Deven Patel

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EDUCATION

The Pennsylvania State University — University Park, PA
Master of Engineering in Computer Science | GPA: 3.77 — Expected: May 2021

SKILLS

- **Languages:** Python, C, C++, C#, Java, Javascript, GO, BASH
- **Frameworks:** Tensorflow, Django, ReactJS, ExpressJS, NodeJS, Flask
- **Data Science:** Machine Learning (Keras, NumPy, Pandas, Matplotlib, Scikit-Learn), Deep Learning (RNN, LSTM, GRU), Natural Language Processing (Word Embeddings, Word2Vec)
- **DevOps:** Amazon Web Services (AWS), Google Cloud (GCP), Docker, Hadoop
- **Version Control:** Git, GitHub, Bitbucket
- **Databases:** MySQL, PostgreSQL, MongoDB, DynamoDB
- **Mobile Application:** Android, iOS

PROJECTS

LandslideNet

- Collaborated with Civil Engineers on landslide detection project using remotely sensed images
- Applied data augmentations to reduce class imbalance from dataset that increased performance metric by 5%
- Working on increasing resolution of Digital Elevation Maps data for better pixel mapping with corresponding landslide image
- **Technologies:** Tensorflow, Python, Google Cloud

Subspace Clustering

- Derived theoretical proof to show subspace clustering is better than K-means clustering for high dimensional data
- Provided theoretical guarantees to make spectral based subspace clustering more robust in presence of noise and error
- It has various applications such as image processing, face clustering, motion segmentation, etc

Parallel File System (PFS)

- Implemented PFS to allow multiple clients to do file operations (open, read, write, seek, close) on files that are stripped across multiple file servers with no shared physical memory and disk storage
- Designed a client-side cache using invalidation based protocol to further improve PFS performance
- Constructed a Distributed Metadata Manager to store and maintain all metadata information associated with a file
- **Technologies:** C++, Linux, Synchronization, Caching, Google Remote Procedure Call (gRPC)

BuddyMap

- Developed an application that allows user to locate nearby friends close to their location and to get information about nearby social events or group meetings
- Managed back-end team responsible for creating and updating database with user data and developing secure and fast servers
- Expanded user-interface with functionalities such as messaging, creating groups and events, poking a friend, and optional real-time locations of users
- **Technologies:** Django, React Native

Part of Speech Tagging

- Developed hidden Markov model for part of speech (POS) tagging using brown corpus data to achieve 94% accuracy
- **Technology:** Python

EXPERIENCE

KOGENTiX Inc. — **Schaumburg, IL**
Data Engineer Intern — *June 2017 - August 2017*

- Developed distributed application to solve large scale processing problems.
- Applied MapReduce model to significantly improve data processing time.
- Optimized solutions in the cloud deployment model based on modern big data technology.
- **Skills:** Apache Hadoop, MapReduce, Linux, HQL

D.A.T.A. Labs — **University Park, PA**
Undergraduate Research Assistant — *August 2017 - December 2019*

- Improved a Child Safety Game to help low income/unprivileged parents learn how to keep homes safe for children
- Evolved an android mobile application where users can capture heartbeats, blood pressure, etc. from live video
- Developed end-to-end website for users to capture vitals and download vital data (https://www.videovitals.org)
- **Technologies:** Unity, Django, ReactJS, AWS

Undergraduate Deep Learning Lab (UDLL) **University Park, PA**
Research Assistant under Dr. Daniel Kifer *June 2018 - May 2019*

- Collaborated with Astronomy researchers to build deep learning model for detecting defects caused by alpha particles in radio telescope images
- Wrote deep neural network model to predict number of defects in an image to an accuracy of 78%
- Data consists of 60% images with 0 or 1-pixel defect in an image making pixel prediction challenging
- **Technologies:** TensorFlow, Python

The Graduate School at Penn State **University Park, PA**
Teaching Assistant under Dr. Patrick McDaniel *August 2019 - Present*

- Conducted weekly lab sections to help students to experiment with difficult digital designs
- Engaged with students every week for writing, debugging, and testing code
- Supervised undergraduate teaching assistants with administrative tasks such as grading homework, assignments, and quizzes

COURSEWORK

Advance Machine Learning, Machine Learning, Deep Learning, Natural Language Processing, Artificial Intelligence, Algorithm Design and Analysis, Distributed Systems, Cloud Computing, Operating Systems

REFERENCES

- Dr. Daniel Kifer, Penn State (email: dkifer@cse.psu.edu)
- Sakthi Kumar Arul Prakash, Carnegie Mellon University (email: sakthikap77@gmail.com)
- Dr. Patrick McDaniel, Penn State (email: pdm12@psu.edu)