

SUMMARY

Self-motivated Machine Learning / Deep Learning Data Scientist with 4 years of experience, MS and PhD in Engineering. Skilled in statistics, machine learning, data visualization, and problem solving. Graduated from Udacity's [Sensor Fusion Engineer](#) Nanodegree. Ranked 7th of 1499 contestants in Kaggle RSNA Pneumonia detection challenge.

SKILLS

Programming • Python • C++ | **Familiar** • MATLAB • SQL • R • 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 • PySpark

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 - Present | Santa Monica, CA

- Currently contributing 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 7th 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

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) University of California, Irvine	June 2014 GPA 3.8
MS in Transportation Systems Engineering (Civil Engineering) University of California, Irvine	December 2007 GPA 3.6
BE in Civil Engineering Nagpur University, India	June 2003 First Division

MISCELLANEOUS

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- 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