

# Vignesh Srinivasan

## PERSONAL

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[Email](#) | [GitHub](#) | [LinkedIn](#) | [Google Scholar](#) | [Homepage](#)

## SHORT BIO

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- I am an ML researcher with more than 15 peer-reviewed journal and conference papers.
- My doctoral thesis focused on robustifying DNN through the lens of generative modeling.
- My current focus at Zalando is to bring virtual try-on to production.

## EDUCATION

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- **PhD at TU Berlin** Oct. 2016 – Nov. 2021  
Advisor: Prof. Dr. Klaus-Robert Müller  
Thesis: Towards Robustifying Deep Neural Networks
- **Masters at TU Darmstadt** Oct. 2011 – Apr. 2014
- **Bachelors at Anna University** Sep. 2006 – Apr. 2010

## WORK EXPERIENCE

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- **Zalando Research** Jan. 2022 - Now  
Senior Applied Scientist Berlin, Germany
  - Design the pipeline for virtual try-on using internal data.
  - Communicate with stakeholders on path to production.
  - Guide junior scientists on projects related to generative modeling.
  - Collaborate with teams across Zalando on generative AI.
- **Fraunhofer HHI** Apr. 2015 - Dec. 2021  
Research Scientist Berlin, Germany
  - Score-based generative modeling for improving the generalization performance of classification and domain translation methods.
  - Evaluating the robustness of pretraining strategies using explainable AI methods like LRP for diabetic retinopathy.
  - Contribution to standardization for a robust and safe AI lifecycle at ITU/WHO.
  - Evaluating the robustness of action recognition models and explaining their predictions.
  - Large scale data acquisition and real-time forecasts of air quality in Germany.
- **Technicolor** May. 2014 - Oct. 2014  
Summer Intern Rennes, France
- **AGT-International** Oct. 2012 - Mar. 2014  
Research Assistant Darmstadt, Germany

## PROGRAMMING SKILLS

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- **Languages:** Pytorch, Tensorflow, Python.
- **Environments:** Linux(Ubuntu), Git, Emacs, Latex, Docker, Weights and Biases, VSCode.

## THESIS SUPERVISION

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Ashwin Nair (2016), Talmaj Marinč (2018), Csaba Roher (2020), Sara Mirzavand (2022).

## REVIEW CONTRIBUTIONS

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TNNLS, DSP, PLOS One, NeurIPS 2020, ICLR 2021, ICML 2022, ICLR 2024.

## REFERENCES

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- **Prof. Dr. Klaus-Robert Müller**  
Machine Learning Group  
Technische Universität Berlin  
Email: klaus.r.mueller@googlemail.com
- **Prof. Dr. Wojciech Samek**  
Head of Artificial Intelligence Department, Head of Explainable AI Group  
Fraunhofer HHI  
Email: wojciech.samek@hhi.fraunhofer.de
- **Dr. Shinichi Nakajima**  
Senior Research Lead, Berlin Big Data Center  
Technische Universität Berlin  
Email: nakajima@tu-berlin.de

