CONTRIVER®**, Mysore**

**Department of product designing and development**

# **INTERNSHIP TRAINING REPORT**

### Submitted in partial fulfilment of the requirements for the certification of

#### 30 days internship training program

**SUBMITTED BY**

#### SHASHANK GOWDA R

**(1DB20CS098)**

#### Under the Guidance of

**Shri. VIJITH A**

**Sr. Design Engineer, Chief operating officer,   
Contriver.**

**Department of product designing and development**

##### M/S CONTRIVER®

**402 B, Mysore Rd, Opp gopalan mall, Rajarajeshwari Nagar,**

**Bengaluru, 560039,**

**Karnataka, India**

**2023 - 2024**

**CONTRIVER®**

**402 B, Mysore Rd, Opp gopalan mall, Rajarajeshwari Nagar, Bengaluru, 560039.**

**Department of Department of product designing and development**

TRAINING CERTIFICATE

# *This is to certify that* ***Sri. SHASHANK GOWDA R(1DB20CS098).*** *bonafide students of* ***DON BOSCO INSTITUTE OF TECHNOLOGY*** *in partial fulfillment for the award of “****Training Certificate****” in* ***Department of product designing and development*** of the ***CONTRIVER, Mysore*** *during the year* 2023-2024. *It is certified that he as undergone internship during the time period from 14/08/2023 to 16/09/2023 of all working days corrections/suggestions indicated for internal validation have been incorporated in the report deposited to the guide and trainer. The training report has been approved as it satisfies the organizational requirements in respect of Internship training prescribed for the said qualification.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Shri. ATHREY S KATTI**  **Bachelor of mechanical engineering.**  **Trainer of PD&D**  **Guide** |  | **Sangeeta A Kambali**  **B.E.**  **Sr. Design Engineer, Chief Assistant data analyst** |  | **Shri. SANJAY B**  **DMT, B.E.**  **Sr. Production Head and Chief Executive Officer** |

**ACKNOWLEDGEMENT**

It is our privilege to express gratitude to all those inspired us and guided to complete the internship-training program. This work has remained incomplete without the direct and indirect help of many people who have guided us in the success of this internship. We are grateful to them.

**Date:**

**Place: Bangalore**

**- SHASHANK GOWDA R**

**RESUME**

**SHASHANK GOWDA R**

**COMPUTER SCIENCE AND ENGINEER**

**CONTACT INFORMATION**

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**OBJECTIVE**

I am passionate about exploring new horizons, constantly learning and adapting to emerging technologies, and eagerly embracing challenges. My goal is to stay at the forefront of innovation and knowledge, actively seeking opportunities that allow me to expand my skill set and tackle complex problems. By doing so, I aim to contribute meaningfully to any organization I work with, ultimately driving progress and success in a rapidly evolving professional landscape.

**ACADEMIC INFORMATION**

***EDUCATION QUALIFICATIONS:***

|  |  |  |  |
| --- | --- | --- | --- |
| **COURSE/EXAM** | **INSTITUTION** | **YEAR OF PASSING** | **MARKS OBTAINED IN %** |
| **B.E. in CSE** | *Don Bosco Institute of Technology, Bangalore.* | *2024* | *90.6* |
| **Pre-University** | *Mangalore Independent PU College, Bangalore.* | *2020* | *90.5* |
| **S.S.L.C** | *Apollo High School, Bangalore* | *2018* | *95.52* |

**INTERNSHIP**

|  |  |
| --- | --- |
| **INTERNSHIP** | *Contriver* |

**COMPUTER SKILLS**

* Packages : MS Office, MS PowerPoint.
* Engineering Tools : Python, C/C++, HTML, CSS, JS, ReactJS, Flask, IoT.

**PROJECT DETAILS**

**ENGINEERING PROJECT: Speech Emotion Recognition.**

**Abstract:** As increasing the number of bike stealing, the vehicle need advanced security system for a bike. The system working is similar to the car fob. The bike is control with a key fob, were ignition and disc break are control.

**PERSONAL STRENGTH**

* Hardworking, dedicated, responsible, self-confident.

**PERSONAL PROFILE**

Name : Shashank Gowda R

Father’s name : L Raja

DOB : 02/06/2002

Marital Status : single

Nationality : Indian

Languages Known : English, Kannada, Hindi.

Personal address : S/O L Raja, #11 Hegganahalli Cross, Sunkadakatte

Bangalore - 560091.

**DECLARATION**

I hereby declare that all the information’s are correct and true to the best of my knowledge and belief.

DATE: Yours Sincerely,

Place: Bangalore

(SHASHANK GOWDA R)

**TAKEAWAY TOPICS FROM TRAINING (4-5 PAGES)**

**TAKEAWAY TOPICS FROM GUEST LECTURER (2-3 PAGES)**

**FEEDBACK/OPINOIN OF THE INTERSHIP (2-3 PARAGRAPH each)**

**Innovative topics/Methods:**

**Industrial significance of the topics:**

**Syllabus/Concepts that can be included/recommended in engineering curriculum (Academics):**

**Area of improvements/Drawbacks in the internship program:**

**Opinion of the internship:**

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**Chapter 1**

**INTRODUCTION**

The goal of the branch of study known as Speech Emotion Recognition (SER) is to identify and analyze the emotional content of human speech. Speech-based emotions, such as happiness, sadness, anger, fear, disgust, surprise, and neutrality, are essential for human interaction and communication. Numerous practical applications, such as in human-computer interaction, customer service, mental health diagnostics, and entertainment, can be made by comprehending and automating the recognition of these emotions.

