

The Many Faces of Microbial Communities

Senior Design
Spring Term Final Report

Thomas Albertine, Michael Phelps

I. ABSTRACT

CONTENTS

I	Abstract	1
II	Introduction	2
III	Original Requirements Document	3
IV	Final Requirements Document	3
V	Design Document	3
VI	Tech Review	3
VII	Blog Posts	3
VIII	Poster	3
IX	Project Documentation	3
X	Learning New Technologies	3
XI	Personal Learning	3
	XI-A Thomas Albertine	3
	XI-B Michael Phelps	3
	Appendix: Essential Code Listings	3
	Appendix: Additional Content	3

II. INTRODUCTION

Our client, Dr. Jenna Lang, a microbiology researcher from University of California Davis requested that we create a tool that she could use to visualize microbial population data as human faces. This tool could potentially help microbiology researchers (as well as those from other fields) find patterns that aren't obvious using existing visualization techniques.

Currently, the standard visualizations are pie charts or heat maps. Unfortunately, Pie charts aren't effective when there are a large number of categories to represent because there are too many slices. Heat maps on the other hand, while still useful to see patterns, do not make proportions between organisms obvious the way pie charts do. Our tool takes advantage of the human brain's ability to recognize and interpret patterns in faces to visualize data, so users can find new patterns that they would normally miss.

Our team consisted of Thomas Albertine and Michael Phelps. We had no formal roles aside from "developer", although generally (but not exclusively) Thomas worked on the backend code, loading data files and

generating models, while Michael worked on the frontend code, connecting the backend to a user interface (henceforth referred to as UI). Our client played a hands off role. We spoke with her early in the project to collect requirements and have contacted her to revisit requirements or to keep her apprised of how the project is going, but she generally gave us a lot of freedom regarding how to proceed.

III. ORIGINAL REQUIREMENTS DOCUMENT

IV. FINAL REQUIREMENTS DOCUMENT

V. DESIGN DOCUMENT

VI. TECH REVIEW

VII. BLOG POSTS

VIII. POSTER

IX. PROJECT DOCUMENTATION

X. LEARNING NEW TECHNOLOGIES

XI. PERSONAL LEARNING

A. Thomas Albertine

B. Michael Phelps

APPENDIX ESSENTIAL CODE LISTINGS

APPENDIX ADDITIONAL CONTENT