

# Shaikh Abdus Samad

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## Research Projects/Publications

### ● Augmenting DenseNet with Multi-scale Skip Connections

- Developed multi-scale skip connections in DenseNet, enhancing early-to-later layer information flow while maintaining a low parameter count.
- Conducted experiments demonstrating improved model performance and reduced parameter usage compared to existing methods and the original DenseNet architecture. Currently under review.

### ● Efficiency-Enhanced One-Layer Structures for DenseNet

- Developed ten novel OLS architecture designs for DenseNet, utilizing multi-kernel and split branch structures to enhance accuracy.
- Achieved a superior balance between model complexity and accuracy by reducing parameters while increasing performance. Publication in progress.

### ● SCMA: Dual-Module Attention with Multi-Scale Kernels

- Designed efficient attention mechanism for CNNs, enhancing channel and spatial representation.
- Achieved consistent accuracy gains on benchmark image classification tasks. Demonstrated superior performance when combined with ResNet and ResNeXt. Paper Submitted.

## Certified Experience

### ● AI Research Intern CellStrat AI Lab, Bangalore (Part-time)

May 2019 - April 2020

- Developed a person counting model by fine-tuning a pre-trained ESPNet model based on voice patterns.
- Developed and trained an amplified U-Net model using the "SIIM-ACR Pneumothorax" dataset to predict pneumothorax presence and identify location using masks.

### ● Neuromatch Academy Deep Learning Summer School (Shortlisted Participant)

- Took up the role of team representative among three international members, with two already holding Ph.D. degrees.
- Developed a Brain Tumor classification model using transfer learning.

## Work Experience

### ● Research Associate, VIT University, Vellore

October 2016 – September 2018

Conducted lab sessions for various courses, including Problem Solving and Programming (Python and C), Machine Learning, Object-Oriented Programming with C++, Data Structures and Algorithms

### ● Teaching cum Research Assistant, VIT University, Vellore

October 2018 – September 2019

Conducted lab sessions for the Problem Solving and Programming (Python and C)

## Education

### ● Ph.D. in Computer Science, VIT University, Vellore

Expected Graduation: May 2024

### ● M.Tech. in Computer Science and Engineering, VIT University, Vellore

CGPA: 7.98 (2016)

### ● B.E. in Computer Science and Engineering, BAMU, Aurangabad

GPA: 7.05 (2013)

## Skills

- **Areas of Expertise:** AI/Deep Learning (with a focus on Computer Vision model optimization & NLP), Machine Learning, MLOps (with a focus on Experiment tracking, Dataset and Model versioning)
- **Programming Languages:** Python, C
- **Libraries, Tools, & Frameworks:** PyTorch, Keras, NumPy, WANDB, Composer (MosaicML), HuggingFace, LaTeX
- **Familiar with:** C++, Java, SQL, Tensorflow, Scikit-Learn, Pandas

## Professional Engagement and Knowledge Sharing

Facilitated research paper discussions through meetups, seminars, and webinars for global CellStart AI lab members, focusing on image classification and object detection. Additionally, attended the international ODSC conference twice in India.