Manikanta Reddy D.

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Work

2017- (current) **Microsoft India**, *SalesOpEx*, Core Services Engineering (formerly Microsoft Internal Tools).

- In Sales software operations building Customer Account Life Cycle (CALC) tool, that serves the sales personnel of Microsoft and ensures they generate revenue as quickly as possible.
- Own a component that channels millions of records triggered in an unpredictable fashion by users and maintains the overall throughput sane

Education

2018- (current) **Georgia Tech, Atlanta**, *M. Sc.*.
School of Computing (OMSCS)

2013-2017 **Indian Institute of Technology, Kanpur**, *B. Tech.*
Computer Science and Engineering

Interests

Analytical Machine Learning, Astronomical Data Analysis, Systems Security

Internships

May–Jun 2016 **Microsoft India**, *Hyderabad*.
Built conversational bots with textual intelligence and memory integrated within Apportal to provide the sellers a unique and fast interface via chat, powered by machine learning, to accelerate their opportunities.

Major Projects

Jan–Apr 2017 **Fishy Cyber attack detection**, *Prof. Sandeep K. Shukla*, IIT Kanpur, .
Developed a new approach to detect cyber attacks in Industrial systems through LSTM models

- The sequence learning LSTM based model encapsulated principles of Zone division in ICS
- The model is capable of assessing threat levels and pinpoint the location of breach.
- Tested the model on a simulation of an Industrial plant.

Aug–Nov 2016 **On segmentation of Ultrasound Images of Neck**, *Prof. Harish Karnick*, IIT Kanpur.
Worked on segmenting ultrasound images to accurately identify Brachial Plexus.

- Implemented a model based on Autoencoders with redesigned connections to boost high resolution features in the output. This ensured a high level of localization features to be retained in the output.
- Dream analysis revealed significant improvement in the learning over conventional autoencoders.
- Proposed a faster second model based on Proposals by sliding windows which under performed slightly.
- Devised a hack based on PCA to clean the binary outputs without loss in accuracy.
  (Code|Report)

Jan–Apr 2016 **A Survey On Human Sex Determination Methods**, *Prof. Harish Karnick*, IIT Kanpur.

- Performed an extensive survey on various methods of determining Human sex using machine learning techniques.
- Particularly explored methods that include human faces, full body and gaits as feature descriptors.
- Applied the trained models to IITK's surveillance system to test our online version of sex determination algorithms.
  (Code|Report)

Jan–Apr 2016 **Multilingual Text to Text similarity**, *Prof. Arnab Bhattacharya*, IIT Kanpur.

- Devised a algorithmic pipeline to estimate semantic relatedness between multilingual articles over wikipedia without any dictionary based sub systems for translations.
- The lstm based model while being semi-supervised accurately captuered the *sense* and *meaning* of any given piece of text intelligently.
  (Code|Report)

Jan–Apr 2016 **Dynamic Video Synopsis**, *Prof. Vinay P. Namboodiri*, IIT Kanpur.

- Generated a dynamic video synopsis with a stroboscopic effect as opposed to a key frame based method by solving a minimization problem over an energy equation.
- Implemented iterative graph cuts and Loopy belief propagation to optimize the minimization.
  (Code|Report)

Dec 2015 **On Variables In Globular Cluster NGC 2419** , *Prof. Priya Hassan*, NIUS, MANUU, Hyderabad.

Worked on registering and analyzing astronomical images in globular clusters to aid in detection of Exoplanets.

- Developed automated methods for registering images of NGC2419 from Himalayan Chandra Telescope.
- Implemented a Discrete Fourier Transforms based algorithm to align images and stacking even with inaccurate prior knowledge of WCS data.
- Performed Aperture photometry to compute fluxes and zenith angle corrections for atmospheric extinction.
- Currently working on identifying gravitational microlensing events in light curves for discovering potential Planets in the globular cluster (NGC 2419).
  (Code|Report)

Dec 2013 **Analyzing VHE Gamma Rays From Markarian 421 And Crab**,
Dr. K. K Yadav and Dr. R. C. Rannot, Bhabha Atomic Research Center (BARC), DAE, Mumbai.