## PUBLICATIONS

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- [1] **Vignesh Srinivasan**, N. Jetchev, M. Heusel, and T. Naghibi, “Diffusion models for outfit rendering: Novel conditioning architectures for subject-driven generation,” *ECCV Workshops*, 2022.
- [2] **Vignesh Srinivasan**, K.-R. Müller, W. Samek, and S. Nakajima, “Langevin cooling for unsupervised domain translation,” *IEEE Transactions in Neural Network and Learning Systems (TNNLS)*, 2022.
- [3] **Vignesh Srinivasan**, N. Strodthoff, J. Ma, A. Binder, K.-R. Müller, and W. Samek, “To pretrain or not? a systematic analysis of the benefits of pretraining in diabetic retinopathy,” *PLoS ONE*, 2022.
- [4] **Vignesh Srinivasan**, C. Rohrer, A. Marban, K.-R. Müller, W. Samek, and S. Nakajima, “Robustifying models against adversarial attacks by langevin dynamics,” *Neural Networks*, 2021.
- [5] P. Balachandran, F. Cabitza, S. C. Ramirez, A. C. Filho, F. Eitel, J. Extermann, J. Fehr, S. Ghazzi, L. Gilli, G. Jaramillo-Gutierrez, Q.-A. Kester, S. Kurapati, S. Konigorski, J. Krois, C. Lippert, J. Martin, A. Merola, A. Murchison, S. Niehaus, L. Oala, K. Ritter, W. Samek, B. Sanguinetti, A. Schwerk, and **Vignesh Srinivasan**, “Data and artificial intelligence assessment methods (daisam) reference,” in *ITU/WHO FG-AI4H-I-035, Geneva, Switzerland*, May 2020.
- [6] L. Petry, H. Herold, G. Meinel, T. Meiers, I. Müller, E. Kalusche, T. Erbertseder, H. Taubenböck, E. Zaunseder, **Vignesh Srinivasan**, *et al.*, “Air quality monitoring and data management in germany-status quo and suggestions for improvement,” *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences (ISPRS)*, vol. 44, pp. 37–43, 2020.
- [7] **Vignesh Srinivasan**, K.-R. Müller, W. Samek, and S. Nakajima, “Benign examples: Imperceptible changes can enhance image translation performance,” in *Proceedings of the Thirty-Fourth AAAI Conference on Artificial Intelligence*, 2020.
- [8] T. A. Bubba, G. Kutyniok, M. Lassas, M. März, W. Samek, S. Siltanen, and **V Srinivasan**, “Learning the invisible: Limited angle tomography, shearlets and deep learning,” *Numerical Computations: Theory and Algorithms NUMTA*, p. 103, 2019.
- [9] T. A. Bubba, G. Kutyniok, M. Lassas, M. März, W. Samek, S. Siltanen, and **Vignesh Srinivasan**, “Learning the invisible: A hybrid deep learning-shearlet framework for limited angle computed tomography,” *Inverse Problems*, vol. 35, no. 6, p. 064 002, 2019.
- [10] A. Marban, **Vignesh Srinivasan**, W. Samek, J. Fernández, and A. Casals, “A recurrent convolutional neural network approach for sensorless force estimation in robotic surgery,” *Biomedical Signal Processing and Control*, vol. 50, pp. 134–150, 2019.
- [11] T. Marinč, **Vignesh Srinivasan**, S. Gül, C. Hellge, and W. Samek, “Multi-kernel prediction networks for denoising of burst images,” in *2019 IEEE International Conference on Image Processing (ICIP)*, IEEE, 2019, pp. 2404–2408.
- [12] W. Samek, **Vignesh Srinivasan**, L. Oala, and T. Wiegand, “Robustness - safety and reliability in ai4h,” in *ITU/WHO FG-AI4H-E-025, Geneva, Switzerland*, May 2019.

