VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

A PROJECT REPORT ON

"MODIFIED U-NET MODELS FOR COARSE TUMOR SEGMENTATION"

Submitted in partial fulfillment for the award of Degree of,

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE &ENGINEERING

By

PAVAN KAMATH	**4AL16CS062**
PRASANNA	**4AL16CS068**
RAKESH KOTIAN	**4AL16CS072**
RAKSHITH UMESH RAI	**4AL16CS075**

Under the Guidance of

Mr.Vivek Sharma

Assistant professor

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

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ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY
MIJAR, MOODBIDRI D.K. -574225, KARNATAKA

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CERTIFICATE

This is to certify that the project entitled **"MODIFIED U-NET MODELS FOR COARSE TUMOR SEGMENTATION"** has been successfully completed by

PAVAN KAMATH	**4AL16CS062**
PRASANNA	**4AL16CS068**
RAKESH KOTIAN	**4AL16CS072**
RAKSHITH UMESH RAI	**4AL16CS075**

the bonafide students of **DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**, **ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2019–2020. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

Mr. Vivek Sharma	**Dr. Manjunath Kotari**	**Dr. Peter Fernandes**
Project Guide	**Head of the department**	**Principal**

External Viva

Name of the Examiners   **Signature with Date**

1. HEMANTH KUMAR N P

2. Dr. S. Mohideen Badhusha

ABSTRACT

The typical use of convolutional networks is on classification tasks, where the output to an image is a single class label. However, in many visual tasks, especially in biomedical image processing, the desired output should include localization, a class label is supposed to be assigned to each pixel. Moreover, thousands of training images are usually beyond reach in biomedical tasks. The resulting network U-net is applicable to various biomedical segmentation problems. U-net is a state of architecture which is used for biomedical image segmentation.It consists of contracting path and a expanding path. As the unet architecture goes deeper vanishing gradient problem occurs which affects the context and the precise localization resulting in poor segmenation results. In this project two architectures are proposed named U-net+Resnet and Unet+Densenet.The proposed models involves the fusion of residual blocks and dense blocks to u-net architecture.By using resnet blocks in the contracting and expanding part of u-net the network can be essentially deeper and by using denseblocks in the contracting part of u-net the feature-maps of all preceding layers are used as inputs, and its own feature-maps are used as inputs into all subsequent layers.The modified architectures have several advantages as compared to unet as network goes deeper they lighten the vanishing-gradient problems,encourage feature reuse which results in good segmentation accuracy.The modified u-net architectures are eveluted on coarse breast tumor datasets.The modified u-net architectures obtain good improvements than the existing u-net architecture.