Master of Science** in Computer Science (Thesis Track) GPA: 4.0 / 4.0
- **Graduate courses:** Computational Sustainability, Advanced Topics in ML, Information Networks, Advanced Programming Languages

Indian Institute of Technology Bombay *Mumbai, India* **Aug 2017 - May 2021**

- **Bachelor of Technology** in Computer Science & Engineering with **Honors**, **Minor** in Artificial Intelligence & Data Science
- GPA: 9.68 / 10, Honors GPA: 10 / 10, Minor GPA: 9.4 / 10

WORK EXPERIENCE

Software Engineer, Samsung Electronics *Suwon, South Korea* **Sep 2021 – Aug 2022**

- Key role in developing high-performance, low-latency physical layer for 5G wireless communication as a member of **P**hysical **U**plink **S**hared **Ch**annel team, focusing on core-cycle and cache bottleneck optimization.
- Utilized Intel®Intrinsics (**AVX-512**) for efficient parallel processing of data
- Reduced bottlenecks in uplink signal processing pipeline to achieve upto **20% speedup**

Software Engineer Intern, Samsung Electronics *remote from India* **Jun 2020 – July 2020**

- Built an automated network load testing framework using **Locust** & **Kubernetes** to evaluate performance of Samsung's in-production load balancing services

Summer Research Intern, TU Braunschweig *Braunschweig, Germany* **May 2019 - July 2019**

- Built **WeLineation**, an application utilizing **Expectation Maximization** for sclera segmentation from crowd-sourced data.

TEACHING ASSISTANTSHIPS

CS4820: Introduction to Analysis of Algorithms	*Cornell University*	**Summer 2023**
CS2770: Excursions in Computational Sustainability	*Cornell University*	**Spring 2023**
CS3410: Computer System Organization & Programming	*Cornell University*	**Fall 2022**
CS251: Software System Lab	*IIT Bombay*	**Fall 2019, Fall 2020**
MA105: Calculus	*IIT Bombay*	**Fall 2018**

Won TA awards for **Fall 2020** and **Fall 2022**

PUBLICATIONS

- **Improving low resource code-switched ASR using augmented code-switched TTS** - Y. Sharma, B. Abraham, K. Taneja, P. Jyothi *[INTERSPEECH 2020]*
- **WeLineation: crowdsourcing delineations for reliable ground truth estimation** - S. Goel[1], Y. Sharma[1], M.L. Jauer, T.M. Deserno *[SPIE Medical Imaging 2020]*

RESEARCH EXPERIENCE

MS Thesis Research - Prof. Sanjiban Choudhury *Cornell University* **Feb 2023 – (ongoing)**

Leveraging **large language models** and eventually multimodal models for inverse task planning and low-level code generation

Undergraduate Thesis - Prof. Preethi Jyothi *IIT Bombay & Microsoft* **Dec 2019 – Jun 2020 & Aug 2020 – Jun 2021**

Improving code-switched Automatic Speech Recognition [2]

Focused on improving performance of end-to-end ASR models on Gujarati-English speech by conditioning transformer on language of the text. A Temporal Loss is used to train language specific parameters and add explainability

Improving Low Resource Code-switched ASR using Augmented Code-switched TTS[2]

Used E2E Automatic Speech Recognition models trained on Hindi and English monolingual data and code-switched Text to Speech (TTS) to improve performance in low-resource settings. Ideated a new loss function to target underlying distributions of languages in the data. Used augmentation and encoder freezing to avoid over-fitting on synthetic artefacts

R&D Project - Prof. Amitabha Sanyal *IIT Bombay* **Fall 2020**

Implemented an automated debugger for GCC plugin designed to detect bugs in C program translation.

LANGUAGES AND SOFTWARES

C/C++, python, bash, JavaScript, OCaml & Haskell, Java, SQL, PyTorch & TensorFlow, AVX, Git, Perforce, Linux, Docker, MATLAB, Dart

RESEARCH PROJECTS

Modelling misinformation in hierarchical organizations; *Prof. Jon Kleinberg*; Spring 2023 *Cornell University*
Few-shot action recognition on egocentric data; *Prof. Kilian Weinberger*; Fall 2022 *Cornell University*
De-mixing techniques for cocktail party problem on bird calls; *Prof. Carla Gomes*; Fall 2022 *Cornell University*
Low Resource Morphological Inflection 2021; **Evolutionary RL on maze solving** 2020; **VQA with dynamic neuralnet** 2019 *IIT Bombay*

[1] Equal contribution
[2] Work done as part of collaboration between **Microsoft India Development Center** and **Indian Institute of Technology Bombay**