

Bharathwaj Krishnaswami Sreedhar

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🎓 Education

MSc (Double-Degree) ICT - Specializing in Autonomous Systems
KTH Royal Institute of Technology | Technische Universität Berlin

Oct 2018 - Nov 2020
Sweden & Germany

B.Tech in Electrical and Electronics Engineering
National Institute of Technology, Tiruchirappalli

Aug 2014 - May 2018
Trichy, India

⚙️ Skills

Programming Languages: Python, C, C++, Java, Matlab

Frameworks and Tools: PyTorch, TensorFlow, OpenCV, ROS, CUDA, Dask, Docker

Areas of Interest: Deep learning, Reinforcement Learning, AI Safety, SLAM, Path Planning

📁 Experience

neurocat GmbH
Research Engineer

Berlin, Germany
Feb, 2021 - Present

- Worked on analyzing the robustness of perception models for railway systems using camera and LiDAR data as part of the Berlin digital rail operations project.
- Collaborated with Fraunhofer AISEC and BSI Germany, focusing on state-of-art adversarial attacks and defences methods for medical data.
- Part of the core software development team of *aidkit*, an online ML quality assessment platform.
- Implemented various adversarial and corruption attacks, and associated metrics in *aidkit*.
- Worked on developing a framework agnostic system for executing ML models.

Sony R&D | SL1

Master Thesis | AI Speech and Sound Group

Stuttgart, Germany
Feb, 2020 - July, 2020

- Worked on Bayesian optimization for Neural Architecture Search (NAS)
- Implemented specialized graph kernels with hardware constraints to identify optimal architecture using Gaussian modeling.
- Adapted graph convolutional network as an embedding layer for best architecture search.
- Achieved over 100x improvement in terms of search time and model performance when compared to random Search on NASBench-101.

National University of Singapore

Summer Research Intern | OEIL - Medical Imaging

Singapore
May, 2017 - Aug, 2017

- Worked under the supervision of Dr. Michael Girard and Dr. Alexandre Thiéry.
- Developed a custom CNN architecture for semantic segmentation.
- Separated seven layers of RNFL from monochrome OCT scans.
- Implemented an algorithm to detect and trace the contour of Bruch's membrane in a 3D volume scan.

📄 Publications

Chapter 3 - "Security of AI-Systems: Fundamentals - Adversarial Deep Learning"

2022 Bundesamt für Sicherheit in der Informationstechnik (BSI), Germany.

Deep Learning for Hardware-Constrained Driverless Cars

2020 IEEE 44th Annual Computers, Software, and Applications Conference (COMPSAC), Madrid, Spain, 2020

Bayesian Optimization for Neural Architecture Search using Graph Kernels

Master Thesis, KTH, School of Electrical Engineering and Computer Science (EECS), 2020

DRUNET: A Dilated-Residual U-Net Deep Learning Network To Segment ...

Biomedical Optics Express – Vol 9, Issue 7 (2018)