

# ANEEL ROY

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## EDUCATION

**New York University** - MS in Computer Engineering

Sept 2022 - May 2024

Courses : Computer Systems Architecture, Machine Learning, Real Time Embedded Systems

New York City, USA

**Jadavpur University** - BE in Computer Science and Engineering - CGPA - 8.0

Aug 2014 - May 2018

Courses : Data Structures and Algorithms, Natural Language Processing, Operating Systems, Computer Networks

Kolkata, India

## EXPERIENCE

**GE Healthcare** | Bangalore, India | Software Engineer

July 2018 - August 2022

- Simplified and centralised system interaction logging to improve system boot time by  $\approx 20\%$  and compile time improvement by  $\approx 30\%$  while working for ECG division of Diagnostic Cardiology team.
- Implemented security protocols for GDPR compliance of ECG firmware upgrade and improvement of data governance.
- Designed system to filter noise in ECG wave-forms reducing warm up time for signal capture by  $\approx 15\%$ .
- Prototyped AR software to assist paramedics and physicians with ECG lead placements.
- Setup infrastructure for offline support of critical features in app used field engineer using Chrome service workers
- Integrated a geolocation based inventory management and procure system for on location support of field engineers.
- Migrated Billing and Financial Engine from internal cloud infrastructure to AWS.
- Created a tool for cost rollup for products belonging to all modalities, which improved cost tracking and reduced time spent by resource managers by  $\approx 30\%$ .

**Samsung Research Institute** | Bangalore, India | Software Engineering Intern

May 2017 - July 2017

- Designed and implemented a system for developers to export compatible Google web store apps to Tizen Web Ecosystem.
- Worked on json and manifest parsing along-with settings, privilege and certificate management for both the systems for fully functional integration from user perspective for a test set of around 100K apps.

## RESEARCH INTERNSHIPS

**Jadavpur University** | Kolkata | Undergraduate Research Assistant

May 2016 - July 2018

- Music Emotion Recognition Tasks on MIREX, Sound Tracks and Media-Eval datasets through supervised machine learning models. Achieved an improvement of 6-10% in accuracy over the state-of-the-art methods.
- Devised a computer vision system based on optical flow tracking through video processing to classify crowd motion pattern.

**R.C. Bose Centre for Cryptology, ISI** | Kolkata | Undergraduate Summer Research Intern May 2015 - July 2015

- Formulated a distributed approach for batch wise GCD computation of RSA moduli to determine the biases in Randomness of Public Keys generated using RSA encryption scheme.
- Collected 42 million HTTPs public certificates from internet and found almost 0.4% sites vulnerable due to shared primes in RSA. Developed a fully parallel processing method for batch wise GCD Computation.

## PUBLICATIONS

- Sarkar, R., Choudhury, S., Dutta, S., **Roy, A.**, & Saha, S. K. (2020). Recognition of emotion in music based on deep convolutional neural network. *✉ Multimedia Tools and Applications*, 79(1), 765–783.
- Roy, A.**, Biswas, N., Saha, S. K., & Chanda, B. (2019). Classification of moving crowd based on motion pattern. *✉ In 2019 IEEE region 10 symposium (tensymp)* (pp. 102–107). IEEE.
- Kumar, V., **Roy, A.**, Sengupta, S., & Gupta, S. S. (2017). Parallelized common factor attack on RSA. *✉ In International conference on information systems security* (pp. 303–312). Springer.
- Sarkar, R., Dutta, S., **Roy, A.**, & Saha, S. K. (2017). Emotion based categorization of music using low level features and agglomerative clustering. *✉ In National conference on computer vision, pattern recognition, image processing, and graphics* (pp. 506–516). Springer.

## TECHNICAL SKILLS

**Languages:** Python, Java, C, C++, JavaScript, SQL, NoSQL, R, XML, HTML, CSS

**Technologies/Frameworks:** Kubernetes, Kafka, Docker, Redis, Maven, Postgres, AWS, Spring, ReactJS, Redux, QT, AngularJS, NodeJS, PolymerJS, Git, MongoDB

## PROJECTS/ACHIEVEMENTS

- Designed a mouse pointer manipulation system guided by real time detection of hand gestures and fingers as a Summer Research Intern in ECSU, Indian Statistical Institute, Kolkata. **Presentation — Video — Project Report**
- Undergraduate Seminar on Artistic Style Transfer Using Convolutional Neural Networks. **Seminar Slides — Abstract**
- Designed a gesture controlled droid using accelerometer and arduino to win the College-level Robotics Competition.
- Higher Secondary Exam 2014. Received Letter of Appreciation from HRD minister of India for being top 0.1% in CBSE.
- WBJEE General Merit Rank - 270 out of 200k candidates. Top 1% of JEE-MAINS, JEE-ADVANCED out of 1 Million candidates.