- [13] **Vignesh Srinivasan**, E. E. Kuruoglu, K.-R. Müller, W. Samek, and S. Nakajima, “Black-box decision based adversarial attack with symmetric  $\alpha$ -stable distribution,” in *2019 27th European Signal Processing Conference (EUSIPCO)*, IEEE, 2019, pp. 1–5.
- [14] **Vignesh Srinivasan**, A. Marban, K.-R. Müller, W. Samek, and S. Nakajima, “Defense against adversarial attacks by langevin dynamics,” in *ICML’19 Workshop on Uncertainty Robustness in Deep Learning*, 2019.
- [15] A. Marban, **Vignesh Srinivasan**, W. Samek, J. Fernández, and A. Casals, “Estimation of interaction forces in robotic surgery using a semi-supervised deep neural network model,” in *2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, IEEE, 2018, pp. 761–768.
- [16] W. Pronobis, D. Panknin, J. Kirschnick, **Vignesh, Srinivasan**, W. Samek, V. Markl, M. Kaul, K.-R. Müller, and S. Nakajima, “Sharing hash codes for multiple purposes,” *Japanese Journal of Statistics and Data Science (JJSD)*, vol. 1, no. 1, pp. 215–246, 2018.
- [17] A. Marban, **Vignesh Srinivasan**, W. Samek, J. Fernández, and A. Casals, “Estimating position & velocity in 3d space from monocular video sequences using a deep neural network,” in *Proceedings of the IEEE International Conference on Computer Vision (ICCV)*, 2017, pp. 1460–1469.
- [18] **Vignesh Srinivasan**, S. Lapuschkin, C. Hellge, K.-R. Müller, and W. Samek, “Interpretable human action recognition in compressed domain,” in *2017 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, 2017, pp. 1692–1696.
- [19] **Vignesh Srinivasan**, S. Gul, S. Bosse, J. T. Meyer, T. Schierl, C. Hellge, and W. Samek, “On the robustness of action recognition methods in compressed and pixel domain,” in *2016 6th European Workshop on Visual Information Processing (EUVIP)*, IEEE, 2016, pp. 1–6.
- [20] **Vignesh Srinivasan**, F. Lefebvre, and A. Ozerov, “Shot aggregating strategy for near-duplicate video retrieval,” in *2015 23rd European Signal Processing Conference (EUSIPCO)*, IEEE, 2015, pp. 1825–1829.
- [21] T. L. van Kasteren, B. Ulrich, **Vignesh Srinivasan**, and M. E. Niessen, “Analyzing tweets to aid situational awareness,” in *European Conference on Information Retrieval (ECIR)*, Springer, 2014, pp. 700–705.

## URKUNDE

Die Fakultät IV – Elektrotechnik und Informatik  
*With this certificate, the Faculty IV – Electrical Engineering and Computer Science*

der Technischen Universität Berlin verleiht mit dieser Urkunde  
*of the Technische Universität Berlin confers upon*

**Herrn/Mr. Vignesh Srinivasan**  
geboren am/born on 10. Dezember 1988 in Trichy, Indien

den akademischen Grad  
*the academic degree*

## DOKTOR DER INGENIEURWISSENSCHAFTEN (Dr.-Ing.)

nachdem er im ordnungsgemäßen Promotionsverfahren durch seine Dissertation  
*after he has successfully completed the doctoral requirements, on the basis of his thesis*

**“Towards Robustifying Deep Neural Networks against Adversarial, Fringe  
and Distorted Examples”**


und durch die wissenschaftliche Aussprache am 30. November 2021 mit dem  
*and of his oral defense on November 30<sup>th</sup>, 2021, with the*

Gesamturteil „sehr gut bestanden“ (magna cum laude)  
*overall evaluation “very good” (magna cum laude),*

seine wissenschaftliche Befähigung erwiesen hat.  
*thus demonstrating his academic competence.*

Berlin, den 20. 12. 2021

  
Der Präsident der  
Technischen Universität Berlin

  
Der Dekan der Fakultät IV  
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Herrn  
Vignesh Srinivasan

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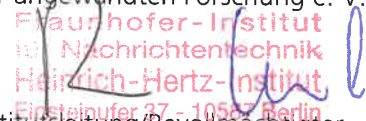
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Berlin,  
17.05.2022

**Arbeitsbescheinigung**

Wir bestätigen, dass Herr Vignesh Srinivasan, geboren am 10.12.1988, vom 01.10.2016 bis 31.12.2021 als wissenschaftlicher Mitarbeiter im Fraunhofer Institut für Nachrichtentechnik, Heinrich-Hertz-Institut, in Vollzeit mit 39h/W beschäftigt war.

