Vinoth A

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A Programmer by hobby and a Researcher by passion;

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- St.joseph's college of engineering
- LinkedIn Github

Experienced in

- Python (2 years), C++ (2 years, only for academics, whiteboard and online coding)
- Tensorflow (6 months), PyTorch (2 months), Keras (4 month)
- nltk,spacy, scikit-learn, AWS,opencv
- Node js and it's frameworks (1 year)

Interests:

- State of the art Computer vision with and image processing and image formation
- State of the art Language processing, and Machine translation (conventional and latest Neuro architectures)
- Using Deep learning and Reinforcement learning for Speech and language based problems

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Education

Anna University — **Chennai,India**

Bachelors in Information Technology — *Aug '17– present*

- Took Data Structures and Algorithms, Operating Systems, Software Architecture and more courses for credit.

Fast.ai (Course I,II) & deeplearning.ai — *Aug '18– present*

Deep learning and Machine learning

- Machine learning by prof Andrew Ng developed various traditional machine learning algorithms
- Deep learning courses by Prof Andrew Ng and Prof Jermy Howard
- Written Tensorflow and Keras scripts for multiple architectures in AWS and local system.

CS224n & CS231n — *jan '19– present*

Natural language processing

- NLP with Deep learning by Prof Stephen Manning (stanford university)
- Written scripts for RNN models and it's variation

Visual recognition

- Convolutional neural network for visual recognition by Andrej karpathy
- Constructed CNN and Various Transfer learning models for computer vision tasks

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Experience

St.joseph's College of engineering — **Chennai,India**

Project Assistant — *Feb '18 – present*

- Developing deep transition layers, stacked architectures in Sequence to Sequence models.

UpWork — Online

Freelancer - NLP researcher/developer — *Aug'18 – present*

- Developed the first deep learning architecture using Keras and scikit learn.

C-DAC — **Chennai,India**

Research Intern — *April '18 – May'18*

- Built a conversational chatbot with the deep neural network trained on WikiQA corpus

St. Joseph's college of engineering — **Chennai, India**

Research associate — *Sep '17 – Dec '17*

- Developed attendance tracker with firebase , that tracks the daily attendance of the every student

Projects (Self Interest in Deep learning, CV and NLP)

AI Question Generation — Github

Sole Developer — *Sep '18 –Dec '18*

- Implemented the AI based Possible document level question generation model using parse tree construction with the use of the stanford nlp api (currently this is rule based ,the deep learning implementation is currently on progress)

Sentence similarity matching — Google colab

Sole Developer — *Jan'19 - present*

- Constructed the Siamese LSTM architecture for finding the semantic similarity matching between two sentences ,The manhattan distance metric is used in the last layer ,the model is trained on Quora question dataset

Social media sentiment analysis — Github

Sole Developer — *March '19 -present*

- Developed sentiment analysis of product on twitter using Logistic regression from scratch The Tweepy api has been used to mine the tweets from the twitter (the implementation of the bidirectional LSTM with attention mechanism is in progress)

Named entity recognition — **(private)**

Sole Developer — *March '19 -present*

- The Bidirectional LSTM network has been constructed with Word2Vec embedding trained on google News dataset
- Achieved 94% validation accuracy

Google stock price prediction — **(private)**

Sole Developer — *July '18*

- Have implemented the google stock price prediction using state of the art LSTM neural networks Regression activation ,creating data in 60 timesteps .the model has been run by 100 epoches and got the decent generalization on the validation set
- 50 units are used in the single return sequence enabled LSTM cell

Kiri-AI The immersive learning experience — Github

Developer — *May'18-Sep'18*

- Developed web application for students to get the immersive learning experience including the optical character recognition ,text summarization and keyword extraction and answer validation etc.

Risk Map-Multi Hazard Visualization — **(private)**

Developer — *Oct'18*

- Have developed the disaster recovery management system using crowdsourcing , App will be really helpful to visualize the affected areas when the disaster is occured , The visualization has been done by google maps and the necessary geographical coordinates will be got from the raw text people that they post on social media ,Using NLP algorithm Named entity recognition
  the location entity will be extracted
- To perform the NER task ,the Bidirectional LSTM is trained on the qNER dataset .The conditional Random field is used in the last layer of the BiLSTM architecture to get the more validation accuracy in the model selection phase .

