Sreetama Sarkar
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ACADEMIC DETAILS

Examination/Degree	University	Year	GPA/%
PhD: *Computer Engineering*	University of Southern California	Ongoing	3.95/4.0
Master of Science: *Communications Engineering*	Technical University of Munich	2021	1.2/5.0 (High Distinction)
Bachelor of Technology: *Electronics & Communication Engineering*	NIT Durgapur, India	2017	9.63/10 (Dept. Rank 1, Univ. Rank 2)
12th Std. (Higher Secondary)	WBCHSE	2013	88.2
10th Std. (Madhyamik)	WBBSE	2011	88.5

AREAS OF INTEREST

Efficiency in Large Language Models (LLMs) and Vision Language Models (VLMs), Model Compression (Pruning, Quantization, Layer skipping), Trustworthy AI (Hallucination mitigation, Robustness, Privacy)

SELECTED PUBLICATIONS

- Sreetama Sarkar et al., *Mitigating Hallucinations in Vision-Language Models through Image-Guided Head Pruning*, EMNLP 2025.
- Sreetama Sarkar et al., *MaskVD: Region Masking for Efficient Video Object Detection*, WACV 2025 (ORAL).
- Sreetama Sarkar et al., *Region Masking to Accelerate Video Processing on Neuromorphic Hardware*, ISQED 2025 (ORAL).
- Sreetama Sarkar et al., *Energy-Efficient & Real-Time Computer Vision with Intelligent Skipping via Reconfigurable CMOS Image Sensors*, arXiv 2024.
- Sreetama Sarkar et al. *Block Selective Reprogramming for On-device Training of Vision Transformers*, Efficient Computer Vision (ECV) Workshop, CVPR 2024 (acceptance rate: 32.6%).
- Sreetama Sarkar et al. *RLNet: Robust Linearized Networks for Efficient Private Inference*, Fair, Data-Efficient, and Trusted Computer Vision (TCV) Workshop, CVPR 2024.
- Pierpaolo Mori et al. *Accelerating and Pruning CNNs for Semantic Segmentation on FPGA*, DAC 2022.
- Manoj Vemparala et al. *Adversarial Robust Model Compression using In-Train Pruning*, Safe Artificial Intelligence for Automated Driving (SAIAD) Workshop, CVPR 2021.

EXPERIENCE

Research Scientist Intern, *Samsung Research America* (May 2025 - August 2025)

- Investigated layer skipping in Vision Language Models (VLMs) for efficient deployment in smart TVs
- Identified shortcomings of LLM-based layer importance metrics for vision-language tasks
- Proposed an inference-only attention-based VLM-specific layer skipping strategy that can improve the overall throughput for generative tasks up to 21% while maintaining model performance

Graduate Research Assistant, *University of Southern California* (August 2022 - Present)

- Intelligent region-skipping for object detection as part of the project *Energy-Efficient Event-based SNNs for Complex CV Applications*, funded by Intel; results showcased in monthly presentation to Intel
- Intelligent frame-skipping for object detection and tracking as part of the RPIXELS project funded by DARPA; results showcased in demo presentation to DARPA
- Investigating efficient ML methods for bad pixel detection and correction as part of *In-pixel Computing* project, funded by Samsung
- Helped in writing research grants for NASA, NSF, DARPA, Sony and Amazon
- Mentored several Master's students for Directed Research courses and co-authored papers, many of whom went on to pursue PhD

Graduate Teaching Assistant, *University of Southern California* (January 2024 - Present)
EE354L: Introduction to Digital Circuits

– Digital system design and implementation; synchronous design of datapath and control; schematic/Verilog-based design, simulation, and implementation in FPGAs; timing analysis; semester-end project.

EE560: Digital System Design – Tools and Techniques

– ASIC design, FPGAs, VHDL, verilog, test benches, simulation, synthesis, timing analysis, post-synthesis simulation, FIFOs, handshaking, memory interface, PCI bus protocol, CAD tools, design lab exercises.

Intern, ***Intel Labs, Munich*** (May 2021 - September 2021)

– Investigating performance metrics for object detection in safety-critical scenarios
– Identified shortcomings of existing metrics like mean average precision (mAP)
– Proposed new metrics considering object distance, safety-critical clustering and object tracking, with a scope for further refinement considering other safety aspects

Master's Thesis Student, ***Autonomous Driving Group, BMW Munich*** (September 2020 - April 2021)
Robustness aware Pruning methods for Convolutional Neural Networks (CNNs)

– Developing a Pruning framework that simultaneously optimizes the three objectives: task-specific performance, adversarial robustness and resource-awareness
– Combined adversarial training and model pruning in a joint formulation of the fundamental learning objective during training, termed In-train Pruning
– Achieved state-of-the-art adversarial robustness and an improvement in natural accuracy without any additional overhead of GPU hours; results published in the CVPR Workshop SAIAD 2021

Working Student, ***Intel Communications and Devices Group (iCDG), Intel Munich*** (March 2019 - August 2019)

– Analyzing traces in System Trace Tool (STT) and automating process to decode events and identify potential problems in the Protocol Processing Unit (PPU)

Research Assistant, ***School of Computer Science and Engineering (SCSE), Nanyang Technological University, Singapore*** (November 2017 - September 2018)

– Part of a team responsible for the design of a state-of-the-art Secure Processor using RISCV ISA that implements features like secure boot, memory encryption etc.

Summer Intern, CERN, Geneva, Switzerland (May 2016–July 2016)

– Quality Assurance of GEM Detectors at ALICE (A Large Ion Collider Experiment)

SCHOLASTIC ACHIEVEMENTS

- **Outstanding Reviewer**, SCOPE ICLR 2025
- **DAC Young Fellow**, 2024 (winner of the 2-minute Video Contest!)
- **Annenberg Endowed Fellowship**, University of Southern California, 2024 (awarded to 2 students in the department)
- **MHI Fellowship**, University of Southern California, 2022 (awarded to less than 10% of incoming PhD students in the department)
- **Grace Hopper Celebration (GHC) Student Scholarship**, 2021
- **Deutschlandstipendium**, The German National Scholarship at TUM, 2019
- **Institute Gold Medal**, NIT Durgapur, 2017 (highest marks in B. Tech in Electronics and Communication Engineering)
- **Parpatidevi Chandumal Memorial Gold Medal**, NIT Durgapur, 2017 (Scholastic excellence among girl students)
- **Scholarship for College and University Students, Government of India**, 2013

TECHNICAL SKILLS

- **Programming Languages:** Python (Packages: Pytorch, Tensorflow), MATLAB, C, C++, VHDL, Verilog
- **Tools:** LaTeX, Git, Xilinx ISE, Vivado, Multisim
- **OS:** Linux, Windows

EXTRA ACADEMIC ACTIVITIES

– Viterbi Graduate Student Mentor, Fall 2023 (best mentor nomination) and Fall 2024
– Student Mentor for IUSSTF Viterbi Summer program 2024 and USC-Tsinghua Program for Visiting Scholars 2024
– Mentored Master's students at USC for Directed Research courses
– Reviewed papers for conferences like DATE, DAC, TinyML, IJCNN, ICASSP, KDD, VLSID, ECCV, WACV and journals like TCAD, TCAS
– Poster Mentor and Social Host, WiML Workshop co-located with NeurIPS 2020
– Poster presenter and volunteer, WiML Un-Workshop co-located with ICML 2021
– Interested in *Painting, Swimming, Indian Classical Dance and Yoga*