CS300 - Software Engineering Mini Project

Team Members

Rajath C Aralikkatti 181035 181CO241 7829158425 rajath.181co241@nitk.edu.in Sangeeth S V 181536 181CO246 7907932994 sangeeth.181co246@nitk.edu.in

<u>Topic / Title of the Mini Project</u>

Topic: Computer Vision Based Product Recommender.

Title: Software Engineering Methodologies for Artificial Intelligence.

Abstract

The computer vision-based product recommender aims to use and improve on some of the existing software engineering methodologies in the field of image processing and mobile application development. The android application recommends products based on the pictures taken, using image processing tools, to identify the class of the item and search for it on amazon. The feedback collected from the user is then used to refine the model working in the backend.

<u>Objectives</u>

- 1. Establish a machine learning based image processing model that classifies an item in a picture.
- 2. Integrate this model into an efficient, smooth and scalable mobile application that is sufficiently accurate.

Work Methodology

- 1. Study currently available platforms for developing mobile applications, different machine learning based image-processing techniques and their capabilities and problems/shortcomings.
- 2. Design a functioning prototype of the application taking into account all the requirements and shortcomings.
- 3. Analyze the platform according to the various standards and specify future scope in a research paper. **Timeline**

Serial No.	Deadline	Goal/Objective
1	30 th September, 2020.	Develop initial analysis and requirements document.
2	31 st October, 2020.	Design the partly functional app and analyze the result.
3	End of November.	Improve the application and prepare the paper.

Outcome -

A fully functional application that performs the above tasks with sufficient accuracy and publish a paper, if possible.

<u>References</u>

- [1] S. Amershi *et al.*, "Software Engineering for Machine Learning: A Case Study," *Proc. 2019 IEEE/ACM 41st Int. Conf. Softw. Eng. Softw. Eng. Pract. ICSE-SEIP 2019*, pp. 291–300, 2019.
- [2] L. Chen, F. Yang, and H. Yang, "Image-based Product Recommendation System with CNN," http://cs231n.stanford.edu/reports/2017/pdfs/105.pdf, p. 2015, 2015.
- [3] D. Kang, D. Raghavan, P. Bailis, and M. Zaharia, "Model Assertions for Monitoring and Improving ML Models," http://arxiv.org/abs/2003.01668, 2020.
- [4] S. Bell and K. Bala, "Learning visual similarity for product design with convolutional neural networks," *ACM Trans. Graph.*, vol. 34, no. 4, 2015.
- [5] T. Diethe, T. Borchert, E. Thereska, B. Balle, and N. Lawrence, "Continual Learning in Practice," http://arxiv.org/abs/1903.05202, no. Nips, 2019.