**Image colorization**



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CERTIFICATE

*Certified that the Seminar entitled*

*“***Image colorization”**

*is a bonafide work carried out by*

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*in partial fulfillment of the requirements for the award of*

***Bachelor of Engineering Degree*** *in* **Computer Science &** **Engineering**

*prescribed b*y **Visvesvaraya Technological University, Belgaum**

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*It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library.*

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**ABSTRACT**

We present a convolutional-neural-network-based system that faithfully colorizes black and white photographic images without direct human assistance. We explore various network architectures, objectives, color spaces, and problem formulations. The final classification-based model we build generates colorized images that are significantly more aesthetically-pleasing than those created by the baseline regression-based model, demonstrating the viability of our methodology and revealing promising avenues for future work.

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**CHAPTER 1**

**INTRODUCTION**

## GENERAL

Automated colorization of black and white images has been subject to much research within the computer vision and machine learning communities. Beyond simply being fascinating from an aesthetics and artificial intelligence perspective, such capability has broad practical applications ranging from video restoration to image enhancement for improved interpretability. Here, we take a statistical-learning-driven approach towards solving this problem. We design and build a convolutional neural network (CNN) that accepts a black-and-white image as an input and generates a colorized version of the image as its output; Figure 1 shows an example of such a pair of input and output images. The system generates its output based solely on images it has “learned from” in the past, with no further human intervention.

## AIM OF PRESENT STUDY

The study aims at colorizing the black and white images using CNN.

## METHODOLOGY

The key techniques of the proposed method include:

1. EEG data acquisition.
2. Feature extraction.
3. Visualization.
4. Using ensemble or deep learning methods.

## ORGANIZATION OF CHAPTERS

The report has been organized under five chapters, which are as follows:

**Chapter I** introduces the main purpose and gives a concise explanation about the objective and methodology.

**Chapter II** gives a description of concepts EEG, ensemble, deep learning.

**Chapter III** describes about materials and methodology.

**Chapter IV** involves the discussion of result.

**Chapter V** deals with conclusion and future work.

**CHAPTER 2**

**How the project Solves business problem**

**CHAPTER 3**

**Data overview**



**CHAPTER 4**

**Mapping real world problem to deep learning**



**CHAPTER 3**

**Type of problem**

**CHAPTER 3**

**Performance Metric**

**CHAPTER 3**

**Objective of the network**

**CHAPTER 3**

**Training data and Testing data**

**CHAPTER 3**

**Feature extraction**

**CHAPTER 3**

**Feature Transformation**

**CHAPTER 3**

**Domain Specific**

**CHAPTER 3**

**Understanding the data**

**CHAPTER 3**

**What are the failure cases**

**CHAPTER 3**

**Why did we pick the model**

**CHAPTER 3**

**Implementation and results**