

# Avik Kar

## CONTACT

Mail: karavik18@gmail.com,  
avikkar@iisc.ac.in  
Phone: 7044789982

## LINKS

Github: [avik-kar](#)  
LinkedIn: [karavik18](#)  
Website: [avik-kar.github.io](#)

## COURSEWORK

### GRADUATE

Optimization  
Random Processes  
Reinforcement Learning  
Real Analysis  
Stochastic Dynamics and  
Stochastic Control  
Deep Learning  
Statistical Signal Processing  
Digital Image Processing  
Advanced Matrix Theory  
and Linear Algebra  
Embedded Systems

### UNDERGRADUATE

Linear Algebra  
Probability Theory  
Signals and Systems  
Control Systems  
Digital Signal Processing  
Analog Communication  
Digital Communication

## TEACHING

## ASSISTANCE

- Instrumentation Design System, IIT Kharagpur
- Measurements & Electronic Instruments Lab., IIT Kharagpur
- Random Processes, IISc

## SKILLS

### PROGRAMMING

Over 10000 lines:  
Python •  $\LaTeX$   
Over 1000 lines:  
C • C++ •  
Familiar:  
MATLAB • HTML • CSS • Java

## PERSONAL STATEMENT

I am working on stochastic control and reinforcement learning for systems with Prof. Rahul Singh as a Ph.D. Student at ECE, IISc.

## EDUCATION

2021-Present **Doctor of Philosophy**  
Dept. of Electrical Communication Engineering  
**Indian Institute of Science**  
Current CGPA: 9.2

2019-2021 **Master of Technology**  
in Instrumentation and Signal Processing  
offered by Dept. of Electrical Engineering  
**Indian Institute of Technology Kharagpur**  
CGPA: 9.19  
**Thesis:** Federated Learning with Weakly Labelled Data

2013-2017 **Bachelor of Technology**  
in Electronics and Communication Engineering  
**St. Thomas' College of Engineering and Technology**  
CGPA: 8.54  
**Thesis:** Microstrip Line Implementation of X-band Microwave Filter

## RESEARCH

### **KHARAGPUR LEARNING, IMAGING & VISUALIZATION (KLIV) RESEARCH GROUP** | STUDENT MEMBER

May 2020 – April 2021 | Kharagpur, WB

Worked with **Prof Debdoot Sheet** to assess computational and space complexity of deep neural networks during training and inference. • Built a federated learning framework for site-aware chest radiograph screening. • Led the development of a federated learning framework for semantic segmentation of medical images of different modalities.

## EXPERIENCE

### **NOMURA RESEARCH INSTITUTE FINANCIAL TECHNOLOGY INDIA**

#### **ASSOCIATE SOFTWARE ENGINEER**

Aug 2017 – May 2018 | Kolkata, WB

Worked in project of building Broker Back-office Platform. Learned Test Automation with Selenium and SQL database, Data Migration.

## AWARDS AND ACHIEVEMENTS

- 2022 Received **Prime Minister's Research Fellowship**.
- 2021 Received **Keshab K Parhi Endowment Prize** for **best application oriented thesis** among M.Tech. graduating EECS students of IIT Kharagpur.
- 2020 Ranked 216 (99.74%ile) in Graduate Aptitude Test in Engineering Paper: Electronics and Communication Engineering

## PUBLICATIONS

1. A. Chakravarty, A. Kar, R. Sethuraman and D. Sheet, "Federated Learning for Site Aware Chest Radiograph Screening," *2021 IEEE 18th International Symposium on Biomedical Imaging (ISBI)*. IEEE, 2021.