Amrit Gaurav Rath

agr10@iitbbs.ac.in | +91 9439092128 | linkedin.com/in/amrit2104
github.com/amrit2104 | amrit2104.github.io | leetcode.com/amrit2104

Education

Indian Institute of Technology Bhubaneswar — Bhubaneswar, Odisha
Dual Degree Specialization in Electrical Engineering, CGPA: 7.83/10.0 — *Aug 2018 – May 2023(Expected)*

MP & EV English Medium School(CBSE) — Vishakapatnam, AP
Class XII, Score: 92% — *Aug 2016 – May 2018*

Saint Anne's School(ICSE) — Titilagarh, Odisha
Class X, Score: 93.67% — *May 2016*

Work Experience

Research Intern — May 2021 – Jul 2021
Supervisor: Dr. Dipankar De — *IIT Bhubaneswar*

- Developed a **Dual Active Bridge** based interface for a **Lithium-Ion Battery** Applications.
- Designed the Voltage and Current **Controllers** for the battery for the generation of **Phase Shifts**.
- Created the controllers for the AC grid to maintain the required **DC-Bus voltage**.
- Successfully achieved **Bidirectional Power Flow** between a 48Ah battery and 3-phase 230V AC Grid.

Engineer Intern — Apr 2020 – Jun 2020
Supervisor: Rajesh Kumar Adla — *Null Innovations, Hyderabad*

- Developed Websites for the company using **WordPress** for Frontend and **PHP & MySQL** for Backend.
- Designed an **Artificial ChatBot** using custom chatbot from **Tidio** which would ping and reply to your messages.
- Created a **payment portal** using **RazorPay** for direct online payments along with a contact form.
- Implemented the **Yoast SEO** to improve the ranking of the Websites along with **Google Analytics**.

Competitive Programming

- Reached and Secured Global Rank **1680** in **Round-2** of **Facebook Hackercup 2021**.
- Google **Kick Start 2022** Global Ranks(ID: amrit2104): Round-A: 2505, Round-B: 1313, Round-C: 2628, Round-D: 1693, Round-E: 2844, Round-F: 1990 & Round-G: 1653.
- Reached and Secured Global Rank **2450** in **Round-2** of **Meta Hackercup 2022**.
- Best Google **Kick Start 2021** Global Ranks(ID: amrit2104): Round-E: 2053, Round-H: 1328.
- Secured Global Rank **928** in **Round-1C** & **3112** in **Round-2** of **Google CodeJam 2022**.
- Secured Global Rank **1496** in **Round-1** of **Google HashCode 2022**.
- Secured Best Ranks of **177** in **December Lunchtime 2021** & **265** in **May Lunchtime 2022** on CodeChef.
- Secured Best Rank of **1753** in **Codeforces Round 752 (Div. 2)** on CodeForces.
- **4-Star Coder** at **Codechef**(ID: amrit2104) with Max Rating: 1988.
- Solved **600+** problems on **LeetCode**(ID: amrit2104) & **GFG**(ID: amrit2104).

Scholastic Achievements

- Secured **All India Rank 4469** in JEE Advanced 2018.
- Secured **All India Rank 1854** in JEE Main 2018.
- Qualified **GATE 2022** for Electrical Engineering.

Technical Skills

Programming Languages:- C/C++, Python, MATLAB, Verilog, Assembly Language(8085)

Web Development:- JavaScript, Bootstrap, HTML/CSS, PHP, MySQL

CS Fundamentals:- DSA, DBMS, OOPS

Python Packages:- Numpy, Pandas, Matplotlib, Scipy, Seaborn, Scikit-Learn

Frameworks:- Flutter, WordPress

Developer Tools:- Android Studio, Sublime Text, MATLAB-Simulink, Jupyter Notebook, PLECS

Adobe Designing Tools:- After Effects, Premiere Pro, Illustrator

Major Projects

Socio-Cult Fest Registration Websites | *HTML, CSS, PHP, JS, MySQL, Bootstrap* Aug 2019 – May 2021

- Developed the **Main Registration Website** for Annual Socio-Cultural Fest 2021.
- Deployed the websites on the online server using **CPanel**.
- Designed and Managed the **Database** for Registrations using **MySQL and PHP**.
- Other Major accomplishments includes Websites for Online Poetry Event, Annual Fashion Show Event and Registration website for Campus Ambassador Program.

Network Intrusion Detection | *Python, Scikit-Learn, Seaborn* Aug 2022

- Constructed a **Network Intrusion Detection System** to detect the presence and types of Network Intrusions.
- **KDD-Cup 1999 Dataset** was used for training and testing the model.
- Algorithms like Decision Tree, Logistic Regression, Naive Bayes and K-Means Algorithm were employed.
- Best accuracy obtained was **98%** using **Decision Tree Classifier**.

Model Predictive Control of DC-DC Boost Converter(MTP) | *MATLAB, Simulink* Jun 2022 – Present

- Designing **Model Predictive Control** strategy to control a DC-DC boost converter using state space equations.
- Working on reducing the prediction horizon and achieve constant switching frequency based MPC.
- Implementing both **direct voltage contro**l and **direct current control** with simple enumeration technique.

Triple Active Bridge Based Interface for EVs(BTP) | *MATLAB,Simulink* Jul 2021 – Apr 2022

- Developed a high frequency three-port transformer for **Electric Vehicle** power management.
- Designed the **Decoupling** for smooth power flow between ultra-capacitor, motor & battery.
- Developed the inner phase shifts to decrease the **Harmonics** and prevent the **back-flow power**.
- Created the modulating signals with required **phase shifts** for switching of the **H-bridge**s.
- Successfully achieved the required target of generating various **Charging and Discharging Profiles** for an EV.

Image to Text Converter Mobile Application | *Python, Flutter* Jan 2021

- Developed a **Flutter App** that will capture images and recognise text from it.
- Trained a **Convolutional Neural Network** model to recognize hand-written characters, letters and numbers.
- Used transfer learning methods on the pretrained **ResNet50** model of **Keras** and used **SGD** as optimizer & attained a test accuracy of nearly 92 percent.

Positions of Responsibility

Student Placement Coordinator Jul 2022 – Present

Teaching Assistant(Electrical Department) Jul 2022 – Present

Student Internship Coordinator Aug 2020 – Jul 2021

Governor of Cinewave(Cinematic Society) Aug 2020 – Jul 2021

Branch Representative and Member of Hostel Council Mar 2019 – Jul 2021

Web Development Core Head of Alma Fiesta(Socio-Cult Fest) Oct 2018 – Jul 2021

Member of Souls for Solace(Socio-Welfare Society) Oct 2018 – Present

Online Course Work

Data Structures and Algorithms by Dr. Naveen Garg(IIT Delhi) *NPTEL*

Machine Learning by Andrew Ng *Stanford University, Coursera*

Neural Networks and Deep Learning *deeplearning.ai*

Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization *deeplearning.ai*

Learning Python for Data Analysis and Visualization *Udemy*

30 days of Google Cloud *Qwiklabs*