ANKOOR BHAGAT

https://github.com/ankoorb
http://www.linkedin.com/in/ankoorb
Kaggle https://www.kaggle.com/ankoor

☎ 949-331-2374
✉ ankooris@gmail.com
Los Angeles, CA-90049

SUMMARY

Self-motivated Machine Learning / Deep Learning Data Scientist with 4 years of experience, MS and PhD in Engineering. Skilled in machine learning, computer vision, natural language processing, and problem solving. Ranked 7^{th} of 1499 contestants in Kaggle RSNA Pneumonia detection challenge.

SKILLS

Programming • Python • C++| **Familiar** • SQL • JavaScript • Bash • LaTeX• HTML

ML Libraries • PyTorch | **Familiar** • TensorFlow • scikit-learn • Keras • MxNet

ML Proficiencies • CNN • Object Detection • Image Segmentation • RNN / LSTM / GRU • Transformers • Natural Language Processing (NLP)

Toolkits/Libraries • Pandas • NumPy • Jupyter | **Familiar** • Flask • matplotlib • Plotly • OpenCV • PCL • CUDA • Git • Docker • NLTK • D3

PORTFOLIO

Deep Learning

- Image Segmentation web application that uses DeepLabV3+ model (with MobileNetV2) to segment an uploaded urban street scene image (PyTorch): http://segmenter.pythonanywhere.com/
- Object Detection web application that uses YOLOv3 model (with MobileNetV2) to detect pedestrian, cyclists, traffic signal, car and truck in an uploaded urban street scene image (PyTorch): http://objectdetector.pythonanywhere.com/
- Image Captioning web application that uses MobileNetV2 as encoder and LSTM with Attention as decoder to generate caption for an uploaded image (PyTorch): http://captioner.pythonanywhere.com/
- Image Classification web application that uses 3-layer Convolutional Neural Network to classify whether an uploaded image contains either a dog or a cat (Python): http://dogvscat.pythonanywhere.com/

Classical Machine Learning

- Movie Recommendation web application that uses Item-Item Collaborative Filtering and Alternating Least Squares Algorithm to recommend movies (Python): http://amovierecommender.pythonanywhere.com/
- House Value Prediction web application that uses Linear Regression to predict house value based on user inputs (scikit-learn): http://ahousevalue.pythonanywhere.com/

Interactive Data Visualization

- Interactive data visualization side projects using D3: https://ankoorb.github.io/
- Interactive bar plot web application that uses SQL and D3: http://ankoorb.pythonanywhere.com

EXPERIENCE

Data Scientist | **USROC/DeepRadiology** | Feb. 2017 - Jun. 2022 | Santa Monica, CA

- Contributed to development of company's deep learning system for state-of-the-art AI based radiological image interpretation platform
- Participated in various radiological image classification, object detection, image segmentation competitions on Kaggle. Achieved 7^{th} rank out of 1499 contestants in Kaggle RSNA Pneumonia detection challenge
- Developed radiological image captioning prototype and explored Generative Adversarial Networks for radiological image generation
- Read research papers, identified areas of improvements, presented them to data science team, company advisors (prominent Machine Learning professors) and implemented them in production codebase (PyTorch/TensorFlow/MxNet) which lead to improvement in model evaluation metrics
- Worked with team on development of hyper-parameter exploration solution, internal company toolkit for data visualization, NLP, and other solutions
- Made crucial contributions to NLP based auto-annotation algorithms significantly reducing labor costs for product development
- Explored Logistic Regression and CNN for text classification, LSTM for Named Entity Recognition to extract relevant information from radiological reports

Data Scientist | **mPulse Mobile** | Mar. 2016 - Oct. 2016 | Encino, CA

- Performed exploratory data analysis (SQL) and created data interactive data visualizations to understand consumer behavior
- Developed and evaluated various text classifications models (scikit-learn). Implemented models in API with Python for text message solution workflows
- Evaluated k-means clustering, Non Negative Matrix Factorization, and Topic Modeling (gensim) for text message labeling. Recommended using Amazon Mechanical Turk to label text messages for training classification models
- Developed API's with Python to (i) parse human readable date/time; (ii) report current Air Quality Index by ZIP code, for text message solution workflows

Intern | **Sarakki Associates Inc.** | Sep. 2014 - Mar. 2016 | Santa Ana, CA

- Coded Python scripts to estimate probability distribution of toll revenue forecast to understand risk and uncertainty in toll road projects
- Determined the revenue generating potential of Real-time Traffic Archival Data Management System project

Graduate Student Researcher | **University of California, Irvine** | Jan. 2009 - Jun. 2014 | Irvine, CA

- **Network Augmentation Algorithm Project -** Designed and implemented network augmentation algorithm to reduce Origin Destination (OD) matrix estimation time (from over 100 iterations to less than 30) using MATLAB and C++
- **Freeway Accident Data Analysis Project -** Coded MATLAB and R scripts to analyze 3 years of Los Angeles freeway accident data and estimate the temporal risk of accidents on I-710 and I-110 freeways. Used Python to implement a hierarchical bayesian model to detect changes in accident rates
- **Environmental and Health Impacts of PierPASS Program Project -** Analyzed 60+ GB of traffic simulation trajectory data to model vehicular emissions and estimate spatio-temporal impacts of air pollution from freight deliveries using MATLAB

Teaching Assistant | **University of California, Irvine** | Jan. 2009 - Jun. 2014 | Irvine, CA

- Instructed undergraduate students in Economics, Statistics, Linear Regression, Linear Programming and Non-linear Optimization courses

EDUCATION

PhD in Transportation Systems Engineering (Civil Engineering) — *June 2014*
University of California, Irvine — GPA 3.8

MS in Transportation Systems Engineering (Civil Engineering) — *December 2007*
University of California, Irvine — GPA 3.6

BE in Civil Engineering — *June 2003*
Nagpur University, India — First Division

MISCELLANEOUS

- Udacity Sensor Fusion Engineer Nanodegree, March 2020
- Coursera Deep Learning Specialization, February 2018 (Licence # 77SFAG5PL7H8)
- Peer reviewed papers in transportation research (Complete list available upon request)
- Delivered numerous lectures to students, conference presentations to researchers and industry professionals
- Supervised numerous graduate students' M.S. theses and mentored several successful undergraduate students conducting research
- Volunteer at NKLA Dog Shelter - Walking and playing with dogs