

Nishant Nikhil

Education

- 2014–2019 **Integrated MS in the Mathematics and Computing Sciences**, Indian Institute of Technology, Kharagpur, CGPA - 8.71 out of 10.
- 2012–2014 **Class XII CBSE**, GIS, Delhi, Percentage - 96.4%.
Top 0.1% in India
- 2006–2012 **Class X CBSE**, DAV, Siwan, Bihar, CGPA - 10 out of 10.

Key Projects

- April 2016 - **Google Summer of Code - SymEngine**, SymPy.
Aug 2016 Guide: Mr. Ondřej Čertík
- o Added **polynomial factorization** functionality to SymEngine, a standalone fast symbolic manipulation library written in C++, the future core for symbolic python library **SymPy**.
 - o Implemented **Fields, Sets** and **Logic** module and **Zassenhaus's, Shoup's** and other factorization algorithm over finite fields.
 - o This will help develop **solver's** module and **calculus** module.
 - o Link to Contributions and Link to blog
- Sept 2014 - **Kharagpur Robosoccer Students' Group**, KRSSG, Artificial Intelligence Team.
Present Guide: Prof. Jayanta Mukhopadhyay
- o Implemented **Reinforcement Learning** to increase walk speed of humanoid bots.
 - o Implemented Multi-threaded **CMA-Evolution Strategy** to optimize various skills
 - o Implemented **Fuzzy Logic** based multi-agent passing.
 - o Implemented dynamic positioning using Delaunay triangulation and Hungarian method.
 - o Implemented inverse kinematics based kicking
 - o Adjugged **3rd** in Miroso League, **FIRA** RoboWorld Cup 2015
 - o Qualified for Quarters at **RoboCup** 2016 in debut performance for 3D Simulation League.
- Jan 2016 - **QuoRecommender**, Information Retrieval Course Project .
April 2016 Guide: Prof. Pawan Goyal
- o Implemented **Word Mover's Distance** to recommend tags for questions on Quora.
 - o Implemented in Python using NLTK and Gensim library.
 - o Link to repository
- Dec 2015 **Research Intern**, Medical Image Processing Laboratory, IIT Kharagpur.
Guide: Prof. Debdeep Sheet
- o Implemented dropouts and denoising **Autoencoders** using Theano in python for Medical Image Analysis.
- Jan 2016 - **Sanskrit NLP**, Complex Networks Research Group, IIT Kharagpur.
April 2016 Guide: Prof. Pawan Goyal
- o Implemented a **Random Forest** model to predict samash tags.
 - o Implemented in Python using scikit-learn, paper accepted at WSSANLP'16.
- August 2016 - **YOLO application**, Soft Computing Tools in Engineering Project.
Present Guide: Prof. S.K. Barai
- o Developed an **android** application which fetches your location and based on **fuzzy rules** analyzes your daily life according to the time spent at each place of interest.

IIT Kharagpur – West Bengal – India 721302

☎ +919933979842 • ✉ nishantnikhil@iitkgp.ac.in • Github

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Open Source Contributions

- Flexidate Date Parsing Library in Python (used by Astropy). **Current Admin** of the repository.
NetworkX It is a Python package for the study of complex networks.
CLTK The Classical Language Toolkit offers NLP support for Classical languages.

Research Papers

- October 2016 **A Fuzzy Logic System to Analyze a Student's Lifestyle** (submitted)
The International Conference on Advanced Computational Intelligence' 2017
November 2016 **Compound Type Identification in Sanskrit: What Roles do Corpus & Grammar Play?** (acknowledged) WSSANLP'16

Term Papers

- March 2016 **Using Very Deep Auto encoders for Content-Based Image Retrieval: Review.**
Guide: Prof. S.K. Barai
February 2016 **Fuzzy Omnidirectional Walking Controller for the Humanoid Robot Review**
Guide: Prof. S.K. Barai

Talks

- Sep 2016 Lightning Talk at PyCon India 2016 on SymPy and SymEngine

Achievements

- January 2016 **Gold** medal in Inter-IIT Software Development Link
2014-Present Innovation in Science Pursuit for Inspired Research Scholarship by Govt. of India
August 2015 **Bronze** winning team member, Mirosoft, FIRA - 2015
January 2015 **Winner**, Aughit-Image Processing and Autonomous Robotics Event, Kshitij
January 2015 **Best Fresher**, Skyfall-Manual Robotics, Kshitij

Skills

- Fluent C, C++, Python, JAVA, C#, Android, Matlab, PHP, Javascript
Libraries OpenCV, sk-learn, sympy, beautiful-soup, tensorflow, theano

Relevant Courses Taken

- Computer Science Machine Learning, Design and Analysis of Algorithms, Programming & Data Structures, Information Retrieval
Mathematics Probability & Statistics, Linear Algebra, Discrete Mathematics, Numerical Solution of Differential Equations, Transform Calculus, Partial Differential Equations

Extra-Academics

- Cultural Open-IIT English Elocution Gold Medalist
Management Organized overnite hackathons as a part of Kharagpur Open Source Society.