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Germany

Darmstadt, 12. März 2015

## Referenz

Sehr geehrte Damen und Herren,

Herr Vignesh Srinivasan, geb. am 10. Dezember 1988, war vom 7. Oktober 2012 bis 4. Mai 2014 als studentische Hilfskraft in unserem Unternehmen in Darmstadt tätig. Er hat in diesem Zeitraum mehr als 500 Arbeitsstunden für uns gearbeitet.

Zu Herrn Srinivasans Hauptaufgaben zählten Beiträge zu den Themenfeldern:

- Computer Vision: Activity Recognition
- Machine Learning

Die von uns übertragenen Aufgaben erledigte er stets zu unserer vollsten Zufriedenheit. Herr Srinivasans geschäftsbezogenes und persönliches Verhalten war stets einwandfrei. Er war wegen seiner kundenorientierten, freundlichen und verlässlichen Art sehr geschätzt und beliebt.

Wir empfehlen Herrn Srinivasan jederzeit gerne weiter und wünschen ihm viel Glück und Erfolg auf seinem weiteren Berufs- und Lebensweg

Mit freundlichem Gruss

A handwritten signature in blue ink, appearing to read 'R. Müller', is written over a horizontal line.

HR Manager  
Rainer Müller



**CERTIFICATE**  
**To whom it may concern**

I, Laurence Piquet, Responsible for the internships within

**TECHNICOLOR R&D France**  
975 Avenue des Champs Blancs  
CS 17616  
35576 Cesson Sévigné Cedex,  
N° SIRET : 341 399 558 00087  
Code APE : 7112B

Hereby certifies that:

**Vignesh SRINIVASAN**

Has undergone a period of internship from May 12<sup>th</sup> to Oct 11<sup>th</sup>, 2014 in our company in the frame of his training at the TU in Darmstadt, Germany

The subject of this internship was: **Shot aggregating strategy for near-duplicate video retrieval**

Done in Cesson-Sévigné on March 11<sup>th</sup>, 2015

**Technicolor R&D France Snc**  
975 Ave des Champs Blancs - CS 17616  
35576 Cesson-Sévigné Cedex  
France

Laurence PIQUET





TECHNISCHE  
UNIVERSITÄT  
DARMSTADT

# MASTER

of Science

The Technische Universität Darmstadt  
hereby awards to

**Mr. Vignesh Srinivasan**

born December 10, 1988 in Trichy  
after successful completion of all examination requirements  
in the degree program

**Information and Communication Engineering**

the academic degree of

**Master of Science (M.Sc.)**

with all rights and privileges pertaining to this degree  
accorded by the

Technische Universität Darmstadt

The degree awarded corresponds to the academic university degree  
DIPLOM-INGENIEURIN / DIPLOM-INGENIEUR (Dipl.-Ing.).

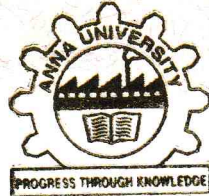
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Prof. Dr. Hans Jürgen Prömel  
The President of the TU Darmstadt

Prof. Dr.-Ing. Abdelhak M. Zoubir  
The Dean of the Department Electrical Engineering and Information  
Technology





Reg. No.81906105054/RG



*The Syndicate of the Anna University hereby makes known that*  
**VIGNESH S** *has been admitted to the* **DEGREE OF BACHELOR OF**  
**ENGINEERING** *in* **ELECTRICAL AND ELECTRONICS**  
**ENGINEERING** *under the Faculty of Electrical Engineering, having*  
*completed the prescribed programme of study and having been certified by the duly*  
*appointed examiners to be qualified to receive the same, and has been placed in*  
**FIRST CLASS** *at the Examination held in* **APRIL 2010.**

*Given under the Seal of the University*



Chennai 600 025  
India  
December 2010  
GUM310509764

*V. [Signature]*  
**Controller of Examinations**

*[Signature]*  
**Registrar**

*[Signature]*  
**Vice-Chancellor**  
21029995002175514019319485004C7