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Nitin Choudhary

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Education

2015-2020	Int. MSc in Mathematics and Computing Indian Institute of Technology, Kharagpur	CGPA : 8.33
2015	Intermediate in CBSE, Central Academy, Kota	96.2 %
2013	Matriculation in ICSE, Saint Francis School, Deoghar	97.2 %

Technical Skills

Programming	Proficient in Python, C, C++ and Java Competent in Javascript, Lua, Matlab, Android and Shell Scripting
Libraries / Frameworks	ML/NN: Scikit-learn, Tensorflow, Torch, OpenCV Others: Numpy, Scipy, Pandas, Matplotlib, Django, Flask
Systems / Platforms	Git, Linux
Markup / Templating	HTML, CSS, LaTex

Academic Projects

Feb - Apr 2017 — GPA Predictor using Machine Learning models and neural networks — Guide: Prof. S. K. Barai

- Created an institute-level GPA predictor for a student, which would take his previous GPA's as input, and predict his GPA's in the upcoming semesters
- Used last 10 years of grades for over 50 students in each department as training data, so as to identify the difficulty level of each semester.
- Used k- Nearest Neighbour alongwith SVM to increase the acceptability of the prediction of outliers.

Aug 2017 Ongoing — Utilising Social Media for Disaster relief managment — Guide: Prof. Saptarshi Ghosh

- Treating people as social sensors and utlizing their social intelligence at a disaster site, by extracting the tweets and facebook posts made, in relation to a particular disaster.
- Create a post disaster management system, that would show the need and avalaibility tweets on a map based interface, so as to easily connect NGOs, volunteers and the victims to appropriate places, in real time.
- Use Information Retrieval algorithms to extract only the related tweets and then apply a deep learning model to classify between the 'need' tweets and the 'availability' tweets.

Aug 2017 Ongoing — Sanskrit text segmentation using NLP and neural networks — Guide: Prof. Pawan Goyal

- Currently using seq2seq model approach for word segmentation and machine translation.
- Experimenting with LSTM, and more complex NLP algorithms and deep learning approach to achieve the task.

Experience

May - Aug 2017 — Developer at Google Summer of Code — SunPy under OpenAstronomy

- Wrote a full-fledged high-level JSOC Client, using drms package as its backend, to download astronomical data from JSOC servers.
- Wrote a full test-suite to cover the drms package, using pytest and different mock testing packages.

May 2017 — Deep Learning Intern — Dewinter Opticals, New Delhi

- Was solely responsible for building a Convolutional Neural Networks model, to identify between 5 different types of graphite flakes present in grey cast iron.
- Worked on integrating automatic detection of graphite flakes in MaterialPlus and WeldCheck.
- Used both Tensorflow and Torch as independent platforms to implement the neural network problem.
- Used OpenCV algorithms for image segmentation and stitching microscopic images.

Jan 2017 Ongoing — Software Developer Head — Kharagpur Open Source Society

- Conducted Kharagpur Winter of Code (KWoC), to promote open-source development in and around campus, which brought over 900+ registrations, across more than 25 colleges.
- Worked as a full stack developer in building the website of KWoC, using Flask as backend, and Jekyll as the frontend.
- Mentored over 50 students, in projects varying in Python and Android.

Term Papers

Feb 2017 — Fuzzy Logic Congestion Control in TCP/IP in Diff-Serv Networks

- Use Fuzzy logic approach to achieve a better Quality of Service, by handling congestion in TCP/IP networks.
- Fuzzy variables used to denote how the length of the packet queue affects the congestion, and the rate of increase of the queue length.
- Using linguistic approach to give the output whether the packet drop should be low or moderate or high.

Apr 2017 — Automatic Detection of Landforms on Mars using Neural Networks

- Employs the use of Convolutional Neural Networks to discover volcanic unsettled cones and transversal aeolian ridges.
- MarsNet, consisting of 5 different networks, was used to detect the landforms of different sizes.
- Comparisons were made with results obtained from other ancient classifiers, like SVMs.

Coursework

(T)heory and (L)aboratory

- Programming and Data Structures (T/L)
- Discrete Mathematics
- Design and Analysis of Algorithms (T/L)
- Probability and Statistics
- Soft Computing Tools in Engineering
- Object Oriented Software Design* (T/L)
- Linear Algebra*
- Computer Organisation and Architecture*

* Currently Studying

Personal Projects

Dec 2016 | Scarner's Dice — Android

- Made a basic android 2-player game that works on random dice throwing. The code can be found here

Apr 2016 | Birthday Bot — Python

- Built a automatic bot, that likes and comments on all your birthday wishes.
- Uses selenium to automate the broswer to acheive the task. The code can be found here

Jan 2013 | Railway Reservation Portal — Java

- Built a non-GUI railway reservation portal in Java, using object-oriented approach.
- Mocked the facility of booking, editing, and cancellation of tickets and allotment of the seats using most of the real life algorithms used.

Open Source Contributions

Python | Coala

- coala provides a unified command-line interface for linting and fixing all your code, regardless of the programming languages you use.

Python | Sunpy

- Sunpy is a community-developed, free and open-source solar data analysis environment for Python.
- Made a number of contributions in the package, fixing a number of bugs, and writing a full wrapper for JSOC Client to download astronomical data.

Python | Drms

- Drms is a python module for accessing HMI, AIA and MDI data, obtained from Solar Dynamics Observatory.
- Wrote a full test-suite for the python module, using pytest and other mock testing packages.

Positions of Responsibility

Current | Executive Head, Kharagpur Open Source Society

- Conducted Kharagpur Winter of Code, a program to introduce people to open-source development, which brought over 900+ registrations.
- Conducted Linux-install fest in the campus, to promote use of Linux as the preferred operating system.
- Conducted Python Classes and Git workshop, to teach students the process of contributing to an open-source project.
- Was the full stack developer of the website of Kharagpur Winter of Code, using Flask as backend, and Jekyll as frontend.

Current | Web Secretary, Mathematics Colloquium, IIT Kharagpur

- Managing the official website of the Department of Mathematics.
- Managing the development of the student portal, which gives access to all study materials and question papers related to course subjects.

Current | Senior Editor, Technology Literary Society, IIT Kharagpur

- Managing the content and design team of the society.
- Writer in the English Team, and working as a senior editor for all English publications.

Jul - Dec 2015 | Core Team Member, Space Technology Students' Society, IIT Kharagpur

- Acted as Junior Coordinator in National Students' Space Challenge, India's largest space tech-fest.
- Involved in conducting various space-related events and seminars in the campus.

Scholastic Achievements

Current | Recipient of Innovation of Science Pursuit for Inspire Research (INSPIRE) Scholarship

2011 | Secured All India Rank 2, in National Cyber Olympiad in high school

2015 | Secured 99.11 percentile in JEE Advanced 2015

2015 | Secured 99.33 percentile in JEE Mains 2015

2012 | State-level awardee at National Children Science Congress