Srishti Sehgal

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Education

BASc in Engineering Science
University of Toronto 2015-2020
Major: Aerospace Engineering
Minor: Robotics Engineering and Business

</> Skills

Programming Languages

Python	MATLAB
Java	Simulink
C	Arduino
Tensorflow	Sklearn
PyTorch	Tflearn
Caffe	Keras
Git	R
Solidworks	LaTex

Software Engineering
Object oriented programming, Test Driven Development, Scalable Architecture Design, Agile Development, Refactorization of Legacy Code

Leadership Activities

Women in Stem Outreach
- ◊ Leading member for logistics and mentorship for women in research and technology at the National Research Council Canada
- ◊ May '18 – Present

NSight Mentorship
- ◊ VP Finance and Mentor for Engineering Mentorship
- ◊ July '16 – Present

Galbraith Society
- ◊ VP Finance of the Galbraith Undergraduate Journal
- ◊ May '17 – May '18

University of Toronto Space Design Competition
- ◊ VP Competitions
- ◊ Jan '17 – Present

Relevant Experience

Structures and Full-Scale Testing Engineering Intern
National Research Council Canada Ottawa, ON | May '18 – Present
- ◊ Wrote performant code in Python and Java for a diverse array of client (such as National Defence) internal projects and maintained code bases in git.
- ◊ Applied supervised, unsupervised, semi-supervised machine learning models and genetic programming with parallel computing to generate empirical models for system health monitoring with some achieving over 85% accuracy
- ◊ Used Python and Arduino to control positioning sensors and extract their data remotely. This allowed for quicker data extraction.
- ◊ Developing novel architecture in pytorch and tensorflow, with Natural Resources Canada, for designing chemical syntheses
- ◊ developed a 10,000 code base to seek user inputs, preprocess data, generate training and testing sets, subject these sets to several models such as LSTM, Random Forest, MARS, CNN, compute an average of the model outputs, perform proprietary processing on model outputs and compute fatigue damage estimates on all results obtained. Highest accuracy obtained is 82% with detailed life estimate outputs to help in load tracking (ICAF paper)

Relevant Publications

- ◊ **Failure modelling of a propulsion subsystem: unsupervised and semi-supervised approaches to anomaly detection** (DOI: 10.1142/S0218001419400196) *[International Journal of Pattern Recognition and Artificial Intelligence]*
- ◊ **Low-Dimensional Spaces for Relating Sensor Signals with Internal Data Structure in a Propulsion System** (DOI: 10.25046/aj030602) [*Advances in Sciences, Technology and Engineering Systems Journal]*
- ◊ **Examining the outputs of a load estimation program for the purpose of fatigue damage and life estimation in legacy helicopter fleets** (not-online-yet) [International Committee on Aeronautical Fatigue and Structural Integrity]
- ◊ **Impact of using a latent data space before training** (In-progress) *[The Canadian Aeronautics and Space Journal by CASI]*

Relevant Projects

Event-driven stock movement prediction (Hackathon: QHacks) | Feb '19
- ◊ Developed a program that predicts the movement of a user-defined stock/tweet
- ◊ Intensive pre-processing was performed on twitter data and financial open/close price data to ensure that missing terms were accounted for and that noise terms like punctuation and language stop words were removed from the dataset.
- ◊ Tuned BERT Model in PyTorch with tensorflow backend to achieve an accuracy of 62%

Ad Blocker chrome extension with a machine learning approach) | Jan '19 - present
- ◊ Developed object oriented code and a chrome extension to detect web spam ads using deep learning based models in tensorflow with 88% accuracy in a week

Analysis of audio features of Spotify's hits using machine learning) | Dec '18
- ◊ Used cross industry standard procedure for data mining to create a modular data pipeline to preprocess input data into model
- ◊ used mySQL to write to and read to database. This improved time by 20%
- ◊ Compared explicit regression equations (containing variables like loudness, length of song…) to equations developed by regression trees

Semantic Similarity based Program (Natural Language Processing) | Nov '16
- ◊ an intelligent system that can learn choose a synonym of a word out of a list of words.
- ◊ The training set of this exercise is from "Swann's Way "and "War and Peace". cosine similarity measure and negative distance in Euclidean space between word vectors were used as similarity metrics