# Teja Kanchinadam

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**OBJECTIVE** *Data Scientist with over 6 years of relevant work experience in Data Science, Machine Learning & Software Engineering. Passionate about developing AI powered systems for industry related applications and research.*

**EXPERIENCE**

**Data Scientist - American Family Insurance, WI** **May 17 -**

Member of Machine Learning Research Department (https://ai-ml-amfam.com). Delivered projects with enterprise-wide visibility on Recommender and Customer Satisfaction, published papers to top conferences like ICMLA & IAAI. Worked extensively on Deep Learning, NLP, recommender, ranking and semi-supervised learning. Currently working on developing an Active Learning infrastructure for Natural Language

**Research Assistant - UNC Charlotte, NC** **Aug 15 - Dec 16**

Member of WiNS lab (https://nrl.uncc.edu/). Worked extensively on statiscal machine learning, activity recognition, crowd sensing and published thesis on stress detection in real time using semi-supervised learning and off-the-shelf wearables

**Research Engineer Intern - Technicolor, CA** **May 16 - Aug 16**

Member of R&I team. Developed a crowd sensing application which extracts insights about user's viewing behavior on Android TV platform.

**Cognizant Technology Solutions - Kolkata, India** **Nov 13 - June 15**

Worked extensively on the infrastructure side and responsible for interacting with clients for business requirements, developing rest services for server side architectures, unit testing, bug fixing..

**EDUCATION**

**University of North Carolina Charlotte**, Charlotte, NC, USA
*Master of Science (M.S) in Computer Science*
Grad Dec, 2016

**Jawaharlal Nehru Institute of Technology**, Hyderabad, TN, India
*Bachelor of Technology in Electronics and Communications*
Grad May, 2013

**PUBLICATIONS**

[1] *Kanchinadam, Teja, Maleeha Qazi, Joseph Bockhorst, Mary Y. Morell, Katie Meissner, and Glenn Fung. Using Discriminative Graphical Models for Insurance Recommender Systems. In 2018 17th IEEE International Conference on Machine Learning and Applications (ICMLA), pp. 421-428. IEEE, 2018.*

[2] *Maleeha, Q. & Tunuguntla, S. & Lee, P. & Kanchinadam, T. & Fung, G. & Arora, N. Discovering Temporal Patterns from Insurance Interaction Data. Association for the Advancement of Artificial Intelligence (AAAI). IEEE, 2018.*

[3] *Kanchinadam, Teja Simha. A framework for the use of wearables to enable study of stress. Masters Thesis. The University of North Carolina at Charlotte, 2016.*

**PATENT**

[1] *Hamidi-Rad, Shahab, Kent Lyons, Akshay Pushparaja, Y. A. O. Zijun, Gaurav Agarwal, Alan Zhang, Teja Kanchinadam, & Rushil Khurana. Determining full-body pose for a virtual reality environment. U.S. Patent Application No. 15/985,783.*

**PROJECTS**

**Compass Sentiment Analysis (Delivery)** **Apr 2019**
Comments on a social network platform in an industry setting are often subtle. Trained a linear model with ELMO embeddings to predict comment sentiment. **Tools**: Python, NLP, VBScript

**Hierarchical Attention Networks (HAN) (POC)** **Mar 2019**
One of the biggest challenges in deep learning is to estimate how certain phrases and words can affect the outcome of prediction. Given the Hierarchical structure of documents, HAN's two levels of attention mechanism will help us achieve this. Trained a HAN model and extrated the attention weights to highlight important sentences and words in a document **Tools**: Python, Tensorflow, NLP, AWS EC2 (P2)

**Semi Supervised Learning via AVE (Research)** **Feb 2019**
Developed a novel graph based deep learning architecture for semi supervised learning where the loss function for the unsupervised node(s) is achieved via absolute value equations. **Tools**: Python, Tensorflow, NLP, AWS EC2 (P2)

**Graph Neural Networks (Delivery)** **Jan 2019**
Predicting customer satisfaction is ordinal in nature. Trained a Graph Neural Network (RNN based) which is a generalization of Siamese Networks for **n** nodes to predict customer satisfaction from call transcripts. **Tools**: Python, Tensorflow, Hadoop, PySpark, NLP

**Body Mass Index (BMI) prediction (Delivery)** **Nov 2018**
BMI is ordinal in nature, trained a deep learning based graph ranking model to predict BMI from facial images. Used a pre-trained VGG16 as the encoder part of the model. **Tools**: Python, Tensorflow, CV, AWS S3, AWS EC2

**Entity recognition - best and worst (Mentor)** **Nov 2018**
Mentored an intern to help identify the best off-the-shelf entity recognizer to predict insurance based entities and the corresponding evaluation criteria to determine them.

