


## SAVITHRI K. BRAHMADATHAN

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## PROFESSIONAL SUMMARY

A passionate and analytical software developer with strong scientific background. I have working knowledge of Python, Deep Learning, PyTorch, and Git and am familiar with object-oriented design principles. Experienced with both Windows and Linux operating systems, as well as both Microsoft Office and Libre Office suites of products. I have prior experience in a lab setting; designing, setting up, and running material design experiments together with other researchers which has made me an excellent researcher and documenter and given me great attention to detail. I am a keen and fast learner, with a strong curiosity, always investigating new languages and frameworks. I love to work in collaborative, team environments to share experiences and learn from others. I am self-motivated, have a strong work ethic and rise up to challenges in both my personal and professional endeavors.

## EDUCATION

### M.S. Data Science

Expected Summer 2025

University of Colorado Boulder

### B.Sc. Software Development

Online program. July 2019

OpenClassrooms

### M.Sc. Biopolymer Science

Cochin, Kerala, India. August 2015

Cochin University of Science and Technology

### B.Sc. Chemistry

Thrissur, Kerala, India. March 2013

Christ College

## CERTIFICATES

### Deep Learning Nanodegree

Udacity. August 2020

### Python Certified Entry-Level Programmer (PCEP)

Python Institute. July 2019

### 6.00.1 x: Introduction to Computer Science and Programming Using Python

MITx. May 2018

## STATUS

US Citizen

## PROJECTS

- Detecting pneumonia from chest X-ray images
  - Done as part of AI for Healthcare Nanodegree program
  - Performed exploratory data analysis on large dataset of several DICOM files with varying disease comorbidities
  - Ensured training dataset had approximately 50 percent patients with pneumonia and 50 percent without, while simultaneously ensuring that validation and testing data reflected real-world likelihoods
  - Used transfer learning with VGG16 with Keras
  - Achieved F1-score of 0.625 at a threshold of 0.41
  - Wrote initial FDA validation plan for further development, including possible failure modes - the model tended to perform poorly in the presence of comorbidities
  - Code and FDA validation plan is available at [https://github.com/savithrikb/AI\\_HealthCare\\_PneumoniaDetection](https://github.com/savithrikb/AI_HealthCare_PneumoniaDetection)
- Generating images of human faces from arbitrary latent vector
  - Done as part of Deep Learning Nanodegree program
  - Used a deep convolutional generative adversarial network (DCGAN)
  - Trained model from scratch with a custom CNN using PyTorch
  - Was given an initial dataset with several images and noticed possible biases - e.g., the dataset contained mostly celebrity faces with minimal racial diversity
  - Code as well as analysis of possible biases and possible avenues for improvement is available at <https://github.com/savithrikb/project-face-generation>
- Several other deep learning projects completed at <https://github.com/savithrikb?tab=repositories>

## EXPERIENCE

- Intern at Xen.AI
  - Working with 3D medical image data from MRI to detect Alzheimer's disease
  - Data provided in NIFTI file format
  - Preprocessed data to ensure all images are similar in size (both pixel dimensions and physical dimensions), show the correct body-part, etc.
  - Used UNet architecture to train model to detect Alzheimer's disease
  - Computed Dice and Jaccard scores to validate accuracy
  - Currently working to document and deploy this solution