

Priyanka Nath

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Education

KIIT University (formerly Kalinga Institute Of Industrial Technology) – Bhubaneswar, India July, 2015 - Present
Bachelor of Technology, Information Technology Current GPA: 8.75 / 10.0

South Point High School – Kolkata, India

All India Senior School Certificate Examination, CBSE (Grade 12) June, 2015
Stream: Science with Computer Science as additional subject

Secondary Examination, WBBSE (Grade 10) May, 2013

Publications

Priyanka Nath, Sumran Kilam, Aleena Swetapadma. '**A machine learning approach to predict volatile substance abuse for drug risk analysis**'. 2017, *Third IEEE International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN 2017)*. Published in IEEE Xplore.

Divya Kumari, Sumran Kilam, Priyanka Nath, Aleena Swetapadma, '**Prediction of alcohol abused individuals using artificial neural network**'. 2018, *14th International Conference on Distributed Computing and Internet Technology (ICDCIT 2018)*. Published by Springer.

Divya Kumari, Priyanka Nath, Sumran Kilam, Aleena Swetapadma, '**Volatile Substance Abuse: A Nearest Neighbor Based Analysis**'. 2018, *International Conference on Innovative Technologies in Engineering (ICITE 2018)*.

Experience

Indian Statistical Institute – Kolkata, India May, 2017 - July, 2017
Advisor - Prof. Ansuman Banerjee
Research Intern under the Summer Internship Program in Cryptology 2017, R. C. Bose Centre for Cryptology and Security, Indian Statistical Institute (funded by Microsoft Research India).

Projects

Linux System Call Analysis – Indian Statistical Institute May, 2017 - July, 2017
- Developed an OS system call pattern matching & analysis application for Linux to detect software vulnerabilities.
- Using inputs generated by an automated fuzzer, American Fuzzy Lop (AFL), to detect malicious binaries.
- Summer internship project, funded by the Defence Research and Development Organisation (DRDO), Government of India.

Artificial Neural Networks Implementation On The Game 'Snake!'

- Created the game Snake from scratch in Python
- Extracted features by generating random moves
- Used the extracted features to classify if a move is valid or invalid using Artificial Neural Networks

Volatile Substance Abuse (VSA) Drug Risk Analysis

- Built an Artificial Neural Networks model using Lavenberg Marquardt algorithm in Matlab to predict VSA use of individuals based on their five factor personality model, demography, etc.

Principal Component Analysis using GPUs

- Implemented dimensionality reduction by applying PCA on Fischer's Iris dataset using CUDA-C.

Bookmarkz: A Social Bookmarking App

- Developed a social bookmarking app using Django web framework where a user can create an account, share bookmarks, vote on shared bookmarks, etc.

Vigenère Decoder and Rivest Cipher Implementations

- Built a Vigenère Cipher Decoder which predicts 5 probable keywords given the encrypted ciphertext.
- Implemented a Rivest Cipher 4 (RC4) in Python and showed that the keystream generated by the RC4 is biased in varying degrees towards certain sequences.

Naive Bayes Classifier

- Implemented a Naive Bayes Classifier from scratch for handwritten digits from MNIST digit dataset.

SpaceTurtle: An Introduction to Turtle Programming

- Designed a teaching kit for a Mozilla Hackathon, using Python's turtle library, to introduce kids to programming and encourage them to solve problems through logical thinking.

MysticSquare: An Android Game

- Made a basic Mystic-Square (also known as 15 puzzle) game for Android using Android Studio.

Technical Skills

Programming – Coded mainly in **C**, **Python**. Proficient in coding with C++ and Java.

Web – HTML, CSS, Javascript. **OS** – Linux, Windows.

Development Tools – Android Studio, Android SDK, SQL (MySQL, Oracle), scikit, Matlab, Latex.

Relevant Courses Taken

Linear Algebra, Data Structures & Algorithms, Object Oriented Programming, Probability & Statistics, Discrete Mathematics, Computer Networking, Operating Systems, Database Management Systems.

MOOCs – Machine Learning (by Andrew Ng), Cryptography I (by Dan Boneh).

Honors & Achievements

- Secured 4th position among 11,000 participants in the 4th CSI National Programming Contest organised by the Computer Society Of India.
- Won 2nd place in HelloWeb Hackathon 2016 hosted by the MozillaBBSR Club by designing a teaching kit to introduce kids to programming.
- Secured the highest grade "O" in Object Oriented Programming, Web Technology and Computer Networks as part of my B.Tech curriculum.
- Secured a perfect score (100%) in Mathematics in state-wide Secondary Examination, 2013 among 1,020,000 students.
- Awarded Chitroprobha Upadhi Certification by Bengal Music College, Kolkata, India in 2012 on completing a 6-year course on Painting.