**CNN for multi-label classification (Mentor)** **Aug 2018**
Mentored an intern to train a multi-label text classification problem using very wide Convolutional Neural Networks.

**Auto Encoder for entity matching (Mentor)** **Aug 2018**
Matching users from database records is often hard and requires atleast certain amount of supervision. Mentored an intern to train an unsupervised AutoEncoder based model to achieve this.

**Optimized word embeddings (Research)** **May 2018**
Deep learning often performs poorly if the training corpus is small. In the work, we formulated a least squares SVM to optimize the word embeddings to the domain which we are applying for. Preliminary results out-performs the state-of-the-art deep learning architechtures. **Tools**: Python, Tensorflow, NLP

**Customer Satisfaction Prediction (Delivery)** **Mar 2018**
Trained a Least squares model with L1 norm (LASSO) to predict customer satisfaction using call transcripts and other call related meta data. **Tools**: Python, Pyspark, Hadoop, NLP

**ChatBot - Search (POC)** **Feb 2018**
Developed a Search Engine indexing the content of the internal web-pages in a hierarchial fashion to help support the knowledge graph driven chatbot. **Tools**: Python, ElasticSearch, NLP, Entity recognition

**CNN for queue classification (POC)** **Nov 2017**
Trained a Convolutional Neural Network to classify the group to which the call belongs (queue) using call transcript as input. **Tools**: Python, Tensorflow, NLP

**Recommender - Deep Learning (Research)** **Oct 2017**
Trained a deep learning based recommender systems to recommend insurance products to existing customers. The algorithm mimics the generative capability of Bayesian Networks during training and thus works well with missing values. **Tools**: Python, Tensorflow

**Recommender - Bayesian Networks (Delivery)** **Sep 2017**
Bayesian Networks can be used for recommender systems if the number of items (products to recommend) are very few - which is often the case in Insurance industry. Traditional structure learning algorithms fail to converge as the number of variables increases and therefore, are difficult to deploy into production. In this work, we talk about a deployed system and also introduce a new structure learning algorithms which speeds up training by 700x times, inference by 5x times and still outperforms the state-of-the art algorithms. **Tools**: Python, Pyspark, Hadoop, Pomegranate

**Stress Classification (Research)** **Dec 2016**
This work applies machine learning algorithms to data collected from embedded sensors on a commercially-available wearable device in order to automatically recognize physiological symptoms of stress. Existing approaches for stress detection have typically required specialized sensor equipment or extensive manual labeling of data collected by a researcher in a laboratory setting. A distinguishing feature of this approach is the application of semi-supervised learning algorithms to a data set collected from study participants as they pursue their everyday activities in natural settings. **Tools**: Python, Matlab, Android

## TECHNICAL SKILLS

**Programming :** Python, Java, C++, SQL, Pyspark, Tensorflow, Pytorch, JavaScript
**Storage :** MySQL, Hadoop, AWS
**Tools :** Gurobi, Matlab, Elastic Search/Solr, Android (native)

## ACTIVITIES

1. Partnership event with UW : Presented work on RAL using GNN
2. Reviewer : KDD 2019 main conference
3. Co-organizer : SIAM CSE conference on Big Data & Machine Learning
4. SAIM CSE conf : Presented work on Recommender
5. Finalist : Fraud prevention hackathon by LOMA
6. Analytics Forum : Presented work on Recommender
7. MMLS conf : Presented work on Sentiment Analysis
8. Top 4: Virtual Reality Hackathon at American Family
9. GEM award : Work at American Family Insurance
10. SIAM SDE workshop : Presented work on Active Learning
11. Top 5: Treseta Hackathon at Charlotte
12. Winner : patent filing session at Technicolor labs
13. Fourth place : Graduate Research Symposium at UNC Charlotte
14. Gold Medalist : academic excellence during Bachelor's
15. Finalist : Indian National Mathematics Olympiad