Nagul Ulaganathan

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Github: https://github.com/nagul99 || Portfolio: https://Nagul99.github.io

Education

Bachelor of Technology in Computer Science and Engineering CGPA: 9.23/10.0
Vellore Institute of Technology (VIT), Vellore, India *2017 - Present*

Higher Secondary schooling Grade: 90%
Suguna PIP School, Coimbatore, India (CBSE) *2015 - 2017*

Internships/Work Experiences

Machine Learning Intern
Redleaf Technologies, Coimbatore *July 2020 - Present*

- Achieved 94% accuracy with a novel architecture of deep convolution neural networks for the classification of Satellite images and Grid maps. Used various image processing techniques for pre-processing and filtering.
- Implemented transfer learning with complex CNN architectures for the classification of Satellite image maps.

Data Science Intern
Numentica, Torrance, CA|Bangalore *Jan 2020 – June 2020*

- Worked on data cleaning, analysis and classification of large data using machine learning models. Implemented algorithms like Regression, Decision trees, Naive Bayes, K-means, PCA and Recurrent Neural Networks(RNN).
- Worked with Big data technologies like Hadoop and Apache Spark. Developed a web application for the deployment of machine learning models along with custom built features for data visualization.

Web Developer Intern
Amtex Systems Inc., Chennai *May 2019 – June 2019*

- Worked on back-end development of a web page with integrated ML systems and developed automation test scripts using NodeJS, Python and other testing frameworks.

Director
Enactus VIT, Vellore *March 2019 – July 2020*

- Implemented Project Envision under my leadership and has helped over 114 visually impaired people by providing employment with our web and mobile application.
- Lead a team of 42 members focused on the project Envision and increased the impact of the project by **70%**.

Technical Lead
Enactus VIT, Vellore *Dec 2017 – Feb 2019*

- Developed a web application along with my team that automates and manages the calls and services to the mobile app of visually impaired people involved with project Envision. Added the functionality of real-time digit recognition of phone numbers using machine learning.

Research Experience

Isolated handwritten Tamil character recognition using convolutional neural networks
IEEE: 3rd IEEE International Conference on Intelligent Sustainable Systems (ICISS 2020) *June 2020 - Sep 2020*

- Proposed a novel architecture of convolutional neural networks for the recognition of handwritten Tamil characters. Achieved a training accuracy of 97% and a validation accuracy of 92% with the proposed model.

Movie Prior Release Box Office Prediction - A Machine Learning Based Approach
International Journal of Advanced Technology and Engineering Exploration (IJATEE) *Nov 2019 – Mar 2020*

- Prediction of Movie's box office revenue using machine learning algorithms like Linear Regression, Random Forest and XGBoost based on the historical movie database.

Systematic study of extractive multi-document summarization techniques
IEEE : 4th International Conference on Electronics, Communication and Aerospace Technology *Feb 2020 - May 2020*

- Presented a comprehensive analysis and comparison of significant multi-document summarization techniques using various evaluation metrics. Introduced a new categorization for the chosen summarization algorithms.

Application for Plant's Leaf Disease Detection using Deep Learning Techniques
International Research Journal of Engineering and Technology *Apr 2020 - June 2020*

- Proposed accurate and generic methods to predict the plant disease using deep learning techniques. Used convolutional neural networks and conditional random field techniques with image processing in our model.

YZU Research Internship (Machine Learning research intern)
Supervisor: Prof.Yun-Chia Lung, Yuan Ze University, Taiwan *On hold due to Covid-19*

Technical Skills

- **Programming Languages:** Python, C++, C, Java, R, MATLAB
- **Machine Learning/Deep Learning:** TensorFlow, Keras, OpenCV, PyTorch, Flask, NLTK, Scikit-learn, SciPy, Numpy, Pandas, Matplotlib
- **Web Technologies:** HTML5, CSS3, JavaScript, Node.js, PHP, Django, Bootstrap, MongoDB, MySQL
- **Automation Testing :** ChaiJS, ChakramJS, Selenium, REST assured
- **Other Tools:** MS office, Adobe Photoshop, Wireshark, OpenMP, Hadoop and Apache Spark (Big Data basics)
- **Other Areas:** Full stack development, Data Structures and algorithms, Image processing, Computer Vision

Projects

- Classification of High-Resolution Satellite images using deep convolutional neural networks
- Automatic Colorization of Grayscale and RGB images using Autoencoders
- Real-time Handwritten Tamil character recognition using convolutional neural networks
- Sentiment Classification using Bidirectional Gated Recurrent Unit (GRU)
- Song Lyric generation using Long Short-term Memory (LSTM) networks
- Web portal for Insurance management system using NodeJS and MongoDB
- Graphical Password Authentication System in PHP
- Covid-19: Face mask detection using Tensorflow (CNN) and OpenCV
- Multi-class Text Categorization with neural networks and Natural Language Processing techniques
- Autocomplete dictionaries with Trie data structures. More projects on Github.

Certifications

- Deep Learning Specialization (5 Courses), Deeplearning.ai, Coursera
- TensorFlow Developer (4 courses), Professional Certificate, Deeplearning.ai, Coursera
- Machine Leaning, Stanford University, Coursera and Machine Learning A-Z, Udemy
- Deep Learning and Computer Vision A-Z: OpenCV, SSD GANs, Udemy
- Fundamentals of Digital Image and Video Processing, Coursera
- Interactivity with JavaScript, Coursera and The Web Developer Bootcamp, Udemy

Achievements

- C2P Case Grant Competition Runner Up – Best Technical Project award held in SRCC, New Delhi.
- Selected for a highly selective research internship with scholarship at YZU University, Taiwan.
- Top 5 in Code2Create Hackathon held at Vellore.
- Certificate of merit – Awarded for consistent academic excellence in High school.
- Second Place in International Karate Open Championship held at Sri Lanka.
- First Place in All India Open National Karate Championship held at Goa.
- Rajaya Puraskar (Governor award) for serving in Bharat Scouts and Guides.

Extracurricular Activities/Skills

- Volunteered at BIF Foundation NGO by mentoring and teaching academic subjects to over 200 underprivileged children over the course of 2 years during undergraduate.
- Served in Bharat Scouts and Guides for a period of 2 years in high school.
- Won various awards in Karate at both international and national competitions over a period of 11 years.
- Captain of my High School Volleyball team – Won Cluster Championships in the state.
- Student President and House captain in my high school for three consecutive years.
- Good public speaking and oratory skills gained through presenting projects in various national competitions.