

Suraj Srinivas

contact information

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research interests

Robustness, Interpretability, Computational Efficiency of Deep models;
Generative modelling; Representation 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 (EPFL), Switzerland,
Advisor: Prof. François Fleuret.
- 2014 **Master of Science (Engineering)**,
- 2017 Indian Institute of Science, Bangalore, India,
Advisor: Prof. R. Venkatesh Babu.
- 2010 - 2014 **Bachelor of Engineering**,
PES University, Bangalore, India.

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.

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
- 2019 ICML travel grant for ICML 2019
- 2017 Best paper award at NeurIPS *Learning with Limited Data* Workshop
- 2015 Xerox Research India travel grant for BMVC 2015

- 2014 Ranked 399 (out of ~ 200k candidates) nation-wide in the Graduate Aptitude Test in Engineering for entrance to graduate school in electronics and communications engineering
- 2012 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 ~ 100k candidates) state-wide in the Karnataka Common Entrance Test for entrance to undergraduate engineering programmes.

publications

- 2023 Anna Meyer*, Dan Ley*, **Suraj Srinivas**, Hima Lakkaraju.
 "On Minimizing the Impact of Dataset Shifts on Actionable Explanations"
Uncertainty in Artificial Intelligence (UAI) - **Oral**
- 2022 **Suraj Srinivas***, Kyle Matoba*, Hima Lakkaraju, François Fleuret. (*co-first-author)
 "Efficient Training of Low-Curvature Neural Networks"
Neural Information Processing Systems (NeurIPS)
- 2022 Tessa Han, **Suraj Srinivas**, Hima Lakkaraju.
 "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**
- 2019 **Suraj Srinivas**, François Fleuret.
 "Full-Gradient Representation for Neural Network Visualization"
Neural Information Processing Systems (NeurIPS)
- 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 AACL, 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*
Instructors: Prof. Hima Lakkaraju, Jiaqi Ma, Suraj Srinivas
Harvard University, USA
Webpage: <https://interpretable-ml-class.github.io/>

- 2018, '19, '21 Teaching Assistant for *Deep Learning* (EE-559)
Instructor: Prof. François Fleuret
EPFL, Switzerland
- 2021 Guest Lecturer on Interpretability for *Deep Learning for Computer Vision* (DS-265)
Instructor: Prof. R. Venkatesh Babu
Indian Institute of Science, Bangalore

research mentoring

- 2022-23 Tessa Han (PhD candidate, Harvard)
Local Function Approximation to Characterize Explanations, NeurIPS 2022
Uncertainty Quantification via Local Linear Approximations
- 2023 Usha Bhalla (PhD student, Harvard)
Dataset Distillation for Interpretability
- 2023 Daniel Ley (PhD student, Harvard)
On Minimizing the Impact of Dataset Shifts on Actionable Explanations, UAI 2023
- 2022 Vincent Micheli & Karthigan Sinnathamby (M.Sc. students, EPFL)
Multi-task Reinforcement Learning with a Planning Quasi-Metric
- 2017 Akshayvarun Subramanya (Research Assistant, IISc)
Estimating Confidence for Deep Neural Networks via Density Modeling, SPCOM 2017
- 2016 Lokesh Boominathan (Research Assistant, IISc)
Compensating for Large In-plane Rotations in Natural Images, ICVGIP 2016

service

- 2023 Co-organizing “XAI in Action: Past, Present, and Future Applications”
NeurIPS 2023 workshop (upcoming)

references

Prof. Himabindu Lakkaraju
Harvard University, USA
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Prof. François Fleuret
University of Geneva, Switzerland
francois.fleuret@unige.ch

Prof. R. Venkatesh Babu
Indian Institute of Science, Bangalore
venky@iisc.ac.in