

Least Squares Curve Fit

This repository features a C++ and Python implementation of the least squares curve fitting technique.

Installation

Assuming that you have the [GCC Compiler \(https://gcc.gnu.org/install/binaries.html\)](https://gcc.gnu.org/install/binaries.html) g++ installed, take the following steps to install the application:

```
git clone https://github.com/N02870941/least_squares_curve_fit.git
cd least_squares_curve_fit
./install.sh
```

Uninstallation

Assuming that you are in the `least_squares_curve_fit` root directory:

```
./uninstall.sh
```

Starting the application

After installing the application, you may follow the following steps:

```
cd src/py
python3 main.py
```

User Interface

The Graphical User Interface (GUI) is written in *Python*, using the [Tkinter \(https://docs.python.org/2/library/tkinter.html\)](https://docs.python.org/2/library/tkinter.html) and [Matplotlib \(http://matplotlib.org/\)](http://matplotlib.org/) libraries. I chose to write the UI in Python for simplicity and for the purpose of faster development. A sample photo of the general output of the program follows:



Data Model / Calculations

All of the functions that do the least squares calculations are written in *C++*, and are in the source code. This way, you can step through each phase of the process of the [least squares \(https://en.wikipedia.org/wiki/Least_squares\)](https://en.wikipedia.org/wiki/Least_squares) algorithm. I am sure that there are libraries out there that can do this better, but I did it myself for fun and because it is a good exercise to know what is going on under the hood.