Arnav Arnav

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EDUCATION

Indiana University, Bloomington, IN **August 2017 – May 2019**
Master of Science in Data Science CGPA 3.88/4

Tezpur University, Tezpur, Assam, India **August 2012 – July 2016**
Bachelor of Technology in Computer Science and Engineering CGPA 8.98/10

TECHNICAL SKILLS

- **Languages**: Python, SQL, R, SAS, C++, Ruby
- **Data Analysis:** Numpy, Scipy, Scikit-Learn, Pandas, Librosa, NLTK, Tensorflow, Keras, Dask, PySpark,
- **Visualization:** Seaborn, Matplotlib, Altair-viz, Bokeh, Tableau
- **Web Technologies**: Ruby on Rails, Flask, Django, HTML, CSS, Javascript, Ember.js
- **Other Technologies**: OpenCV, Amazon AWS, Swagger API, Docker, Travis-CI, Open Stack API, Kubernetes
- **Operating systems:** Linux (Ubuntu, Mint, Fedora), Microsoft Windows

WORK EXPERIENCE

The Walt Disney Company, Lake Buena Vista, FL **August 2019 – April 2020**
Decision Science Professional Intern

- Implemented a state space post processing approach to dynamically adjust product level demand forecasts to match actual behavior based on newly observed data points using Python and SAS that improved 70% of Disney Cruise Line booking forecasts with a mean improvement of 35% in absolute error.
- Implemented data preparation, feature engineering, and output monitoring and built models for daily attendance forecasting using Pyspark, Teradata, Tableau and scikit-learn.
- Contributed to an internal framework that helps standardize and maintain production ML pipelines across different projects using different machine learning frameworks.

Indiana University, Bloomington, IN **August 2018 – May 2019**
Associate Instructor, Advanced Data Science On Ramp Course

- Evaluated student submissions and projects in various modules that cover, Hadoop, Spark, Scala, and Deep learning
- Created course content for Machine Learning with Spark module and updated content for Hadoop, Scala and Deep Learning Modules

Indiana University, Bloomington, IN **June 2018 – July 2019**
Web Application Developer

- Built an Interactive Twine based website prototype with Python and Flask at the back end to save, load and serve documents from a database and share historic information about the university.
- Used js libraries for displaying 3D photo-shpheres for desktop as well as wearable devices Like google cardboard

CNS, Indiana University, Bloomington, IN **October 2017 – December 2017**
Python IoT Developer

- Contributed to the development of cloudmesh.pi, a library for prototyping IoT applications on Raspberry pi.
- Interfaced different analog and digital sensors and built modules for each of the sensors, that allow plug and use functionality.
- Programmed an array of dendrites to move in various patterns controlled by different Raspberry Pis communicating via MQTT. Link to code here (shorturl.at/gixGW)

Navyug Infosolutions, Noida, Sector 63, India **March 2017 – July 2017**
Software Engineer Intern

- Developed and deployed an interactive and responsive internal project management web application used by 200 people using Ruby on Rails, Ember.js and JQuery-UI
- Developed Android and iOS application for the web application using Apache Cordova
- Integrated the application with Google APIs to provide Project Managers and users access to auto generated time sheets

NTPC NETRA, Greater Noida, UP, India **May 2015 –July 2015**

Software Engineer Intern

- Studied the various components of the system and the specific configuration used at the site to enable computationally intensive tasks. Used Ganglia to monitor the system and detect anomalies using data logs.
- Implemented various machine learning algorithms like anomaly detection, regression and classification using previously collected power plant data in Python.

PROJECTS

Deep Gaussian Processes for Representation Learning, Indiana University **January 2019 – May 2019**

- Implemented a hierarchical Gaussian Process Latent Variable model for representation learning for supervised and unsupervised tasks using GPFlow and Python
- Tested the performance of the learned representations on image reconstruction and classification tasks on oil flow, MNIST handwritten characters and Frey faces data sets. Linked to code here (shorturl.at/acW35)

Speaker Identification and Verification from Audio, Indiana University **August 2018 – December 2018**

- Trained a Siamese neural network based on VGGVox model on the VoxCeleb dataset using Python, PyTorch on AWS and achieved 0.78 precision and 0.84 recall on the data
- Developed a terminal application using python and shell for speaker identification and verification. Link to code (shorturl.at/psN15)

Image Captioning using Deep Learning, Indiana University **April 2018**

- Implemented a Multi input sequence-to-sequence Deep Learning model derived from the show and tell approach that uses a CNN followed by an LSTM to learn mapping between images and captions in Keras
- Evaluated model performance based on BLEU score on test set for various CNN architectures: VGG16, VGG19 and ResNet50.
- Implemented a flask application to allow users to access the model through a web page. Link to the code (shorturl.at/rzNTW)

Open Domain Information Extraction, Indiana University **July 2018 – December 2018**

- Extract object-predicate relationships from text using various NLP modules and store them in Neo4J to enable semantic search, through a Flask based web page.
- Linked the extracted entities to various existing knowledge graphs like Dbpedia, and enriched the knowledge graph by adding information from various reliable sources such as Concept Net ans MS Concept Graph

Swagger Flask service for Openstack Cluster Management, Indiana University **January 2018 – May 2018**

- Wrote swagger YML specification for openstack (Devstack) virtual machine instances instances
- Used Swagger-codegen and Flask to create REST API endpoints for openstack services (start, stop, delete, create, and list VMs) and potentially provide an additional layer for user privilege and access management
- Used shell scripts and Makefile to build and test the APIs and deploy the application with docker on chameleon cloud. Link to code here (shorturl.at/ilvFM)

Raspberry-pi Monitoring Application Indiana University **August 2017 – December 2017**

- Used lightweight MQTT protocol to remotely control a Raspberry-Pi robot car over Wi-Fi to aid monitoring and surveying applications
- Used MQTT to stream live video frames from the Raspberry Pi onboard camera to the controlling machine, for remote navigation using Python.
- Used shell scripts along with make for setup of the MQTT server, the controller and the raspberry-pi remote application. Link to code here(shorturl.at/etRVY)

American Sign Language Recognition, Tezpur University **August 2015 – May 2016**

- Built a desktop based application to recognize American Sign Language gestures from video and convert them to text sentences using Python and Wxwidgets.
- Used OpenCV extract features from videos of of signers in the American Sign Language Lexicon Video Dataset (ASLLVD) and trained a deep neural network classifier for recognizing different gestures.