Pankaj Bhambhani

Experience working in Machine Learning, Data Science

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SKILLS

Languages – Python, Scala, Java (Familiarity with C++, Bash, SQL, JavaScript, MATLAB)
Tools – Numpy, Scikit-Learn, Pandas, Keras, Stan, Tensorflow, Docker, Kubernetes

PROFESSIONAL EXPERIENCE

CiBO Technologies, Inc. – Software Engineer Jun 2018 - Present

- Build a statistical model to generate crop growth images using sparse and noisy Remote Sensing data.
- Used Stan, a Bayesian Inference tool, to automatically learn best fit parameters and obtain predictive distribution.
- Create a benchmark validation set of crop yield coverages to compare the above model with existing alternatives.
- Process other geospatial data to generate scientific information and calibrate agricultural simulation models.
- **Technologies – Scala, Python, Stan, QGIS, AWS, Docker, Kubernetes.**

RESEARCH EXPERIENCE

The Dark Ecology Project – Machine Learning for Data Science (MLDS) Lab May 2017 – May 2018

- Deep Learning based tools for biologists to analyze bird migration patterns, using weather radar data.
- Contributions include building a benchmark data set and scaling models to run on large volumes of data on AWS.
- **Technologies – MATLAB, Python, Docker, AWS Batch, AWS S3.** See **darkecology.cs.umass.edu**

OTHER PROJECTS

EarthQuake Prediction using Acoustic Time-Series Signals – Kaggle Data Science Challenge Feb 2019-Present

- Currently using a Random Forest model to predict earthquake timings using acoustic data simulating seismic waves.
- **Technologies – Sklearn, Pandas, Numpy, Python.** See **kaggle.com/pankajb64/shake-it-up**

Classification of Astronomical Objects from Light Curves – Kaggle Data Science Challenge Oct-Dec 2018

- Using simulated data from the upcoming LSST telescope, built a CNN classifier with 60% accuracy across all classes.
- **Technologies – Keras, Sklearn, Pandas, Numpy, Python, Bash.** See **github.com/pankajb64/plasticc-kaggle**

Evaluate Website Fingerprinting Attacks on the Tor Network – SPIN (Secure, Private Internet) Lab Oct - Dec 2016

- CNN based model to predict which websites were browsed on Tor from their network traces, with over 90% accuracy.
- **Technologies – Keras, Numpy, Python, C++, Bash, Docker.** See **github.com/pankajb64/wf_attacks_evaluation**

Learning to improve Product Delivery Schedules – Reinforcement Learning Course Project Dec 2018

- Applied Average Reward Q-Learning to learn better strategies for delivery truck routing and product inventory control.
- **Technologies – C++, Numpy, Python.** See **github.com/pankajb64/rl-pdt**

Neural Image Caption Generator – Machine Learning Course Project Oct - Dec 2016

- Analyzed a state-of-the-art LSTM model which generate captions for images; and visualized its inner workings.
- **Technologies – Keras, Python.** See **github.com/pankajb64/image_caption_using_attention**

Pictionary with Jibo – HackUMass 2016 Oct 2016

- Trained a social robot to play Pictionary from simple line-drawing images with over 80% accuracy for common objects.
- **Technologies – TensorFlow, Jibo SDK, OpenCV, Python.** See **github.com/pankajb64/jibo-pictionary**

EDUCATION

University of Massachusetts Amherst MS - Computer Science (GPA – 3.97) 2016 –2018
Coursework – Machine Learning, Natural Language Processing, Artificial Intelligence, Reinforcement Learning, Blockchains

Dhirubhai Ambani Institute of Info & Comm Tech. Bachelor of Technology 2009-2013
Coursework: Algorithms, Data Structures, Networks, Databases, Operating Systems, Cryptography, Natural Computing