Ananth Kalyanasundaram

Phone number: +91-8056074660 ⋄ LinkedIn profile

Address: Flat No.7, Raga Sriniketan Apts., 41/51, RK Shanmugam Salai, KK Nagar, Chennai-600078, India

ananth.kalyanasundaram@gmail.com ⋄ AnanthK1998.github.io

RESEARCH INTERESTS

My research interests broadly lie in the field of Computer Vision and Deep Learning. I am interested in developing novel algorithms that optimize feature representations in a deep neural network. I am also interested in working toward problems in 3D vision, segmentation and super-resolution.

EDUCATION

Technical University of Munich   October 2021 - October 2023 (expected)
MSc. Informatics   *Munich, Germany*
Incoming MSc student.

SRM Institute of Science and Technology   July 2016 - June 2020
B.Tech (Computer Science and Engineering)   *Chennai, India*
Percentage: 87.35/100

PUBLICATIONS

· **MRI Super-resolution using Laplacian Convolutional Neural Networks with Isotropic Undecimated Wavelet Loss.** S.Ramanarayanan, B.Murugesan, **A.Kalyanasundaram**, S.Prabhakaran, S.Patil, M.Sivaprakasam. 42nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society 2020 (EMBC 2020).

· **Detection of Pathological Myopia using Convolutional Neural Networks. A.Kalyanasundaram**, S.Prabhakaran, Briskilal.J, Senthil Kumar.D. International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 05, 2020

WORK EXPERIENCE

Human Analysis Lab, Michigan State University   September 2020 - Present
Research Intern   *East Lansing, Michigan, USA*

· Currently working on improving the performance of deep neural networks for the purpose of multi task learning under the supervision of Professor Vishnu Boddeti.

KPMG India   July 2020 - October 2020
Data Analyst Intern   *Mumbai, India*

· Worked on optimizing tax processes after analysis of data for the Tax Technology and Transformation team.
· Created automation software for OTP verification in websites.
· Tested several bots and ensured high quality output was produced.

SRM Medical College   August 2019 - June 2020
Research Intern   *Chennai, India*

· Analyzed and cleaned real-life Knee MRI data. Used image processing techniques to make the data trainable.
· Developed a novel loss function for this task which delivered better results and published a paper on the same at the IEEE EMBC 2020 conference.

Healthcare Technology Innovation Centre(HTIC), IIT-Madras   May 2018 - July 2019
Research Intern   *Chennai, India*

· Implemented several state-of-the-art deep learning architectures for the task of Image Segmentation and Classification.
· Achieved a position in the top 20 of the leaderboard at the time of conclusion of challenges held by ISBI and SPIE Medical Imaging conferences.
· Conducted research using different architectures for the task of Super-resolution on Brain MRI.

PROJECTS

Cancer Cellularity Prediction System   December 2018 - March 2019

The challenge was to predict cancer cellularity given an image of a tissue. Achieved a position of 6 out of 100 teams at the time of conclusion, with a prediction probability of 0.88 using an ensemble of ResNet architectures. Developed a user interface for the same using Kivy.

Salt Segmentation for detection of Petroleum under Rocks   July 2018 - December 2018

Worked on the project as part of a challenge on Kaggle. The task was to segment salt regions in images of rock surfaces. Achieved a dice score of 0.83 on the dataset using a UNet with ResNet34 encoder and data augmentation techniques.

Histopathic Segmentation of Nuclei using Deep Learning   May 2018 - June 2018

This challenge was held as part of the MICCAI 2018 conference. Trained with the UNet architecture after applying extensive data augmentation techniques. Achieved a dice score of 0.82 on the test set.

Cyclone Prediction using Machine Learning   March 2018 - April 2018

Worked on the HURDAT dataset released by the NHC for classification of weather phenomena. Cleaned the data and achieved an F1-score of 0.843 on the validation set, using supervised learning techniques.

COURSES

University Courses

· Machine Learning
· Artificial Intelligence
· Probability and Queuing Theory
· Advanced Calculus and Complex Analysis
· Data Science and Big Data Analytics

Online Courses

· Machine Learning by Stanford University, Coursera
· Deep Learning Specialization by Andrew Ng
· Python for Everybody, Coursera
· Deep Neural Networks with PyTorch by IBM, Coursera
· AI Capstone Project with Deep Learning by IBM, Coursera

TECHNICAL SKILLS

Skills:	Machine Learning, Computer Vision
Languages:	Python, C++, MATLAB
Frameworks:	Tensorflow, Pytorch, Keras, OpenCV