Nithya Bhasker

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https://nithyabhasker.github.io

RESEARCH INTERESTS
Machine learning and geometry, causal discovery, survival analysis

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EDUCATION

PhD in Computer Science - TU Dresden, Germany   Expected Jan 2026
Application of geometry and machine learning for surgical complication prediction
Research advisor: Prof. Dr. Stefanie Speidel

Master of Science - TU Dresden, Germany   November 2020
Computational Modeling and Simulation
Grade: 1.5 / 5.0 (Excellent)

Bachelor of Engineering - M S Ramaiah Institute of Technology, India   May 2015
Electronics and Communication
Grade: 9.5 / 10 (Excellent)

RESEARCH EXPERIENCE

Doctoral Researcher   2020 - Present
Department of Translational Surgical Oncology,
National Center for Tumor Diseases (NCT/UCC) Dresden, Germany
Research advisor: Prof. Dr. Stefanie Speidel
- Developed machine learning based algorithms for the prediction of risk for surgical complications using multimodal data
- Developed geometry-based algorithms for embedding high-dimensional genomic data into a low-dimensional space - in collaboration with researchers from Harvard University, Yale School of medicine, Technical University of Denmark and Bayer AG
- Developed methods for out of sample generalisation in outcome prediction using causal discovery methods
- Developed graph neural network based methods for survival analysis in cancer patients using medical images and electronic health records

Research assistant   2019 - 2020
Chair of Computer Graphics and Visualisation
Faculty of Computer Science, TU Dresden
- Developed deep learning-based tracking algorithms for autonomous driving

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PROFESSIONAL EXPERIENCE

Associate Hardware Engineer   2015 - 2018
Robert Bosch Engineering and Business Solutions, India
- Involved in the design, development and integration of Engine Control Units (ECUs)
- Customer appreciation award on successful completion of project
- Performance awards, twice in a row

International Assignment:
- Robert Bosch GmBH, Schwieberdingen, Germany
  February 2018 – June 2018
  Hardware development for Customer ECU project
- Robert Bosch GmBH, Schwieberdingen, Germany
  January 2016 – April 2016
  On Job Training for Customer ECU project

Student Intern   January 2015 - May 2015
Robert Bosch Engineering and Business Solutions, India
- Feasibility analysis for implementation of optical fiber in the physical layer
  Controller Area Network (CAN) module

SELECTED PUBLICATIONS

Contrastive Poincaré Maps for single-cell data analysis.
Nithya Bhasker, Hattie Chung, Louis Boucherie, Vladislav Kim, Stefanie Speidel, Melanie Weber.
ICLR 2024 Workshop on Machine Learning for Genomics Explorations. 2024.
https://openreview.net/pdf?id=zsUKE98bNu

Prediction of clinically relevant postoperative pancreatic fistula using radiomic features and preoperative data.
Nithya Bhasker, Fiona R. Kolbinger,..., Stefanie Speidel, Stefan Leger, Jens-Peter Kühn.
Scientific Reports. 2023.
https://doi.org/10.1038/s41598-023-34168-x

Diagnostic imaging and the use of artificial intelligence in the management of organ metastasis.

Nithya Bhasker, Felix Schön, Jens-Peter Kühn, Stefanie Speidel.
Onkologie. 2023.
https://doi.org/10.1007/s00761-022-01282-w

Discrete orthonormal Stockwell transform based feature extraction for pose invariant face recognition.
Nithya Bhasker, Y. Bhavani Sankari, K. Manikantan, and S. Ramachandran.
Procedia Computer Science. 2015.
https://doi.org/10.1016/j.procs.2015.03.143

[Archive / Pre-prints]

The best of both worlds: Improved outcome prediction using causal structure learning.
Nithya Bhasker, Susu Hu, Fiona R. Kolbinger, Gitta Kutyniok, Stefanie Speidel.
https://openreview.net/forum?id=AvXrppAS2o. 2024.

Graph data modelling for outcome prediction in oropharyngeal cancer patients.
Nithya Bhasker, Stefan Leger, Alexander Zwanenburg, …, Stefanie Speidel.
https://arxiv.org/abs/2310.02931. 2023.

INVITED TALKS

Application of Graph Neural Networks to surgical complication prediction.
Nithya Bhasker, Graph Neural Network Mini Meeting,
Max Planck Institute for Mathematics in the Sciences. 2023.

SKILLS

Programming languages: Python, C, Matlab, R, C++
Main libraries: PyTorch, Pandas, NumPy, SciPy, Matplotlib, JAX, dask
Others: Linux, bash, git

LANGUAGES

English, Kannada - Native proficiency
German (B1), Hindi, Telugu