A Machine Learning approach to Predict Respiratory Rates from ECGs

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In this this README file will outline the the structure of the ecg repository.

Software requirements

Most of the code requires the following software

- python 3.7
- numpy
- pandas
- Scipy
- sklearn
- The ECG package developed in this project
- seaborn
- matplotlib

In order to run the neural Net (NN_2.ipynb)

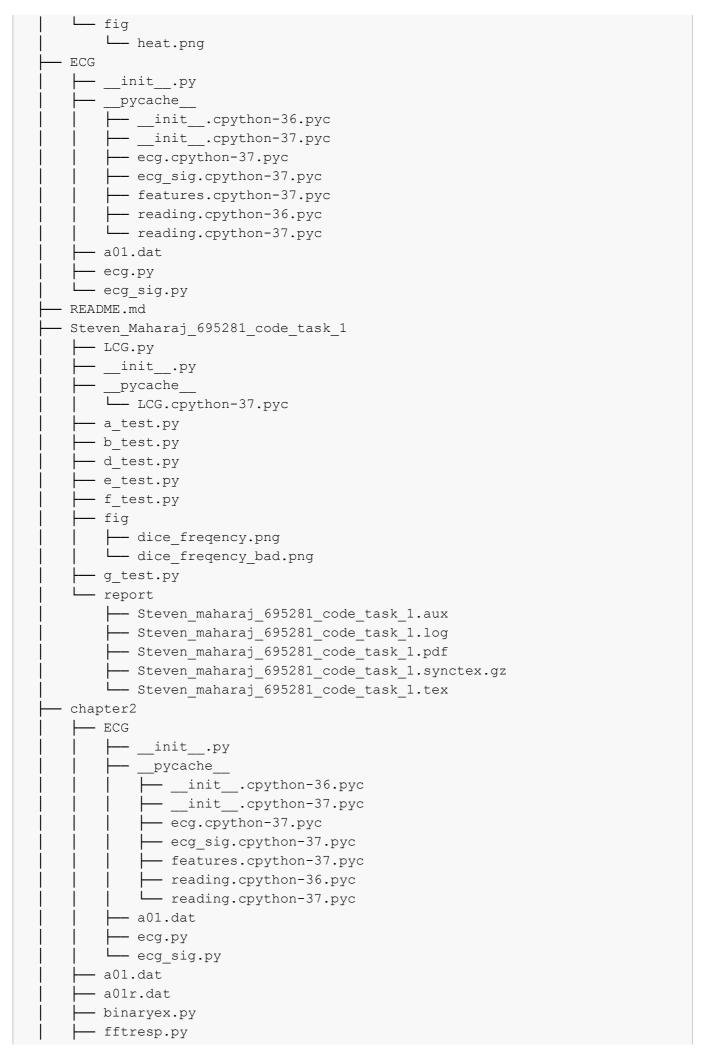
• Tensorflow 2.0 (CPU version)

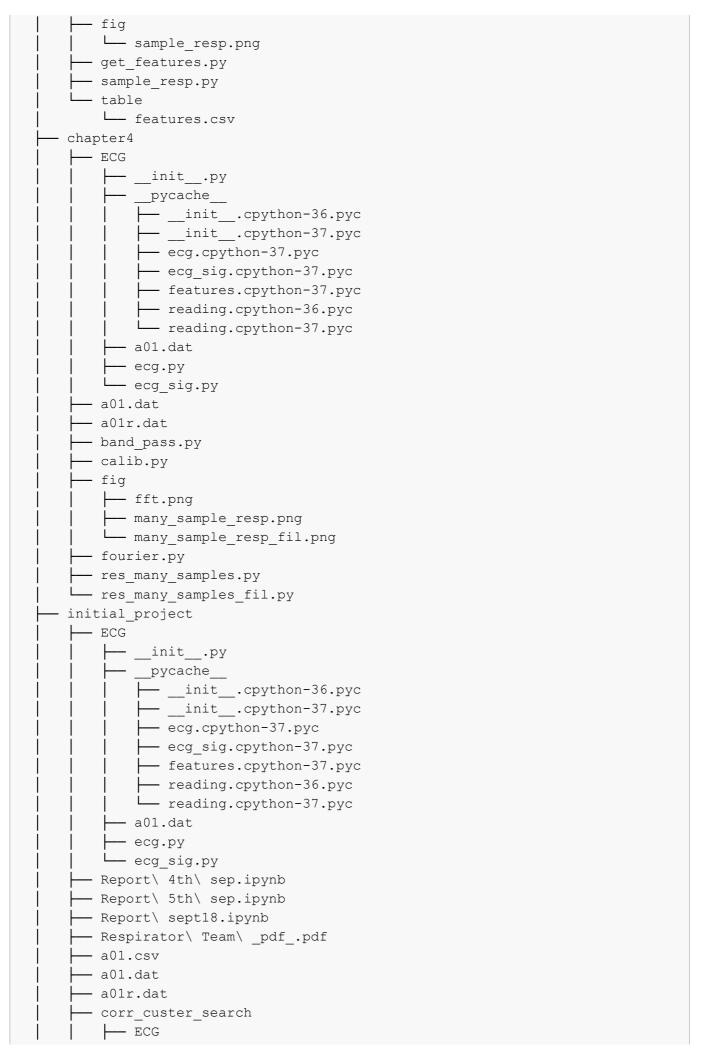
In order to run the web applications (ECG and Resp)

