

# Mayukh deb

## Curriculum Vitae

☎ (+91) 9830814358  
✉ [mayukhmainak2000@gmail.com](mailto:mayukhmainak2000@gmail.com)  
📁 [mayukhdeb.github.io](https://github.com/mayukhdeb)  
DOB: November 9th, 2000

### Education

- Expected 2023 **Bachelor's of Technology**, *Electrical and Computer Engineering*, ASE, Amrita Vishwa Vidyapeetham, Kollam, India. GPA: 8.93/10.0.
- 2016 - 2018 **Higher Secondary**, Amrita Vidyalayam, Kolkata, India. Marks: 93%.
- 2016 **Secondary**, Amrita Vidyalayam, Kolkata, India. GPA 8.8/10.0.

### Areas of Interest

Deep neural networks, Data science, GANs, Adversarial Attacks Computer vision, Image processing

### Experience

- May 2020 - **Google Summer of Code with INCF**,  
August 2020 Worked with OpenWorm and trained multiple deep learning models for:
- Segmenting nuclei from microscopic images of embryos
  - Predicting the population of various cells within the embryo from videos
  - Predicting the curvature/muscle activity of a worm's body with time using LSTMs
  - Determining the lineage of a cell within the C. elegans embryo from its position and size time
  - Also built computer vision pipelines to track multiple worms from video feeds and decompose the worm's body into simpler skeletons for analysis
- July 2019 - An active member in **amFOSS**, Amrita Vishwa Vidyapeetham, Amritapuri.  
Present amFOSS is India's leading computer science club with over 50 passionate students who actively contribute to open source software

### Relevant Projects

- December 2019 - January 2020 **Mind the bend** Made a car drive and stay on the road by itself in a simulation using a custom ensemble model and some automation using PyAutoGUI. The model was trained on custom data which comprised of images from two perspectives of the road for better performance  
[https://github.com/Mayukhdeb/mind\\_the\\_bend](https://github.com/Mayukhdeb/mind_the_bend)
- February 2020 **Deep chicken terminator** This was a computer vision project where I tracked various animals in real time in the from the live feed of the player's perspective in the game minecraft. At the heart of this project was a deep learning model trained to classify animals in minecraft.  
<https://github.com/Mayukhdeb/deep-chicken-terminator>
- March 2020 - April 2020 **Deep chicken saviour** Used adversarial attacks on the trained model from deep-chicken-terminator to break the tracking algorithm using FGSM. Generated "Adversarial blocks" within the game which were misclassified as animals by the model.  
<https://github.com/Mayukhdeb/deep-chicken-saviour>
- January 2020 - March 2020 **Adventures with augmentation** Worked on a custom dataset generated from a time-lapse video of the life cycle of a c.elegans worm. Trained a deep learning model which detects and classifies the embryo of the worm into 4 of its embryonic stages with an accuracy of over 98%  
<https://github.com/Mayukhdeb/adventures-with-augmentation>

- April 2020 **Worm embryo classifier** Flask web-app where the user can drag and drop a microscopic image of a roundworm's (*C.elegans*) embryo to determine it's embryonic stage using deep learning.  
<https://github.com/Mayukhdeb/worm-embryo-classifier>
- January 2020 **ECG heartbeat categorization** Worked on an ECG dataset and trained a deep learning model which helps derive medical inferences from ECG data of patients with an accuracy of over 97%  
<https://github.com/Mayukhdeb/ECG-heartbeat-categorization>

## Technical Skills

Programming	Python, C
Primary Libraries	PyTorch, Keras, NumPy, SciPy, Pandas, OpenCV, PIL
OS	GNU/Linux, Microsoft Windows
Tools	Jupyter Notebooks, Git, conda
Web	FrontEnd- HTML, CSS
Development	BackEnd- Flask

## Volunteer work and extra-curricular activities

- 2010 - 2018 **Black belt in kyokushin karate:** I've been a part of the martial arts class in my school and participated in multiple tournaments in Kolkata, India under the mentorship of Sensei Bejoy Dhara, branch chief and country representative for IKO Matsushima.
- 2016 - 2018 **Co-ordinated charity events to support villages:** I was one of the co-ordinators who helped put together events where students donated basic medical supplies and other utilities which were to be given to the poor and needy children in villages near Kolkata, India. This programme was a part of Mata Amritanandamayi devi's (Popularly known as "Amma") efforts to help the poor and the needy throughout the world
- 2016 - 2018 **Helped co-ordinate clean up drives in areas near our school as a part of "Amala bharatam":** I was one of the co-ordinators who helped put together events where students donated basic medical supplies and other utilities which were to be given to the poor and needy children in villages near Kolkata, India. This programme was a part of Mata Amritanandamayi devi's (Popularly known as "Amma") efforts to help the poor and the needy throughout the world
- 2019 **Volunteered for the crowd management team during AmritaVarsham:** I was one of the volunteers who helped in crowd management during AmritaVarsham (Amma's birthday celebrations).

## Languages

English	Fluent
Hindi, Bengali	Fluent