

# Mahalakshmi Sabanayagam

[Email](#) | [LinkedIn](#) | [Github](#) | [Google Scholar](#) | [Website](#)

## RESEARCH INTEREST

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I am interested in the theory of machine learning and deep learning, primarily in understanding the connection of deep networks to kernels and its adversarial robustness. I am also interested in graph based learning problems and statistical learning theory.

## EDUCATION

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<b>Ph.D.</b> in Computer Science Technical University of Munich, Germany <b>Advisor:</b> <i>Prof. Debarghya Ghoshdastidar</i>	August 2021 – Present
<b>Master of Science</b> , Informatics Technical University of Munich, Germany	October 2018 – June 2021 <i>CGPA: 1.3 (best of 1.0)</i>
<b>Bachelor of Technology</b> , Computer Science & Engineering National Institute of Technology, Trichy, India	July 2011 – May 2015 <i>CGPA: 9.37 (best of 10)</i>

## PROFESSIONAL EXPERIENCE

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### Teaching Activities / Student Jobs

- *Teaching Assistant* for Gems of Informatics 3: Modelling and analysis of real-world graphs (WS 2021/22)
- *Student Tutor* for Efficient Algorithms & Data Structures (WS 2020/21)
- *Research Assistant* in Certifiable AI at Fraunhofer-Institute, Munich (Sept 2020 – Feb 2021): Worked on novel ways to quantify risk in object detectors
- *Working Student* in Innovation Department at Osram Gmbh, Munich (Sept 2019 – Dec 2019): Developed faster RCNN and YOLO based models for detection, identification and tracking of multiple traffic objects

**Computer Scientist 1** July 2015 – September 2018  
Adobe Systems, Bengaluru, India

- **Modernization of Dreamweaver:** Developed a robust OS agnostic (Mac/Windows) framework, resembling MFC in its design to use in-house library for rendering
- **HiDPI Aware functionality on Windows:** Created an interface for HiDPI adaptation in the aforementioned framework thereby completely avoiding code changes in the client side

Recognized as a top-performer and was awarded two early promotions - Member of Technical Staff 2 in January 2017 and Computer Scientist 1 in January 2018.

**Research Intern** May 2014 – July 2014  
Samsung R&D Institute, Bengaluru, India

- Implemented a module for secure log-out in Android Browser of Samsung
- Worked on improving the efficiency of Optical Character Recognition using Tesseract and OpenCV

## PUBLICATIONS

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3. **Graphon based Clustering and Testing of Networks: Algorithms and Theory** [\[arxiv\]](#)  
Mahalakshmi Sabanayagam, Leena Chennuru Vankadara, Debarghya Ghoshdastidar  
(To appear) *International Conference on Learning Representations 2022 (ICLR 2022)*
2. **Rough Set-based Feature Selection for Credit Risk Prediction using Weight Adjusted Boosting Ensemble Method** [\[springer\]](#)  
Sivasankar E, Selvi C, Mahalakshmi S  
*Journal of Soft Computing* 2019
1. **Cross Domain Sentiment Analysis Using Different Machine Learning Techniques** [\[springer\]](#)  
Mahalakshmi S, Sivasankar E  
*Fifth International Conference on Fuzzy and Neuro Computing (FANCCO) 2015* and as poster in *Grace Hopper Celebration India (GHCI) 2016*

## PREPRINTS

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2. **New Insights into Graph Convolutional Networks using Neural Tangent Kernels** [\[arxiv\]](#)  
Mahalakshmi Sabanayagam, Pascal Esser, Debarghya Ghoshdastidar
1. **Machine learning-based image detection for lensless microscopy in life science** [\[link\]](#)  
Mahalakshmi Sabanayagam, Jan Brunckhorst, Andreas Pirchner, Nikhitha Radhakrishna Naik

## TECHNICAL SKILLS

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**Languages:** C++ (Proficient), Python (Proficient), Java (Good)

**Technologies:** Tensorflow, Pytorch, NetworkX, Chromium Embedded Framework, OpenCV, AWS, Git

## LANGUAGES

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Tamil (mother tongue), English (fluent), German (basic)

## AWARDS & HONORS

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- Awarded the largest sustainability impact award by **Siemens AI@sustainability Hackathon, 2020** for the AI solution towards finding new strategies that reduce the spread of COVID-19
- Awarded 2<sup>nd</sup> place in Female Tech Leaders Hackathon on **Introduction to Big Data: COVID-19 and its Global Effects, 2020** for analysing COVID-19 related tweets and the impact on equities
- Finalist in **Mobility Innovation Competition @ Campus, 2019** conducted by Zentrum Digitalisierung Bayern (ZD.B)
- **OPJEMS (O.P. Jindal Engineering and Management Scholarship) Scholar, 2012** for excellent academic record and leadership qualities
- Received **Bachelor's Study scholarship** from NLC for the period 2011 – 2015

## OTHER ACTIVITIES

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- **Technovation Mentor** for guiding underprivileged middle school girls in Technovation Challenge 2018
- Volunteer at **Help Age India**, created awareness and raised funds for the care of elderly in 2004 and 2007

## REFERENCES

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**Dr. Debarghya Ghoshdastidar**

Assistant Professor, Theoretical Foundations of Artificial Intelligence, TU Munich

[Email](#)

**Dr. E. Sivasankar**

Assistant Professor, National Institute of Technology, Trichy, India

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