

Approach Taken

Using the open source software MakeHuman, we can generate various faces based on numerical parameters.

- Load supported file formats (QIIME OTU)
- Convert file format to parameters for MakeHuman API
- Generate models as Wavefront .obj files
- Present models to user using Qt UI framework



Logos of software used in project

Technologies Used

- MakeHuman (open source 3D model generation software)
- Python 2.6 (general purpose programming language)
- Qt (cross platform gui toolkit)
- Wavefront .obj (geometry definition file format)

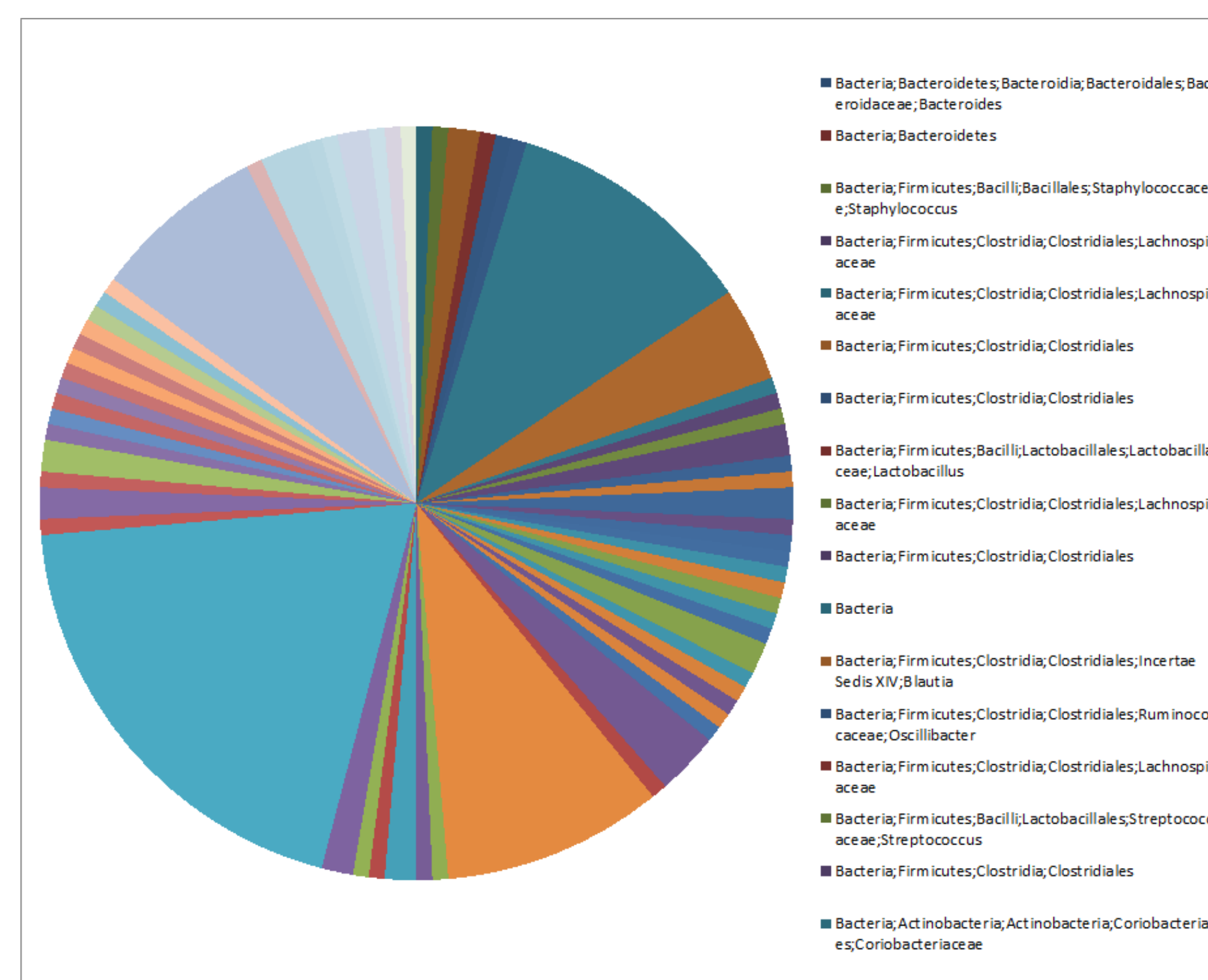
MICROBIAL FACIAL VISUALIZATIONS

The Many Faces of Microbial Communities

Problem Description

Current visualization technologies for population data is unintuitive when attempting to find patterns between samples.

