Neelesh Rastogi

Artificial Intelligence Researcher & Software Engineer

Profile

I am a multi-disciplinary AI Researcher & Full-Stack Software Developer passionate about crafting human-centric software designs, translating data into insights, creating visually impactful products, & designing data-driven experiences.

Education

Bachelors of Science in Computer Science (GPA 3.63), St. John's University, New York

September 2015 – May 2019

- **Coursework:** DBMS, Software Engineering, Algorithms, Data Structures, Operating Systems, Natural Language Processing, Computer Vision
- **Math & Electives**: Linear Algebra, Probability & Statistics, Calculus, Series, Differentials, Data Mining & Predictive Analytics
- **Awards:** Graduated Magna Cum Laude, Dean's List (2015-19)
- **Leadership:** President – SJU-AI Society (www.sjuai.com); Organizer – TEDx Club (ted.com/tedx/events/24080)

Employment History

Artificial Intelligence Researcher at First Blush AI, New York

July 2018 – Present

- **Emotion Recognition Toolkit** (www.firstblush.io) : Pipeline for analyzing emotions using Facial Landmarks.
- Developed an Facial Emotion Recognition pipeline using Open CV, Microsoft FER+ dataset and MobileNet CNN with 91.14% accuracy.
- Lead the chatbot development and curated 230+ skills by analyzing transcribed text-text, text-image datasets.
- **Leveraged Knowledge** in Swift, CoreML, React, Microsoft Bot Framework, TensorFlow, Keras, MobileNet CNN, NLTK, & Git

Chatbot Architect at St. John's University, New York

May 2018 – September 2018

- **Thunderbot** (neelrast.github.io/thunderbot): Social Chatbot for enhancing Information Retrieval and Student Experience
- Created conversational models using NLTK, SpaCy and Keras for automating 15% of low-level troubleshooting processes.
- Created Named Entity Recognition system to analyze help-desk queries for user's spoken intents and route their requests to specified departments.
- **Leveraged Knowledge** in Transcription, Chat Scripts, Selenium, MySQL, Seq-2-Seq Models, Python, TensorFlow & SpaCy.

Projects & Publications (Continued on next page)

Details

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Links

neeleshrastogi.com

github.com/neelrast

linkedin.com/in/neeleshrastogi

Skills

Autonomous Vehicles

Robot Operating Systems

Computer Vision / OpenCV

Natural Language Processing / Understanding

Machine Learning

Classification, Clustering, Regression

CNN/ RNN / LSTM

Object Detection & Tracking

Facial Landmark Detection

Kalman Filters / EKF / UKF

Sensor Fusion / Lidar / Radar

Amazon AWS EC2 Instances

Google Cloud Compute Engine

Languages

Python, Java EE, C++, R

MySQL, PostgreSQL, Swift

React.js / XHTML / CSS

Personal Website (for more Info)

neeleshrastogi.com

Behavior Cloning

August 2019

- Utilized Keras Deep Learning Frameworkand Open CV computer vision framework in python to train a car to drive in a simulator.
- Achieved full performance in the training environment, as well as a previously unseen environment, through intricate data selection/augmentation strategy and neural network tuning.
- Link: https://github.com/neelrast/keras-behavioral-cloning

Advanced Lane-Finding

August 2019

- Utilized OpenCV in Python Jupyter notebook to create a robust image processing pipeline for detecting, recognizing, and identifying the current highway lane in an image or video.
- Additionally calculates car position within lane and lane radius of curvature based on coefficients of polynomial fit.
- Achieved lane recognition across all frames of a fifty-second vehicle dash cam video.
- Link: https://github.com/neelrast/advanced-lane-lines

Traffic Sign Classification

August 2019

- Utilized TensorFlow deep learning framework and OpenCV in Python to train a classifier for the GTSRB traffic sign dataset.
- Implemented data augmentation and image jitter to achieve 95.6% accuracy on hold-out test data set.
- Link: https://github.com/neelrast/lenet-traffic-sign-classifier

Real-Time Mapping of Potential Disease Outbreaks via Tweets (Published – FLAIRS, AAAI 2019)

April 2019

- Created an ETL Pipeline to stream and organize 1.5M health related tweets as time series data from NYC Area
- Used SQL, Dask, NLTK and Gensim for preprocessing the collected Twitter corpora and run feature extraction processes
- Developed a dynamic dashboard to further cluster and visualize, Knowledge Maps, Topic Models and analyzed tweets using D3.js
- **Utilized:** Python, Dask, TensorFlow, Scikit-Learn, Spacy, Genism, NLTK, Twitter API, Flask, HTML, CSS, D3.js
- Link: https://sites.google.com/view/fazel/nlp-group?authuser=0

HRI Framework for providing Cognitive Behavior Therapy (Published ICMI, ACM 2018)

September 2019 – September 2019

- Led a team of developers & researcher assistants to produce dialog flows for generating robot-patient communication

- Conducted multimodal analysis for identifying modal features and utilized Machine Learning techniques to train a social robot to identify and tag studied early signs of depression
- **Utilized:** Linux, Python, TensorFlow, Keras, C++, ROS Nodes, NAOqi, Knowledge Representation Graphs, Neural Nets
- Link: https://sites.google.com/view/fazel/nlp-group?authuser=0