

# Amitava Chakrabarti

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## Education

2020–Present **BITS Pilani, Goa Campus**,  
*B.E. Computer Science.*  
CGPA – 8.08/10  
BITSAT Score: 382

## Course Work

### Academics

Linear Algebra, Calculus, Computer Programming, Probability and Statistics

### Online Courses

Deep Learning specialization by Deeplearning.ai, Machine Learning A-Z: Hands-On Python and R In Data Science, Deep Learning A-Z: Hands-On Artificial Neural Networks, Machine Learning - Andrew Ng, Stanford University [FULL COURSE], CS 231n at Stanford University, Generative Adversarial Networks specialization by Deeplearning.ai, Natural Language Processing specialization by Deeplearning.ai

## Experience

- May **Computer Vision Intern**, TRANGLE PRIVATE LIMITED, NOIDA.
- 2022–July  
2022
- Explored various methods used for OCR on a Chequebook dataset.
  - Implemented an algorithm for car license plate recognition using YOLOv4 for Object Detection of license-plates and PyTesseract for OCR.
- June 2022– **Data Science Intern**, ICICI BANK.
- Ongoing
- Working with the Data Science and Analytics Group(DSAG) of ICICI Bank under my project mentor Sayan Sen
  - Currently working on developing an efficient way of detecting common objects in office spaces.
  - Created custom dataset of object classes to be identified using Roboflow.
  - Used pre-trained weights from the YOLOv5 model before training on custom dataset.
- July 2022– **Data Science Intern**, WINGIFY.AI.
- Ongoing
- Created a food calorie estimation model using pre-trained YOLOv5 weights on the ECUSTFD dataset with the help of Roboflow, achieving mAP of around 0.91.
  - Used predicted bounding box dimensions and class of the test images as inputs to an ANN which gives calories as a regression output.
  - Currently working on Generative Networks which help visualize human body transformations after their weight-loss journey.

## Projects

- Title **Implementation of Bayesian Neural Networks using Markov Chain Monte Carlo**, *SAiDL Spring Assignment.*
- This is an implementation of a Bayesian Neural Network which solves the simple task of solving noisy XOR problems using the Metropolis Hastings Algorithm.  
[Link to the GitHub Repository](#)
- Title **Image Super-resolution using SRCNN and SRResNets**, *SAiDL Spring Assignment.*
- This is an Implementation of Image SuperResolution using standard CNNs as well as CNNs containing Residual Layers.
  - To compare the different interpolation techniques used while upsampling our images, the SRCNN has been used to make direct comparisons between Bicubic, Bilinear and Nearest Neighbour interpolations.  
[Link to the GitHub Repository](#)

Title **Food Calorie Estimation using YOLOv5**, *Wingify.ai*.

- An implementation of a Food Calorie estimator using YOLOv5 on the ECUSTFD food dataset.
- This model takes into account bounding box width and height taken from both top and side views as well as the food item class using YOLOv5 for object detection.
- Using these as input parameters, we train a simple ANN to give the calories contained as a regression output.

[Link to the GitHub Repository](#)

Title **Using Residual Networks to improve test accuracy of small datasets**, *Self-motivated*.

- This model/project aims to achieve improved test set accuracy by implementation of Residual Networks (ResNets) on datasets where training data is limited.
- An accuracy of 74 percent was achieved when Residual Layers were introduced to the model as compared to 68 percent when the same model was used on the training data without any Residual Layers. Training was done on a total of 5000 examples and 8000 examples were tested using the stl-10 dataset.

[Link to the GitHub Repository](#)

Title **Customer Segmentation using K-Means Clustering**, *Self-motivated*.

- Clustering helps marketers improve their customer base, work on target areas, and segment customers based on purchase history, interests, or activity monitoring. Here the K-Means Clustering Algorithm has been used to group customers with the help of their Annual Incomes and their spending scores as metrics.

[Link to the GitHub Repository](#)

## Skills

Programming Languages C/C++, Python, Java

Frameworks Tensorflow, PyTorch, Scikit-learn

Libraries Numpy, Pandas, Matplotlib, Keras

WebD HTML/CSS, JavaScript

## Affiliations

- Member of Society for Artificial Intelligence and Deep Learning (SAiDL), BITS Goa
- Project Lead in Teach Zari vertical of Nirmaan, BITS Goa