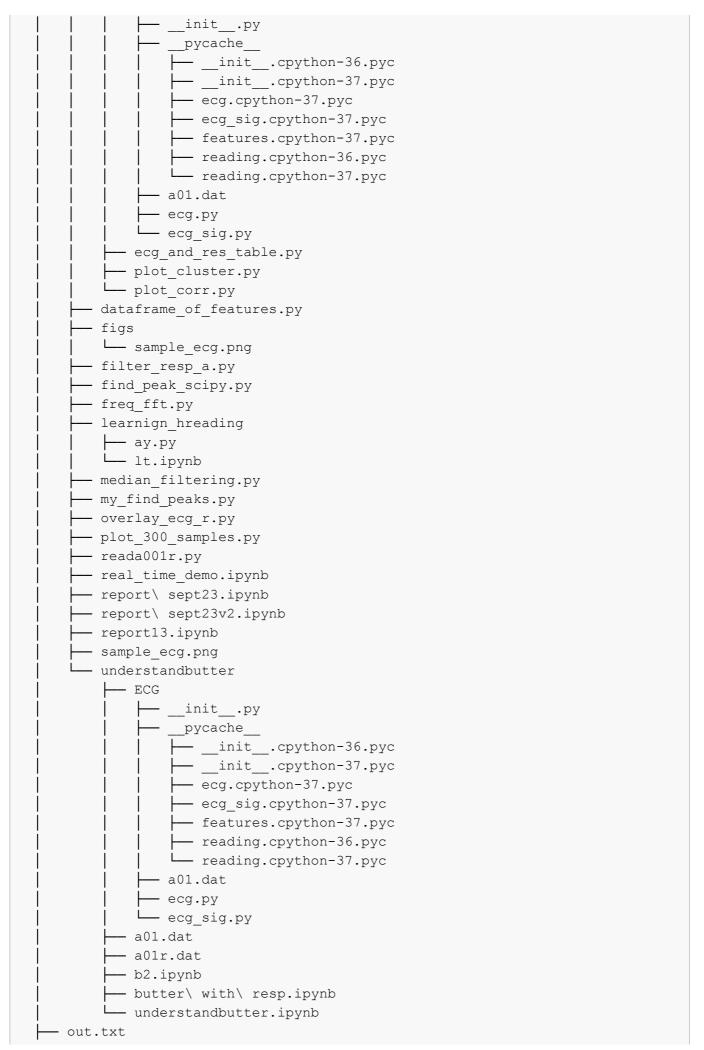
- plotly
- dash

File Structure

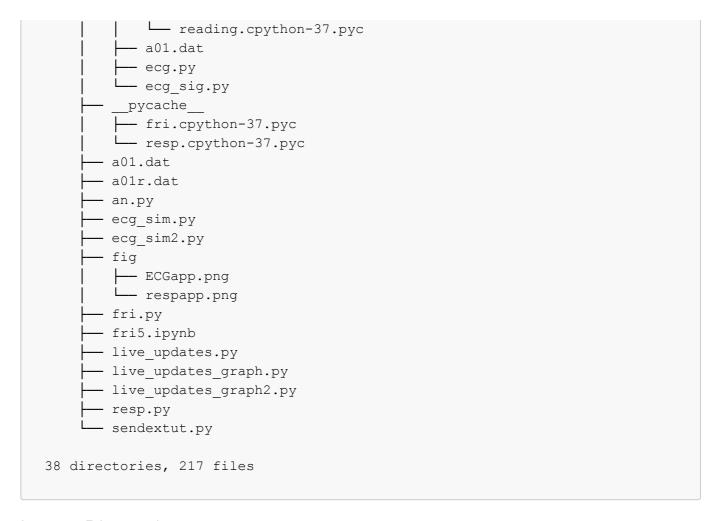












Import Directories

- ECG The ECG package Documentation is self-contained
- A1 contains the code for heat map correlations. Appendix A of the report.
- Chapter 2 The code used to generate all figures, tables and results from chapter 2.
 - binaryex.py read binary data
 - o get_features.py example of getting features
- Chapter 4 The code used to generate all figures, tables and results from chapter 4.
 - fourier.py Fourier analysis
 - re_many_samples.py plot respiratory data
 - o re_many_samples_fil.py plot filtered respiratory data
- initial_project Code for first month of project. It shows basic examples and tests
- predictions Code for machine learing algorthims.
 - 18oct.ipynb Data preprocessing
 - fit_model.ipynb Fitting the SVM, Random forest and elestic net.
 - NN_2.ipynb Fitting neural net.
 - grid_search.ipynb Grid search
- simulate_real_ecg contains web applications.

- fri.py ECG app
- resp.py Respiratory app

• Steven_Maharaj_695281_code_task_1 - Random number generator assignment.