Vignesh Srinivasan

Personal

Email | GitHub | LinkedIn | Google Scholar | Homepage

Short Bio

- ML researcher with 10+ years of experience and 15+ peer-reviewed publications.
- Doctoral thesis on robustifying DNNs via **score-based generative modeling**.
- Led virtual try-on production at Zalando and trained 1-5B parameter models from scratch on internal data creating **generative foundational models for fashion**.
- Leading digital twin development for energy grid infrastructure at Siemens Energy.

Education

- **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

- **Siemens Energy** Berlin, Germany
  Principal AI Research Scientist Aug. 2025 – Now
  - Leading the development of digital twin solutions for electrical grid infrastructure.
  - Developing innovative ML solutions for computational fluid dynamics (CFD) simulations.
  - Recruited 2 team members to strengthen the research team.
- **Zalando Research** Berlin, Germany
  Senior Applied Scientist Jul. 2023 – Jul. 2025
  Applied Scientist Jan. 2022 – Jun 2023
  - Architected and developed virtual try-on, training foundational diffusion models with 1-5B parameters from scratch on proprietary fashion datasets.
  - Led stakeholder engagement and technical communication to drive product roadmap and production deployment strategy.
  - Mentored and guided junior scientists on diffusion model research and implementation projects.
  - Shared knowledge and recent advances in diffusion models through technical presentations to the broader data science organization.
- **Fraunhofer HHI** Berlin, Germany
  Research Scientist Apr. 2015 – Dec. 2021
  - Score-based generative modeling for improving the generalization performance of classification and domain translation methods.
  - Evaluating the robustness of pretraining strategies using exaplainable 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** Rennes, France
  Summer Intern May. 2014 – Oct. 2014
- **AGT-International** Darmstadt, Germany
  Research Assistant Oct. 2012 – Mar. 2014

Programming Skills

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

Thesis Supervision

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

Review Contributions

TNNLS, DSP, PLOS One, NeurIPS 2020, ICLR 2021, ICML 2022, ICLR 2024, CVPR 2024, ICLR 2025, CVPR 2025.

References

- **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

[1] P. Balachandran, F. Cabitza, S. C. Ramirez, A. C. Filho, F. Eitel, J. Extermann, J. Fehr, S. Ghozzi, 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.

[2] 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.

[3] **Vignesh Srinivasan**, N. Jetchev, M. Heusel, and T. Naghibi, "Diffusion models for outfit rendering: Novel conditioning architectures for subject-driven generation," ***ECCV*** *Workshops*, 2022.

[4] **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.

[5] **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.

[6] **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.

[7] 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.

[8] **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.

[9] 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.

[10] 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.

[11] 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.

[12] 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.

[13] **Vignesh Srinivasan**, E. E. Kuruoglu, K.-R. Müller, W. Samek, and S. Nakajima, "Black-box decision based adversarial attack with symmetric α-stable distribution," in *2019 27th European Signal Processing Conference (**EUSIPCO**)*, IEEE, 2019, pp. 1–5.

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[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.

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[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.

Technische Universität Berlin

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 30th, 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
Elektrotechnik und Informatik

This doctoral degree is comparable to the degree "Doctor of Philosophy (PhD)" in the Anglo-American educational system.

zalando

Zalando SE, 11501 Berlin

Vignesh Srinivasan

Irmtraud-Morgner-Straße 7

10318 Berlin

Berlin, 31.07.2025

Arbeitgeberbescheinigung

Certificate of employment

Guten Tag Vignesh Srinivasan,

Dear Vignesh Srinivasan,

gerne bescheinigen wir Ihnen, dass Sie, Vignesh Srinivasan, geboren am 10.12.1988, seit dem 01.01.2022 bei der Zalando SE tätig sind.

We herewith confirm that you, Vignesh Srinivasan, born on 10.12.1988, have been working at Zalando SE since 01.01.2022.

Ihr Arbeitsverhältnis mit der Zalando SE endet zum 31.07.2025.

Your employment contract with Zalando SE will terminate on 31.07.2025.

Bei Rückfragen stehen wir Ihnen gerne zur Verfügung.

If you have any further questions, please do not hesitate to contact us.

Dieses Dokument wurde maschinell erstellt und ist ohne Unterschrift gültig.

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Fraunhofer
HHI

Fraunhofer Gesellschaft Einsteinufer 37 10587 Berlin

Herrn
Vignesh Srinivasan

Recht, Verträge und Personal

Einsteinufer 37
10587 Berlin

Telefon +49 30 31002-0
Telefax +49 30 31002-213
www.fraunhofer.de

Martina Keil
Durchwahl +49 30 31002-305
Telefax +49 30 31002-213
martina.keil@hhi.fraunhofer.de

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.

Fraunhofer-Gesellschaft zur Förderung
der angewandten Forschung e. V.

Fraunhofer-Institut
für Nachrichtentechnik
Heinrich-Hertz-Institut,
Einsteinufer 37 - 10587 Berlin

Institutsleitung/Bevollmächtigter

www.agtinternational.com

T +49 6151 460 5111
F +49 6151 460 5190

AGT Group (R&D) GmbH
Hilpertstraße 35
64295 Darmstadt, Germany

Vignesh Srinivasan
Alfred Messel Weg 10C-33
64287 Darmstadt
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

HR Manager
Rainer Müller

technicolor

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 12th to Oct 11th, 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 11th, 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.).

Darmstadt, April 30, 2014

PRÄSIDENT DER TECHNISCHEN UNIVERSITÄT · DARMSTADT ·

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

Anna University

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

Controller of Examinations *Registrar* *Vice-Chancellor*

GUM310509764