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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:** Topics in Computation Sustainability, Advanced Topics in ML

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

- **Bachelor** of Technology in Computer Science & Engineering w/ **Honors**, **Minor** in Artificial Intelligence & Data Science
- GPA: 9.68 / 10, Honors GPA: 10 / 10, Minor GPA: 9.4 / 10
- **Courses:** Theoretical & Advanced ML, ASR, Concurrent Programming, Functional Programming

Work Experience

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

- Part of the **P**hysical **U**plink **S**hared **CH**annel team of Samsung's 5G vRAN Development Lab, working on high performance low latency virtualized physical layer for next-gen wireless communication, working on core-cycle 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** hosted on **kubernetes** for distributed server simulation
- Tool used to evaluate performance of Samsung's in-production load balancing services

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

- Created **WeLineation** - an application using an **Expectation Maximization** algorithm called **STAPLE** to generate ground-truth like sclera segmentations from crowdsourced data.

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]*
- **STAPLE performance assessed on crowdsourced sclera segmentations** - M.L. Jauer, S. Goel[1], Y. Sharma[1], T.M. Deserno, M. Gijs, T.T. Berendshot, C.J. Bertens, R.M. Nuijts *[SPIE Medical Imaging 2020]*

Teaching Assistantships

CS3410: Computer System Organization & Programming *Cornell University, Ithaca* **Fall 2022**
Involves grading exams, staff meetings, holding office hours and leading lab discussions

CS251: Software System Lab *IIT Bombay, India* **Fall 2019, Fall 2020**
Orchestrating and preparing assignments for the lab course of "SSL" for CS sophomore students. Awarded **best TA** in 2020.

MA105: Calculus *IIT Bombay, India* **Fall 2018**
Took weekly discussions of 50 freshmen students, graded exam papers and volunteered to teach beyond class hours

Research Experience

Undergraduate Thesis and R&D Project *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

Languages and Softwares

C/C++, python, bash, JavaScript/TypeScript, Haskell, SQL, PyTorch, TensorFlow, AVX, Git, Perforce, Linux, Docker, MATLAB

Research Course Projects

Few-shot action recognition on egocentric data; *Prof. Kilian Weinberger*; Fall 2022 (ongoing) Cornell University
Learning systems for cocktail party problem on bird calls; *Prof. Carla Gomes*; Fall 2022 (ongoing) Cornell University
Low Resource Morphological Inflection; **Evolutionary RL on maze solving**; **VQA with dynamic neuralnet** IIT Bombay

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