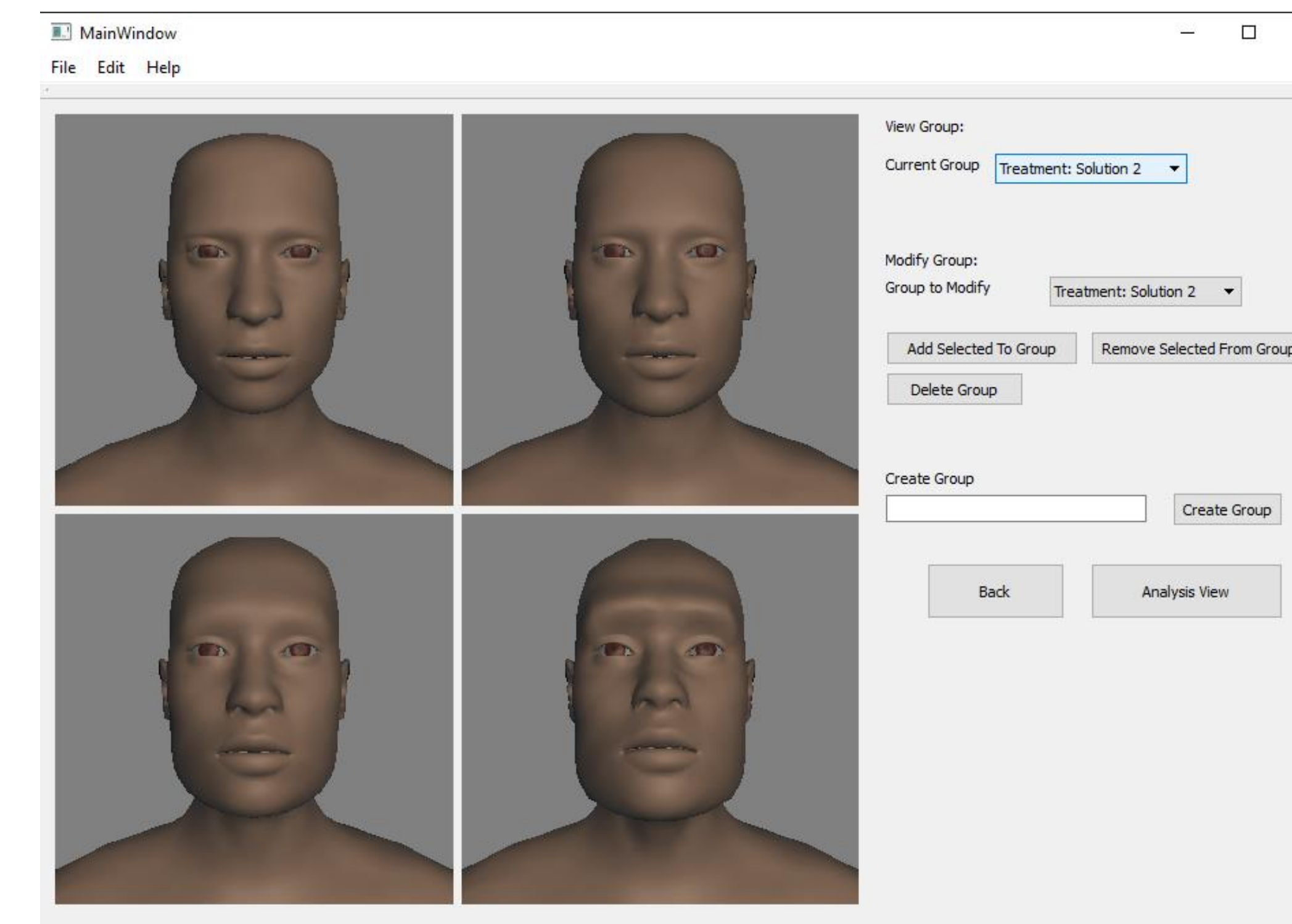
- Makes scientists jobs more difficult
- Bar charts and pie charts do not lend themselves to easy comparison for large data sets



A bar chart of sample microbial data

Proposed Solution

- The human brain has a special section just for recognizing faces
- We can harness this by generating faces that represent sample data
- This allows scientists to find patterns by recognizing them in facial features
- This could potentially open up breakthroughs in microbiology