Worked on Very high energy Gamma Ray Telescopy to understand phenomenon in a different spectrum of light.

- Developed methods to cleanse low resolution data from TACTIC on Crab Nebulae and MRK421, of cosmic ray events and to estimate the signal parameters and temporal distribution of VHE Gamma Rays from the sources.
- Key work involved evaluating different models of interference from other sources, parametrizing the image to classify various events and employ cuts to produce results with high recall.
- Presented a possible verification of current theoretical models of VHE Gamma ray sources.
  (Code|Post)

Courses

Georgia Tech **AI for Robotics, Reinforcement Learning** .

IIT Kanpur **Learning Techniques, Artificial Intelligence Programming, Computer Vision**
Linear Algebra, Probability and Statistics, Abstract Algebra
Discrete Mathematics, Ordinary Differential Equations
Data Structures and Algorithms, Theory of Computation, Programming Logic
Software Engineering, Principles of Data Base Systems, Computer Networks, Computer Security
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Coursera **NeuroHacking with R**.

Hackathons

May–Aug 2016 **DeepInsight**, *Code.Fun.Do*, Microsoft.
- Built a Microsoft Office Add-In to assist users in their text writing tasks. It uses Machine learning APIs to ease the routine tasks of researching and make them more interesting.
- The AddIn has received **critical acclaim** on the Finalist Forum of Code.Fun.Do.
- It has been awarded the **Top Design Idea** and **Top Coding Team** and stood as overall **Winning Team**.

Oct 2015 **Share Journey**, *Dev Fest*, Google Developers Group.
- Built a comprehensive portal on NodeJS, Express Framework with an AngularJS front end to provide for easy sharing of taxi rides between students of the institute.
- Placed **1st** in the Google Developer Group's Hackathon.

Technical Proficiency

Programming C, Python, MATLAB, PHP, javascript, R

Tools Keras, sklearn, Git, astropy, NLTK, OpenCV, LaTeX, ds9, iraf, django

Teaching

2014–2015 **Academic Mentor**, *Counseling Service*, IIT Kanpur.
Assisted academically weak freshmen in courses like PHY102, LIF101, ESC101 by conducting classes and personal tutoring.

Scholastic Achievements

2013 Secured **AIR 121** in IIT JEE an entrance exam given by over 1.5 lakh engineering aspirants.

2011 Awarded **Gold Medal** in IGNOU-UNESCO Science Olympiad, 2011 with a percentile score of *95.08*.

2015 Awarded **Gold Medal** and placed 1st in the 3rd Inter IIT Tech Meet held in IIT Kharagpur.

2012 Placed **37th** in the KVPY Merit list and received a Monetary Scholarship from IISc, Bangalore.

2013 Nominated for Aditya Birla Scholarship, one among **40** students from all of India

2013 Selected in **top 40** and attended Orientation Camp of International Astronomy Olympiad held in HBCSE .

2011 Ranked **10th** in the state in the prestigious South Indian Physics Olympiad

2011 Selected in **top 40** and attended the Orientation Camp of International Junior Science Olympiad held in HBCSE .

Responsibility

Dec 2016 **Grader**, *Academic Team*, International Olympiad on Astronomy & Astrophysics, Bhubhaneswar.
- One among 60 members of the Academic Team responsible for Grading the submissions of the prestigious olympiad
- Also helped in conducting the moderation session and other academic activities smoothly.

2014–2015 **Senator**, *Student Gymkhana*, IIT Kanpur.
- Elected by an Electorate strength of over 800 students as their representative to the student senate
- Nominated as the only UG member to the Rules and Procedures Committee

2015–2016 **Coordinator**, *Astronomy Club*, IIT Kanpur.
- Planned and raised finances, to ensure participation of students in the institute and managed logistics of the club.
- Actively involved in the construction and management of India's first student built and run Observatory.

2013-2014 **Student Guide**, *Institute Counseling Service*, IIT Kanpur.
- Mentored 6 freshmen and ensured their smooth transition in to the institute providing personal guidance and one to one mentoring