

SANTA CLARA UNIVERSITY
DEPARTMENT OF COMPUTER ENGINEERING

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I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY SUPERVISION BY

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ENTITLED

On the Construction of Matter, or Is There a God Particle?

BE ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND ENGINEERING

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Submitted in partial fulfillment of the requirements
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Bachelor of Science in Computer Science and Engineering
School of Engineering
Santa Clara University

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ABSTRACT

A good abstract is a concise summary (1–2 paragraphs) of the entire project: introduction, problem statement, work accomplished, results, conclusions, and recommendations. When you write the abstract, imagine that the reader will not read anything else, but that you must get your major point across immediately. This requires efficiency of words and phrases. An abstract is written to stand alone, without jargon or reference to figures and tables in the report body.

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Chapter 1

Introduction

1.1 Motivation

This is the introduction to your thesis and should be page number one. The main body of your thesis should be double spaced.

1.2 Solution

Chapter 2

Requirements

2.1 Critical

Bitch you must be smoking crack

2.2 Solution

Chapter 3

Technologies Used

- Hardware
 - Development
 - * Macbook Pro
 - * ThinkPad
 - Application Testing
 - * Iphone 7
 - * ThinkPad with Iphone emulator
- Programming Languages
 - Swift
 - * For iOS Programming
 - Python
 - * For Machine Learning Programming
- IDEs
 - XCode
 - MacVim (or the like)
- APIs
 - TensorFlow

Chapter 4

Design Rationale

We are using a data flow model to increase the speed at which the application will operate. We want the device to recognize when the right moment to take a picture is as fast as possible so that the perfect photo is taken. Because of this, we decided not to have any communication with a server, and instead keep all logic on the local device.

We are using iPhones and the associated iOS devices and software for testing and development because that is what most of our team uses, as well as most of the people we know at Santa Clara University. This will allow for a potentially large alpha testing process during the later stages, as well as eliminating the need to buy iOS phones for beta testing.

Making use of the existing API TensorFlow will allow us to avoid rewriting existing code, saving a lot of time on development.

We will develop the application in XCode with Swift because they are the designated language and editor combination with iOS to make applications. We will use Python to design the machine learning component as it is well documented in coordination with TensorFlow.

Chapter 5

Risk Analysis

Risk	Consequences	Probability	Severity	Impact	Mitigation Strategies
Illness	Portions of development blocked.	.4	5	2	Wash hands and get flu shots.
Insufficient Development Knowledge	The system will not accomplish our goals.	.2	7	1.4	Use online resources and communicate with team members when a roadblock is hit.
Coordination Failure	Components overlooked and unfinished	.15	8	1.2	Keep an organized schedule of due dates and follow the development timeline.
File loss	We lose access to our files.	.05	10	.5	Use GitHub to protect files, and always push to master when updating.

Chapter 6

Ethical Analysis

Before developing our product, there are several ethical scenarios that need to be considered and addressed. First, we must acknowledge internal ethical dilemmas that we may encounter. The first of which is ensuring that every team member has a voice that is heard during the design process. No member of our team should be ignored or blocked from the development process under any circumstances. On the opposite end, no member should be forced to perform a greater amount of work than the rest of the group. The workload should be distributed among team members as evenly as possible. To prevent either of these ethical issues during the design, one solution is to document every necessary next steps as well as all recently completed steps when all members are present, or on an online forum that all members have access to. This will allow all members to be aware of and able to add input to every task, preventing anyone from being blocked from development information. And this will allow all members to see who has done which tasks, so it will be easy to determine if the work load is being divided fairly.

Secondly we must acknowledge external ethical dilemmas that could be pertinent to our product. One of which, is ensuring that our product works for people of all races and genders. We do not want a product that is implicitly racist or sexist due to its code. In order to ensure this is not the case, we plan on having diverse data that incorporates people of all races and genders, as well as test cases that confirm all people will be able to share the same experience while using our product.