

Sree Harsha Nelaturu

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🎓 Education

Universität des Saarlandes || *MSc Visual Computing (GPA: 1.7)*** || Saarbrücken, DE Oct 2021 - Present

Massachusetts Institute of Technology || *Special Student in EECS (GPA: 5.0/5.0)* || Cambridge, MA, USA Sept - Dec 2018

SRM Institute of Science and Technology || *B.Tech ECE (86.18%)* || Chennai, TN, India July 2016 - May 2020

[** = In the german system, 1.0 is the highest achievable grade]

🔧 Experience

CISPA Helmholtz Institute for Information Security || *Research Assistant (HiWi)* || Saarbrücken, Germany July 2021 – Present

- **(July 2022 - Present) Advisor: Dr. Rebekka Burkholz.** Working on new accelerated perturbation aware methods for finding lottery tickets by use of neuron level pruning.
- **(July 2021 - July 2022) Advisor: Dr. Sebastian Stich.** Worked on communication and compute efficient algorithms for federated/distributed optimization using knowledge distillation and sparsity.

Rediscovery.io || *Jr. Deep Learning Research Scientist* || Remote - London, UK July. 2020 – May 2021

- Contributed to the development of the `remo.ai` - a dataset management and visualization tool SDK and integrated supervised/self-supervised learning methods for [classification, segmentation, object detection] in the open source SDK.

Myelin Foundry || *Deep Learning Intern* || Bengaluru, IN

- **(March - June 2020)** Designed an end-to-end pipeline for media restoration, upscaling and enhancement for old movies/TV-shows. Involved market research and development of on-device super-resolution for 540p -> 4K upscaling.
- **(June 2019)** Developed an optimized pipeline for training and edge deployment of ASR (Automatic Speech Recognition) for low-resource languages.

RunwayML || *ML Researcher (Consultant)* || Remote - Brooklyn, USA Sept. 2019 – Jan. 2020

- Added 22+ optimized CV, NLP models to the Runway model zoo – including generative, processing and task oriented models via an intuitive interface in the SDK easily accesible by creatives/artists. Details [here](#).

Response Environments, MIT Media Lab || *Undergraduate Researcher* || Cambridge, MA, USA Sept., - Dec., 2018

- Developed an information delivery pipeline using DNNs to classify and subsequently modifying a user's audio-stream. Achieved highest possible "A" grade as part of course 6.100 - EECS Project.

📄 Publications and pre-prints

- **On the Fairness Impacts of Hardware Selection in Machine Learning** (*Sree Harsha Nelaturu**, Nishaanth Kanna Ravichandran*, Cuong Tran, Sara Hooker, Ferdinando Fioretto). arXiv pre-print (under-review) [* = equal contribution]
- **End to End learnable masks with differentiable indexing.** (Dibyanshu Shekhar*, *Sree Harsha Nelaturu**, Ashwath Shetty*, Ilia Sucholutsky). Accepted for archival at **Tiny Papers @ ICLR2023** [* = equal contribution]
- **Accelerated CNN Training through Gradient Approximation.** (Ziheng Wang, *Sree Harsha Nelaturu*, Saman Amarsinghe). Published at *EMC² Workshop* at the International Symposium on Computer Architecture (**ISCA 2019**).

👥 Communities and Volunteering

CohereForAI (C4AI) || *Community Lead and Researcher* || Remote 2022 - Present

- Founded and co-led the ML Theory group and currently co-lead the ML efficiency group. Present research papers, organize guest lectures and workshops in the community. Top 1% active community members.
- Worked on a project advised by Sara Hooker (C4AI) and Prof., Ferdinando Fioretto (UvA) on the fairness impacts of hardware selection as a C4AI community researcher.
- Currently working on a community-member led project on **efficient and fair federated learning** leveraging sparsity training.

Awards and Conferences

- **Best use of OpenAI API (Feb 2021):** Stanford TreeHacks
- **Silver Medal (Feb 2019):** SRM Research Day
- **First Place Winner (Dec 2017):** Microsoft GAINS AI Hackathon
- **First Place Winner, (Dec 2017):** ImagingHub Smart Home Competition
- **Innovation Award, March 2017:** Smart India Hackathon (Ministry of Electronics and IT)
- **Eastern European Machine Learning School (EEML) (2021, 2022):** Accepted based on original research proposal.

Skills and Interests

- **Tools and frameworks:** PyTorch, TensorRT, JAX, OpenVINO, CUDA, DeepSpeed, Transformers, HuggingFace, TVM
- **Interests:** Efficient training/optimization methods [distributed, federated], Transformers, Sparsity, Pruning, Quantization, Computer Vision and low-resource inference.