Oil spill detection and Localization — **(private)**

Developer — *Jan'19 - present*

- Have implemented pretrained model MobileNet (the variation of CNN) fine tuned the last two layers using the transfer learning and trained on just 200 set of images(Usually oil spill

images are rare to scrap) and performed the localization .In the last two sub layers cross entropy loss is used in one layer and SVM loss(L2 loss) is used in one layer

- Actually the generalization was so poor because of the lack of oil spill sar images

Fatal Brain Segmentation and classification **(private)**

Developer *Jan'19 - present*

- Have implemented the semantic segmentation of the fatal brain using watershed transformation by finding the adaptive thresholding and after segmentation, the segmented image is classified using logistic regression with two classes (anomaly,normal)

Image classification on CIFAR-10 using kNN vs DNN vs CNN (Experiments)

Sole Developer

- Have implemented the image classification task using the traditional learning algorithm k-nearest neighbour ,a lazy learner,neural networks and the state of the art Convolutional neural networks trained on the CIFAR-10 image dataset (Experiments)

House price prediction Github

Sole Developer *July '18*

- Have implemented the house price prediction task using multivariate linear regression and the feature will be selected with respect to the single target variable using backward elimination

BossBot Github

Sole Developer *March '18*

- Have implemented the conversational chatbot using movie dataset using the deep neural networks ,the model has been implemented using theano (simple architecture of MLP)

BloogyBlog Github

Sole Developer *Dec'18*

- Have developed the single page application of the social blogging app using Vue.js and firebase
  And deployed on heroku

Projects (*Coursework*) *[More projects and assignments on Github [Currently private]*]

CNN (ResNet, vanilla), Optimization, Regularization, Early stopping, Dropout, MLP - From scratch

Developer *Sep '18 – present*

- Implemented multiple architectures including CNNs, vanilla feed-forward networks using Tensorflow and also just Python. Check Github for more information. Coursework for deeplearning.ai (online course).

Statistical parsing by CKY algorithm

Sole Developer *Oct '18 – jan '19*

- Probabilistic CKY algorithm was implemented for a given grammar. Coordination and attachment ambiguity were analyzed for specific English sentences.

Image Captioning *Jan'19 – present*

Sole developer

- Implemented the solution for the task of the Image captioning using combined architecture CNN and LSTM (assignment from cs231n by andrej karpathy stanford university)

Machine learning Algorithms from scratch Github link

Researcher *July '18 – present*

- Have developed almost all the machine learning models with famous datasets from UCI. Analyzed the performances critically and fitted the models with proper feature engineering and selection.

Youtube Live Searcher Github link

Sole developer

- Have developed the single page application of the youtube live searcher using the React.js

Projects (Web development) *(Much more projects on Github)*

- Developed 3 production level websites with Angular.js ,jquery ,bootstrap and deployed using firebase sample
- Developed websites with Node js ,react ,angular js MongoDB and uploaded in Github

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Hackathons and Talks:

Talks

- Conducted workshop on Artificial intelligence and Machine learning at St.joseph's college of engineering in 2019.

Achievements

- Won Coderking hackathon -19 prizes at Kings engineering college,chennai 2019
- Won National level project expo prizes conducted by SSN college of engineering 2018
- Participated in Smart India hackathon conducted by Indian Government 2018
- One of the Finalist of the Project Expo conducted by Nokia, chennai 2018

Other Participation

- Participated National level hackathon conducted by Rajalakshmi Institute of Technology
- Participated National level hackathon conducted by Hidusthan Institute of Science and technology

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My NLP models recommend me:

Text Summarizing model

'He demonstrated his aptitude for research in internships and projects where he quickly learnt new tools and web technologies'.

— a tf-idf (sentence level) model

Text generated from Language model

'He feels confident that he would like to pursue research in the system, he developed, tempted him to strive hard and achieve success.'

— an LSTM network

The models were trained on a sparse corpus that I wrote for myself about myself. Considering the only usage, the text generated by the models might be grammatically or semantically wrong owing to the smaller size of the training data. Kindly bear with the models. Made some handwritten pronoun changes.