Traditionally, feature engineering and machine learning algorithms that were created by hand were used in SER. However recent developments in deep learning, especially Recurrent Neural Networks (RNNs) like Long Short-Term Memory (LSTM) networks, have completely changed the area. Deep learning models are ideally suited for SER tasks because they automatically learn essential features from unprocessed audio input.

In this project, we investigate how deep learning, and more specifically, an LSTM-based model, can be used to recognize speech emotions. Creating a model that can precisely categorize audio recordings into predefined emotion categories is the aim. We use a dataset of audio samples that have been labeled with emotional states to accomplish this. Our goal is to use deep learning to identify subtle speech patterns and nuances that are indicative of various emotions.

By the project's conclusion, we hope to show how deep learning works in the SER space and contribute to the creation of systems that can recognize and react to emotional speech through analysis. The sections that follow will give a thorough rundown of our dataset, approach, findings, and discussions surrounding them.

**Motivation:**

One of the most fundamental and adaptable forms of human communication is speech. In addition to words and information, it also carries a complex tapestry of feelings, intentions, and nuance. It's not just fascinating to try to identify and comprehend these emotional cues in speech; it also has a lot of practical relevance and potential. Some of the main reasons for starting this SER project are as follows:

* Human-computer interaction

A greater need for natural and emotionally intelligent human-computer interfaces is emerging in an increasingly digital world. Chatbots and virtual assistants that are emotionally intelligent can engage users in more interesting and sympathetic interactions.

* Enhancing client relations

Analyzing customer interactions is essential for determining issues and understanding customer satisfaction in sectors like customer service and call centers. Speech emotion recognition can assist in automating the process of determining callers' emotional states, leading to quicker problem-solving and improved client experiences.

* The improvement of mental health diagnosis and monitoring:

Emotions play a crucial role in mental health, and keeping track of patients' emotional states can help with early diagnosis and treatment. The use of automated speech analysis can help mental health professionals by giving them more information about a patient's emotional health.

* Personalized entertainment and content:

Real-time comprehension of audience emotions can help in the creation of entertainment and content by enabling the personalization of that content. For instance, altering a video game's plot or a playlist's music choices in response to the player's or listener's emotional state.

* Interaction between humans and machines in autonomous systems

Recognizing the emotional state of users or passengers in autonomous vehicles, robots, and other AI-driven systems can improve safety and user experience. Based on the recognized emotions, autonomous systems can modify their actions or reactions.

**PROBLEM STATEMENT**

Going beyond conventional approaches and utilizing cutting-edge technologies is crucial for enhancing security measures in a variety of security applications, including surveillance, access control, and authentication. Through an analysis of people's spoken words, emotion detection from speech has the potential to provide an additional layer of security.

The main goal of this project is to create an effective emotion detection system that analyzes speech to determine people's emotional states. The system aims to enhance security measures and decision-making in various contexts by understanding and recognizing emotions expressed through speech.

**CHAPTER 2**

**LITERATURE SURVEY**

***[1] Mohammad Amaz Uddin, Mohammad Salah Uddin Chowdury, Mayeen Uddin Khandaker, Nissren Tamam and Abdelmoneim Sulieman.***

Human speech indirectly represents the mental state or emotion of others. The use of Artificial Intelligence (AI)-based techniques may bring revolution in this modern era by recognizing emotion from speech. In this study, we introduced a robust method for emotion recognition from human speech using a well-performed preprocessing technique together with the deep learning-based mixed model consisting of Long Short-Term Memory (LSTM) and Convolutional Neural Network (CNN). About 2800 audio files were extracted from the Toronto Emotional Speech set (TESS) database for this study. A high pass and Savitzky Golay Filter have been used to obtain noise-free as well as smooth audio data. A total of seven types of emotions; Angry, Disgust, Fear, Happy, Neutral, Pleasant-surprise, and Sad were used in this study. Energy, Fundamental frequency, and Mel Frequency Cepstral Coefficient (MFCC) have been used to extract the emotion features, and these features resulted in 97.5% accuracy in the mixed LSTM + CNN model. This mixed model is found to perform better than the usual state-of-the-art models in emotion recognition from speech. It also indicates that this mixed model could be effectively utilized in advanced research dealing with sound processing.

***[2] Leila Kerkeni1, Youssef Serrestou, Mohamed Mbarki, Kosai Raoof, and Mohamed Ali Mahjoub***

In this paper, we compare different approaches for emotion recognition tasks, and we propose an efficient solution based on a combination of these approaches. Recurrent neural network (RNN) classifier is used to classify seven emotions found in the Berlin and Spanish databases. Its performances are compared to Multivariate linear regression (MLR) and Support vector machine (SVM) classifiers. The explored features included: mel frequency cepstrum coefficients (MFCC) and modulation spectral features (MSFs). Finally results for different combinations of the features and on different databases are compared and explained. The overall experimental results reveal that the feature combination of MFCC and MS has the highest accuracy rate on

both the Spanish emotional database using RNN classifier 90,05% and the Berlin emotional database using MLR 82,41%.

***[3] Ruhul Amin Khalil, Edward Jones, Mohammad Inayatullah Babar, Tariq Ullah Jan, Mohammad Haseeb Zafar, and Thamer Alhussain.***

Emotion recognition from speech signals is an important but challenging component of Human-Computer Interaction (HCI). In the literature on speech emotion recognition (SER), many techniques have been utilized to extract emotions from signals, including many well-established speech analysis and classification techniques. Deep Learning techniques have been recently proposed as an alternative to traditional techniques in SER. This paper presents an overview

of Deep Learning techniques and discusses some recent literature where these methods are utilized for speech-based emotion recognition. The review covers databases used, emotions extracted, contributions made toward speech emotion recognition, and limitations related to it.