SAGAR GANDHI

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SUMMARY

4+ years of software development experience in the domain of Machine Learning, Natural Language Processing and Computer Vision using AWS. Excellent knowledge of mathematics, algorithms and data structures.

SKILLS

- **Languages and Tools:** C, C++, Python, Scala, SQL, git
- **Core:** OS, Data Structures, Algorithms, Mathematics, Artificial Intelligence, OpenGL
- **Machine Learning:** Deep Learning, Neural Networks, Seq2seq, Regression, Scikit Learn, PyTorch, Tensorflow, Keras, Feature Engineering, Linear Algebra, Probability, SVM, gradient descent, XGBoost, Random Forest
- **Computer Vision:** Segmentation, Object Detection, Object Recognition, OpenCV, PCL, Feature Extraction
- **Natural Language Processing:** Sentiment Analysis, Dialogue Management, Natural Language Understanding, Natural Language Generation, Neural Machine Translation, Probabilistic Models

EXPERIENCE

Research Assistant **Aug 2017 – May 2018, Aug 2018 – Current**

University of Kentucky, KY

- Collected data using Amazon Mechanical Turk, AWS RDS (MySQL), and AWS EC2 resulting in first of its kind data having emotions in stories.
- Employed Unsupervised Learning for clustering events using NLP and NLTK. Generated stories using graph traversal advancing SCHEHERAZADE from sentiment based to emotion-based stories.
- Developed a prototype for story generation using a new hierarchical seq2seq network from a sequence of images culminating in BLEU score of 36.41.
- Created Markov Chain Monte Carlo (MCMC) based story generation using Causal Probabilistic Model and Semantic Relationship Analysis, advancing on the Explainable-AI for NLP.

Software Engineer Intern **May 2018 – Aug 2018**

DM.AI, Inc, Los Angeles, CA

- Improved a model for Named Entity Recognition and Intent Classification by 20% than original DCTS baseline. Incorporated context-level and role-level attention.
- Implemented FLoReS reinforcement learning algorithm for dialogue management, making underlying policies scalable from tens to thousands.
- Programmed Monte Carlo Tree Search (MCTS) for topic selection model in the dialogue management module, resulting in a reduction of execution time from 934 ms to 621 ms.
- Developed Natural Language Generation (NLG) server for a dialogue system using Thrift protocol. Handles QPS of 1000.
- Engineered a generative Machine Learning model supporting pipeline based and Neural Network based NLG.
- Performed joint optimization of text planner and surface realizer using Reinforcement Learning. It improved a NIST score from 55 to 63.

Sr. Software Engineer **Aug 2013 – July 2017**

Persistent Systems, Pune, India

- Developed Real-time classification of vehicles using a Deep Learning for automatically deciding a timing of traffic signals resulting in optimization transit time by 20%.
- Devised an indoor and outdoor Smart Parking System using Haar cascade and Image Processing techniques, resulting in a 25% reduction in time for searching a vacant spot.
- Created classification model of social media images based on emotions using Convolutional Neural Network (CNN) resulting in a $10M contract from a new customer.
- Designed MS-Office Automation Suite based on Kinect V2, using C++, STL and Machine Learning. Led library design based on Design-by-contract. Received company-wide appreciation and filed a patent.
- Developed, trained and tested Machine Learning models using Sci-kit Learn for hand pose recognition resulting in an increase of 12% accuracy and 70% system performance.
- Earned best mentor award for mentoring interns ramping on machine learning projects.

PUBLICATIONS

Deshmukh, Shraddha, **Sagar Gandhi**, Pratap Sanap, and Vivek Kulkarni. "Data Centroid Based Multi-Level Fuzzy Min-Max Neural Network." *arXiv preprint arXiv:1608.05513* (2016).

EDUCATION

2018 (Expected)	Master of Science in Computer Science University of Kentucky, KY	GPA – 3.75
2013	Master of Science in Scientific Computing University of Pune, India	GPA – 4.1/6 (3rd rank)