

Suraj Srinivas

Contact Information

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Research Interests

Robustness, Interpretability & Computational Efficiency of Deep models; Generative modelling (Vision-Language models, Diffusion models); Continual and Lifelong learning

Work Experience

- 01/2022 **Postdoctoral Research Fellow,**
- Present Harvard University, USA,
Advisor: Prof. Hima Lakkaraju
Duties: Academic research · Technical guidance & mentoring · Teaching.

Education

- 2017 **Doctor of Philosophy,**
- 2021 École Polytechnique Fédérale de Lausanne &
Idiap Research Institute, Switzerland,
Advisor: Prof. François Fleuret.
- 2014 **Master of Science (Engineering),**
- 2017 Indian Institute of Science, Bangalore, India,
Advisor: Prof. R. Venkatesh Babu.

Internships

- 08/2020 **Research Intern, Qualcomm AI Research, Netherlands,**
- 01/2021 Research on algorithms to sparsify neural networks.
- 06/2016 **Research Intern, DataGrokr, India / Verisk Analytics, USA,**
- 08/2016 Speeding up inference on deep neural networks using tensor factorization.
- 01/2014 **Engineering Intern, Tonbo Imaging, Bangalore,**
- 06/2014 Implemented image processing algorithms on FPGA for a thermal imaging camera.

06/2013 **Research Intern**, *Indian Institute of Science, Bangalore*,
- 08/2013 Research on computational photography to perform camera jitter compensation.

Selected Publications

[Google Scholar Profile](#)

- 2022 **Suraj Srinivas***, Kyle Matoba*, Hima Lakkaraju, François Fleuret. (*co-first-author)
“Efficient Training of Low-Curvature Neural Networks”
Neural Information Processing Systems (NeurIPS)
Code: github.com/kylematoba/lcnn (Jointly authored)
- 2022 Tessa Han, **Suraj Srinivas**[†], Hima Lakkaraju. (†advising role)
“Which Explanation Should I Choose? A Function Approximation Perspective to Characterizing Post hoc Explanations”
Neural Information Processing Systems (NeurIPS)
ICML Interpretable ML for Healthcare Workshop - **Best Paper Award**
- 2022 Marwa El Halabi, **Suraj Srinivas**, Simon Lacoste-Julien.
“Data-Efficient Structured Pruning via Submodular Optimization”
Neural Information Processing Systems (NeurIPS)
- 2022 **Suraj Srinivas**, Andrey Kuzmin, Markus Nagel, Mart van Baalen, Andrii Skliar, Tijmen Blankevoort.
“Cyclical Pruning for Sparse Neural Networks”
Computer Vision and Pattern Recognition Workshops (CVPRW) - **Oral**
- 2021 **Suraj Srinivas**, François Fleuret.
“Rethinking the Role of Gradient-based Attribution Methods in Model Interpretability”
International Conference on Learning Representations (ICLR) - **Oral**
Code: github.com/idiap/rethinking-saliency
- 2019 **Suraj Srinivas**, François Fleuret.
“Full-Gradient Representation for Neural Network Visualization”
Neural Information Processing Systems (NeurIPS)
Code: github.com/idiap/fullgrad-saliency
- 2018 **Suraj Srinivas**, François Fleuret.
“Knowledge Transfer with Jacobian Matching”
International Conference on Machine Learning (ICML)
NeurIPS Learning with Limited Data (LLD) Workshop - **Best Paper Award**
- 2017 **Suraj Srinivas**, Akshayvarun Subramanya, R. Venkatesh Babu.
“Training Sparse Neural Networks”
Computer Vision and Pattern Recognition Workshops (CVPRW) - **Oral**
- 2016 **Suraj Srinivas**, R. Venkatesh Babu.
“Learning the Architecture of Deep Neural Networks”
British Computer Vision Conference (BMVC)

- 2015 **Suraj Srinivas**, R. Venkatesh Babu.
“Data-free Parameter Pruning for Deep Neural Networks”
British Computer Vision Conference (BMVC)

Book Chapters

- 2017 **Suraj Srinivas**, Ravi Kiran Sarvadevabhatla, Konda Reddy Mopuri, Nikita Prabhu, Srinivas SS Kruthiventi, R. Venkatesh Babu.
“A taxonomy of deep convolutional neural nets for computer vision”,
Book chapter: *Deep Learning for Medical Image Analysis*, Elsevier
Journal version: *Frontiers in Robotics and AI*

Talks

- 03/2023 *Pitfalls and Opportunities with Feature Importance Methods*
[MERL seminar series](#), Boston
- 07/2022 *Pitfalls and Opportunities with Feature Attribution Methods*
Simons Institute, UC Berkeley
- 06/2022 *Pitfalls and Opportunities with Feature Attribution Methods*
Vanderbilt University, USA
- 03/2022 *Cyclical Pruning for Neural Network Sparsity*
Google Sparsity Reading Group
- 08/2021 *Pitfalls of Saliency Map Interpretation in Deep Neural Networks*
HES-SO, Sierre, Switzerland
- 05/2021 *Pitfalls of Saliency Map Interpretation in Deep Neural Networks*
Harvard University, USA
- 04/2021 *Rethinking the Role of Gradient-based Attribution Methods for Model Interpretability*
ICLR (virtual)
- 01/2020 *Neural Network Interpretability using Full-Gradient Representation*
Indian Institute of Science, Bangalore
- 01/2020 *Full-Gradient Representation for Neural Network Visualization*
[ML for Astrophysicists Club](#)
- 11/2019 *Full-Gradient Representation for Neural Network Visualization*
Swiss Machine Learning Day, Lausanne
- 05/2019 *Complete Saliency Maps using Full-Jacobians*
Valais / Wallis AI workshop, Martigny
- 07/2018 *Knowledge Transfer with Jacobian Matching*
ICML, Stockholm
- 07/2016 *Making Deep Neural Networks Smaller and Faster*
Deep Learning Conf, Bangalore

Reviewing

Conferences AAAI, CVPR, ECCV, NeurIPS (2020) ; WACV, ICML, ICCV, NeurIPS (2021); ICLR, ICML, NeurIPS (2022); ICLR, AISTATS (2023)

Journals IEEE SP-Letters, Elsevier Neural Networks, IEEE T-PAMI, Nature Communications

Teaching

2023 Co-instructor for *Interpretability and Explainability in ML (CS-282BR)*
Harvard University, USA

2018, '19, '21 Teaching Assistant for *Deep Learning (EE-559)*
Ecole Polytechnique Federale du Lausanne (EPFL), Switzerland

2021 Guest Lecturer on Interpretability for *Deep Learning for Computer Vision (DS-265)*
Indian Institute of Science, Bangalore

Awards and Honors

2022 Best paper award at ICML *Interpretable ML for Healthcare Workshop*

2022 Highlighted Reviewer at *International Conference on Learning Representations (ICLR)*

2021 EPFL PhD Thesis Distinction Award for top 8% thesis in the dept. of EE

2017 Best paper award at NeurIPS *Learning with Limited Data Workshop*

2014 Ranked **399** (out of $\sim 200k$ candidates) nation-wide in the Graduate Aptitude Test in Engineering for entrance to graduate school in electronics and communications engineering

2012 Won first place at the E-Yantra nation-wide robotics contest held at IIT-Bombay, and featured in The Times of India, New Indian Express and DH Education

2010 Ranked **191** (out of $\sim 100k$ candidates) state-wide in the Karnataka Common Entrance Test for entrance to undergraduate engineering programmes.