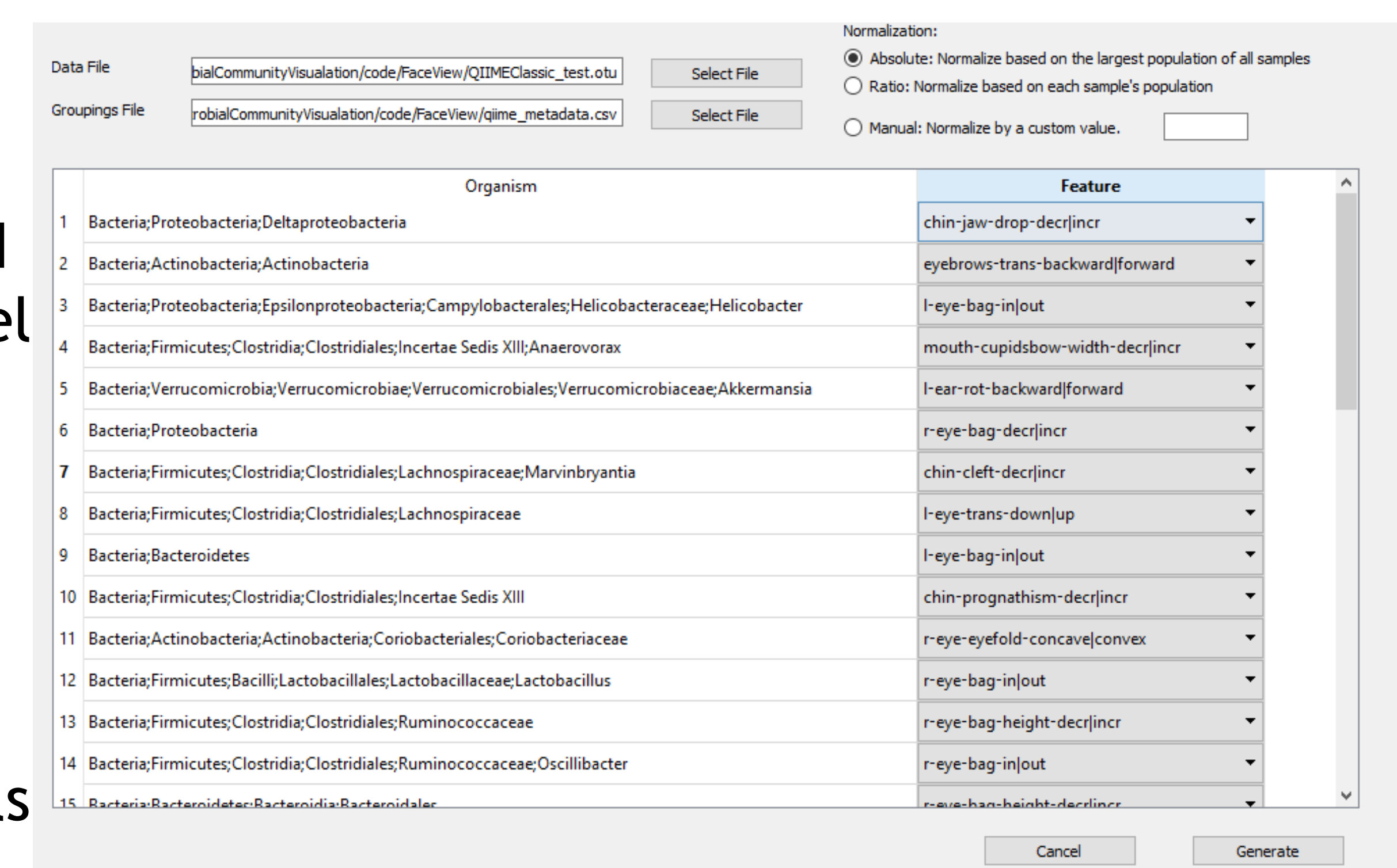


Models generated from sample microbial data

Features

Additional features have been included to allow for easy use and optimal model generation.

- Model generation parameterization
- Sample grouping based on metadata
- QIIME OTU format support
- Rotate, pan, and zoom around models



Selection and grouping tools for larger data sets

PROJECT TEAM #36



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Results and Recommendations

- Our tool can read the data file, and create a visualization representative of that data.
- That visualization is in the form of a face.
- We recommend research into additional ways to visualize large, complex data sets like the population data we were provided.