Manish Kumar **Keshri**

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Education

University of Minnesota, Twin Cities — *MN, U.S.A*

M.S. in Data Science (GPA:3.67/4.00) — *Sep 2017 - Dec 2018*

Courses: Artificial Intelligence, Statistical Analysis, Data Mining, Machine Learning, Applied Regression, Advanced Algorithms, Database

National Institute of Technology, Tiruchirappalli — *TN, India*

B.Tech in Electrical and Electronics Engineering (GPA:8.5/10.0) — *Jun 2012 - May 2016*

Courses: Data Structures and Algorithms, Numerical methods, Fuzzy Systems and Genetic Algorithms, Pattern recognition

Deeplearning.ai, Coursera — *Online*

Deep Learning Specialization (Grade: 95/100) — *Dec 2017 - Mar 2018*

Courses: Neural Networks and Deep Learning, Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization, Structuring Machine Learning Projects, Convolutional Neural Networks, Sequence Models

Technical Skills

C, C++, Java, Python(keras, scikit-learn, NumPy, NLTK, Pandas), R, SQL, Tensorflow, Caffe, OpenCV, MATLAB, Machine Learning, Deep Learning, Algorithms, Statistics, Data Mining, Azure, Verilog

Experience

Synopsys Inc. — *Mountain View, CA, USA*

R&D Intern(Machine Learning) — *May 2018 - Present*

- Test coverage augmentation/optimizing constraint random generation of tests using Machine Learning Algorithms.
- Learning from the sequence of instructions and generating *"better/similar ones"* using LSTM network, Reinforcement Learning and Genetic Algorithms. Grouping of tests by their coverage areas.

SanDisk, A WD Brand — *Bengaluru, India*

Systems Design Engineer — *Jul 2016 - Aug 2017*

- Data analysis and visualization using IPython to qualify memory dies. Firmware development to reduce overheating in Flash drives.
- Presented a paper on use of Machine Learning in the flash memory product flow to improve yield and reliability.

Texas Instruments — *Bengaluru, India*

Analog Applications Intern — *May 2015 - Jul 2015*

- Implemented FPGA-based architecture simulator for serial Communication(SPI). DIY Project- Home Automation using Neural Network

Projects

- **LSTM-based Startup name/poem/music generation**: Character level language modeling with deep RNN-LSTM network to learn from a corpus of names/text/music and generate similar ones.
- **Artistic image generation using deep learning and Neural Style Transfer (NST) algorithm** : Used transfer learning from a previously trained VGG-19 layer CNN model to get hidden layer activations (Used: Python: Keras and TensorFlow)
  - The overall cost was reduced by updating pixel values of the generated image and not the weights of network
- **NLP system to emojify a sentence using RNN-LSTM and GloVe Word Embeddings**: Built an NLP system using RNN with LSTM units to assign an emoji to a sentence. Used 50-dimensional GloVe Word Embedding as the features for sentence words and emoji's were assigned using 5 directional SoftMax output.
- **Pattern Mining in transactional database**: Implemented FP Tree algorithm to find frequently purchased itemsets and corresponding association rules in more than 63000 transactions using C++
  - Compared results for different values of minimum support and confidence.
- **Decipher sign language using Deep Neural Network**: Built a deep neural network and tuned hyperparameters that would facilitate communications from a speech-impaired person to someone who doesn't understand sign language (Used: Python: scikit-learn, TensorFlow)
  - Training set: 1080 pictures of signs representing numbers, Test set: 120 pictures of signs representing numbers
- **Car detection application for autonomous driving using YOLO algorithm**: Built the Deep CNN model of YOLO algorithm to detect the cars in the image frame using 5 anchor boxes.
  - The YOLO architecture takes input image of 608x608 passes it through Deep CNN and encodes into 19x19 grid.