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Summary

Computer Scientist working in **Machine Learning** with 8+ years research experience

Education

Northwestern University, Evanston, Illinois USA **Jul '19**
Ph.D. Candidate, Computer Science (expected)
Master of Science, Computer Science **Sep '14**

Birla Institute of Technology & Science, Pilani, Rajasthan India
Master of Engineering (with Honors), Software Systems **May '12**
Bachelor of Engineering (with Honors), Chemical Engineering **Dec '09**

Programming Skills

Proficient: Python, Keras, Scikit-Learn, NLTK, Gensim, Tensorflow, Selenium, XGBoost
Familiar: OpenCV, PySpark, R, MATLAB, C, C++, Java, SQL, weka, Javascript, HTML, CSS

Select Professional Experience

Data Science Intern, **Northwestern Mutual**, Milwaukee, Wisconsin **Jun - Aug 2018**
- ◇ Developed distributed image to text conversion algorithms from scanned questionnaires
- ◇ Designed a noise reduction algorithm to denoise scanned and photocopied questionnaires

Research Intern, **Boeing Cybersecurity (Narus)**, Sunnyvale, California **Jun - Sep 2013**
- ◇ Generated synthetic profiles with different demographic features for comparing ads across profiles
- ◇ Developed a machine learning model for predicting user demographics and interests from ads

Select Research Projects

Research Assistant, **Northwestern University**, Evanston, Illinois **2012 -**

- Deep Learning-based Predictive Model for Additive Manufacturing (Tensorflow, Keras)
  - ◇ Created time series models for temporal analysis of heat flux data
  - ◇ Investigated Recurrent Neural Network models to predict point-wise temperature information for accelerating additive manufacturing simulations

- Solar Cell Efficiency Prediction using Molecular Fingerprints (Tensorflow, Scikit Learn)
  - ◇ Developed a multi-input input neural network architecture by merging different molecular representations as inputs for predicting chemical properties that outperformed other state-of-the-art models
  - ◇ Designed Ensemble and Deep Neural Network models for predicting power conversion efficiency of solar cells using chemical fingerprints, and achieved mean square percentage error between 1.5-2 %

- Ensemble Learning-based Guided Optimization for Aircraft Design (MATLAB, Python)
  - ◇ Created intelligent sampling algorithms to explore the constrained search space for candidate microstructures (constrained non-convex optimization problem)
  - ◇ Achieved 100x more solutions compared to state-of-the-art methods that can accelerate the design-to-experiment life-cycle

- Classification of Anonymous Posts using Urban Dictionary (Scikit Learn, Keras)
  - ◇ Developed custom vector representations using crowd-sourced (Urban Dictionary) & psycholingual (LIWC) dictionaries (Gensim)
  - ◇ Attained prediction accuracy of 79.8 % and 78.1 % using ensemble models and LSTMs respectively

Select Teaching & Leadership

President/Vice-President/Treasurer, **Northwestern Toastmasters** **Sep '15 - May '18**
- ◇ Lead the Northwestern chapter of Toastmasters; over 30 graduate students, post doctoral fellows from 10 departments
- ◇ Organized 1.5 hour weekly meetings to improve student public speaking skills

Teaching Assistant & Guest Lecturer, **Northwestern University** **Jan '14-**
- ◇ Prepared and delivered weekly lectures for multiple CS courses (Data Structures, Social Media Mining, Intro to Python) to 20-50 students

Fellowships

McCormick Dean's Commendation Fellowship **'18 Spring**
Predictive Science and Engineering Design Fellowship **'16-'17**
Segal Design Fellowship **'14-'15**
Walter P. Murphy Fellowship **'12-'13**

Select Publications (3 of 14)

"**Transfer Learning Using Ensemble Neural Nets for Organic Solar Cell Screening**", *International Joint Conference of Neural Networks, 2019*

"**CheMixNet: Mixed DNN Architectures for Predicting Chemical Properties using Multiple Molecular Representations**", *NeurIPS, 2018*

"**ElemNet: Deep Learning the Chemistry of Materials From Only Elemental Composition**", *Nature Scientific Reports, 2018*