Arindam Paul

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SUMMARY	**Computer Scientist** working in **Machine Learning** with 5+ years research experience seeking full-time opportunities

EDUCATION

Northwestern University, Evanston, Illinois USA [GPA: 3.7 / 4.0] — **Jun 2019**
    Ph.D. Candidate, Computer Engineering — (expected)
    Master of Science, Computer Science — **Sep 2014**

Birla Institute of Technology & Science, Pilani, Rajasthan India
    Master of Engineering (with Honors), Software Systems, May 2012 — **May 2012**
    Bachelor of Engineering (with Honors), Chemical Engineering, Dec 2009 — **Dec 2009**

PROGRAMMING SKILLS

Proficient: Python, Keras, Scikit-Learn, Tensorflow, Selenium, PySpark
Familiar: R, MATLAB, C, C++, Java, PHP, LAMP, SQL, weka, Gephi, Javascript, html, css, Hadoop, Mahout, MPI

PROFESSIONAL EXPERIENCE

Data Science Intern, **Northwestern Mutual**, Milwaukee, Wisconsin — **Jun - Aug 2018**
⋄ Developed distributed image to text conversion algorithms for detecting responses 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 user profiles with different demographic and interest features for analyzing ads across profiles
⋄ Developed a machine learning model for predicting user demographics and interests from ads

RESEARCH PROJECTS

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

- Deep Learning-based Predictive Model for Additive Manufacturing (Tensorflow, Keras) — **Nov 2016 -**
  ⋄ 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) — **Mar 2016 -**
  ⋄ 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 Deep Neural Network and Random Forest 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) — **Oct 2015 - Dec 2017**
  ⋄ 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
- Convolutional Neural Nets for Thematic Image Classification in Pinterest (Torch) — **Oct 2015 - Sep 2016**
  ⋄ Harnessed Association Rule Mining for thematic label curation
  ⋄ Developed ConvNet Models for hierarchical classification that led to automated image categorization based on themes
- Classification of Anonymous Posts using Recurrent Neural Networks (Tensorflow) — **Jan 2015 - May 2016**
  ⋄ Generated vectorizer models using Word2vec trained on crowd-sourced (Urban Dictionary) & psycho-lingual (LIWC) dictionaries(Gensim)
  ⋄ Attained prediction accuracy of 79.8 % and 78.1 % using LSTMs and ensemble models respectively

SELECTED TEACHING AND LEADERSHIP

President/Vice-President/Treasurer, **Northwestern Toastmasters** — **Sep 2015 -**
⋄ 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 2014- June 2017**
⋄ Prepared and delivered weekly lectures for multiple courses to 20-50 students

FELLOWSHIPS

Predictive Science and Engineering Design Fellowship — **2016-2017**
Segal Design Fellowship — **2014-2015**
Walter P. Murphy Fellowship — **2012-2013**

RECENT PUBLICATIONS (4 OF 13)

A. Paul, D.Jha, R. Al-Bahrani, W. Liao, A. Choudhary and A. Agrawal."**CheMixNet: Mixed DNN Architectures for Predicting Chemical Properties using Multiple Molecular Representations**", *NIPS Workshop on Machine Learning for Molecules and Materials, 2018*

D.Jha, L.Ward, **A. Paul**, W. Liao, A. Agrawal, A. Choudhary and C. Wolverton."**ElemNet: Deep Learning the Chemistry of Materials From Only Elemental Composition**", *Nature Scientific Reports, 2018*

M.Mozaffar, **A. Paul**, R. Al-Bahrani, S. Wolff, A. Choudhary, A. Agrawal, K. Ehmann and J.Cao."**Data-Driven Prediction of the High-Dimensional Thermal History in Directed Energy Deposition Processes via Recurrent Neural Networks**", *Manufacturing Letters, 2018*

A. Paul, A. Agrawal, W. Liao and A. Choudhary. "**AnonyMine: Mining anonymous social media posts using psycho-lingual and crowd-sourced dictionaries**", *Proceedings of the Workshop on Issues of Sentiment Discovery and Opinion Mining at 22nd Annual ACM Conference on Knowledge Discovery and Data Mining, 2016.*