Siddharth Dixit

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EDUCATION

SHIV NADAR UNIVERSITY
BS in Mathematics(Major) and Computer Science(Minor) (4 Years) – Specialization in ARTIFICIAL INTELLIGENCE
Expected 2021 | India, 201314
CGPA 7.37 /10
Intermediate: 94 %
High School: 93.4 %
(aggregate of 99% in Maths+Computer Science)

LINKS

Github:// **Sid-darthvader**
Medium:// **sid**$_{d}arthvader$
Quora:// **Siddharth-Dikshit**

COURSEWORK

- Linear Algebra
- Probability and Randomized Algorithms • Partial Differential Equations
- Optimization
- Dynamical Systems
- Design and Analysis of Algorithms
- Deep Learning
- Machine Learning through R
- Genetic Algorithms
- Operating Systems
- Data Structures

SKILLS

PROGRAMMING LANGUAGES
R • Python • Java • C • SQL
TOOLS & FRAMEWORKS
PYTHON
• Scikit Learn, Keras, H_2O, Flask, Tensorflow, Pyspark
R
• Caret, AutoML, BNlearn, Keras
• Model specific packages in R

WORK EXPERIENCE

RESEARCH INTERN, IIT ROORKEE Present
• Developed a 2 step Machine Learning approach to deal with small datasets frequently encountered in Materials Informatics.
• Built soft voting classifiers to model highly imbalanced data.
• Modfied Classification to an Anomaly detection problem for identifying new and promising Thermoelectric Oxides from over 2000 unexplored compounds.

VISITING RESEARCH SCHOLAR, UNIVERSITY OF LUXEMBOURG
Feb-Mar, 2020 | Ongoing
• Studied different Deep Learning architectures used for solving and discovering Physics related Partial Differential Equations.
• Currently collaborating with the Legato Team of Prof. Stephane Bordas on Energy based Deep Learning models which serve as surrogate to FEM for assessing Breast deformations during Mammography.

RESEARCHER, ALAN TURING INSTITUTE, UK AUG 2019-AUG-2019 | Fixed Term
• Youngest researcher amongst a crossfunctional team of 10 researchers and data scientists.
• Worked on different feature selection techniques and developing Predictive ML models linking Climate and Air Pollution Data.
• Collaborated closely with the team working on Traffic Data.
• Analyzed the model results and provided data-driven suggestions which could be used by the govt. to reduce air pollution.

PUBLISHED WRITER, TOWARDSDATASCIENCE MAY 2018-Current | Freelancing
A published writer on TowardsDataScience, the biggest and most followed blog on Data Science worldwide, with my articles recieving over 50k views and counting.
Publications on TowardsDataScience/Coinmonks
• Predicting product sales through ads delivered on Social Networking Sites
• Churn prediction using Deep Learning
• Forecasting company profits using Machine Learning.
• An Essential Guide to Numpy for Machine Learning in Python

PUBLICATIONS

CONFERENCES

- "A machine learning approach to identify and design low thermal conductivity oxide alloys for thermoelectric applications"
  1. 2019, ECI: Composites at Lake Louise, Alberta, Canada(Accepted but not presented)
  2. FAIRDI for Materials Genomics, Berlin 3-5 June, 2020

JOURNAL

- "Get Bristol moving: Tackling air pollution in Bristol city centre".
- "Network learning approaches to study Happiness" submitted to Journal of Computational Social Sciences, Springer.
- "Machine learning approaches to identify and design low Thermal Conductivity Oxide Alloys for Thermoelectric applications" (Accepted. Currently in press) Data Centric Engineering, Cambridge University Press.

RESEARCH PROJECTS

STATISTICAL LEARNING OF BATTERY LIFETIME PREDICTIONS Dec 2019- Present | IIT Roorkee

• Performed literature review on the degradation of Lithium Ion batteries and the Deep Learning approaches used in the past.
•Pre-processed high-frequency data of charge and discharge cycles of Li-ion batteries.
•Currently working on a Physics-based ML model by building a stohastic differential equation with its coefficients learned from data.

MACHINE LEARNING BASED MATERIALS INFORMATICS MAY-SEP, 2019 | University of Luxembourg

•Using Machine learning and Statistical learning approaches to analyse the vast materials science database and determine rules for selecting new Thermoelectric materials.
•In this project, I led the complete ML lifecycle and designed novel ML models on a complex dataset, which achieved 0.96 accuracy on unseen data.

WORLD HAPPINESS AND LONELINESS ANALYTICS AUG 2019- JAN-2020 | SNU

•Performed Literature review on using AI techniques for studying Happiness, Loneliness and Pre-processed the UN Open Data.
• Built a series of Predictive ML, Deep Learning and Probabilistic Graphical models.
•Learned a Bayesian Network to understand the causal structure of factors affecting happiness.

DEEP LEARNING FOR POLLEN CONCENTRATION PREDICTION JAN 2020-Present

• Pre-processed open pollen data recorded daily from 1992-present.
• Studying the factors and climatic conditions affecting Pollen concentrations of 31 species in air and their Harmful affects
•Built 5 different types of RNNs viz. Multivariate RNN, Elman Network, Jordan Network, GRU, LSTM and briefly studied their underlying mathematics.

LUXEMBOURG VEHICLE POLLUTION CONTROL MODEL APRIL-MAY,2019 |University of Luxembourg

•Built a real world Random Forest model on the Dataset by provided Société Nationale de Circulation Automobile.
•The model can be used by various car Manufacturer Companies in order to keep a check on the Co2 emissions of the Vehicles being designed by them, on top of that it can also be used to improve their fuel efficiency.

VOLUNTEER TASKS

ARTIFICIAL INTELLIGENCE CLUB, SNU JAN,2020 | Shiv Nadar University

• Given my interest and research experience in AI, I was appointed by the Director of Research, SNU to start a club to focus on AI research.
• Single handedly formed the core committee by interviewing over 50 candidates and founded SNU.ai at Shiv Nadar University to promote AI Research across different disciplines.
•Mentored over 100 undergrads(irrespective of their majors) to learn ML and apply it to research projects within their field of interest.
•Organized talks and webinars with eminent AI researchers from different parts of the world.

PROGRAMMING PROJECTS

EMOZERS JAN-FEB,2018 | Shiv Nadar University

• Created an emotion based music web-application with face-ID Login System using Python Flask
•Modified Microsoft Emotion API to accept local stream of images
•Integrated M.E. API results with applied probability theory to create a unique shuffle algorithm to play songs based off of users' mood
•Applied data analytics to help tailor a better experience for the user over time

ACCOMPLISHMENTS

- Awarded Vice Chancellors funding of USD-1200 as travel scholarship.
- Youngest participant to be selected amongst 50 worldwide AI researchers to participate in Data Study Group organized by the Alan Turing Institute and hosted by the University of Bristol.
- Won 2nd Prize of the dot tech Category and a registered domain for 1 year for our Web App - Emozers in Hack Data 2.0 organized by Shiv Nadar University during 10-11th Feb 2018 in which over 25 teams from different colleges had participated. We were also one of the three teams who managed to present a fully working model of our Web App within 30 hours.