ADHITHYAN KALAIVANAN

k.adhithyan@gmail.com | +46 769795010 | github/Adhithyan8

EDUCATION

KTH Royal Institute of Technology   Stockholm, Sweden
Master of Science in Machine Learning   2021 - 2023*
- Relevant Coursework: Machine Learning, Advanced Course; Machine Learning Theory; Time Series Analysis; Deep Learning, Advanced Course; Computational Methods for SDE and Machine Learning;

Notable projects

Thesis: On Linear Mode Connectivity up to Permutation of Hidden Neurons in Neural Networks
- Empirically showed that the weight averaging lowers low in wide networks due to feature redundancy
- Averaging is advantageous when networks are reparameterized to be permutation aligned, but only under the choice of some optimizers, highlighting the impact of training dynamics on mode connectivity

Git Bi-sect: Dissecting Git Re-basin
- Reproduced Git Re-basin (ICLR 2023) from Ainsworth et. al. that investigates linear mode connectivity and low loss basins in deep neural networks when accounting for permutation invariance of hidden units
- Highlighted under-explored role of training hyperparameters on the trajectory of weight updates in SGD

Network Representation Learning
- Implemented and trained unsupervised representation learning models – DeepWalk, LINE, GraphSage etc.
- Evaluated the embeddings on public datasets for node classification and link prediction tasks

Model Extraction Attacks on CNNs
- Investigated a class of privacy attacks where the aim is to "steal" a black box model with only query access
- Evaluated the effect of model architecture, levels of output access and querying strategy on the attack

Programming languages and Frameworks: Python, PyTorch, JAX, Tensorflow

Indian Institute of Technology Madras (IITM)   Chennai, India
Bachelor of Technology in Mechanical Engineering, Minor in Biomedical Engineering   2011 - 2015
- CGPA: 8.41/10. Ranked 883rd in the Joint Entrance Exam (IIT-JEE 2011) out of 460,000 appeared candidates
- Relevant Coursework: Linear Algebra and Numerical Analysis; Differential Equations; Dynamical Systems

WORK EXPERIENCE

KTH Royal Institute of Technology   Stockholm, Sweden
Teaching Assistant   2021 - Present

- Teaching Assistant for Artificial Intelligence course, Machine Learning, Advanced and Deep Learning in Data Science courses, responsible for conducting tutorials and grading student submissions

Robert Bosch Engineering & Business Solutions   India & Germany
Software Specialist   2015 – 2020

Advanced Driver Assistance Systems and Automatic Parking Brake
- Designed the control and communication strategy between the braking unit and perception units
- Developed the state estimation, actuation intention detection and diagnostics of Automatic Park Brake