End report

Developing a non public research software for public use

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Background

- Based on a summer job at LUT MAFY
- easyLEED is for extracting intensity-energy spectra from LEED patterns
- Written in Python
- Originally created by Andreas Mayer

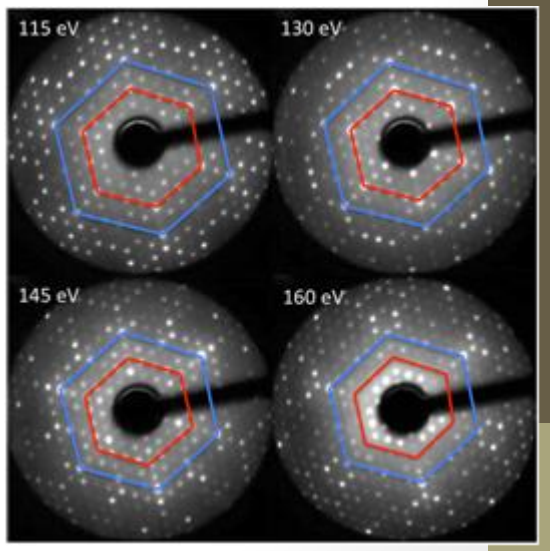
Objectives

- easyLEED usable for laymen
- Plotting spectra within the program
- User friendly UI (quick access toolbars etc.)
- Documentation
- Smart installation

- Avoid screwing up the original code

LEED research

- Experimental method to infer characteristics about the atomistic structure of surfaces
- Electrons are accilerated in the direction of the sample and are diffracted by it
- Different acceleration voltages and beam energies used
- Spectra tells the position of individual atoms in the surface



Python & Qt

- Python is dynamic OOP language
- Qt Developed by Nokia Qt Development Frameworks
- Integrated to Python through PyQt

- Both have open source license
- Multi-platform

Methods of resolution

Usability and maintainability improvement

- Continue using Python and Qt
- Maplotlib library for plotting
- Menu
- Tutorial
- Documentation
- Executable file

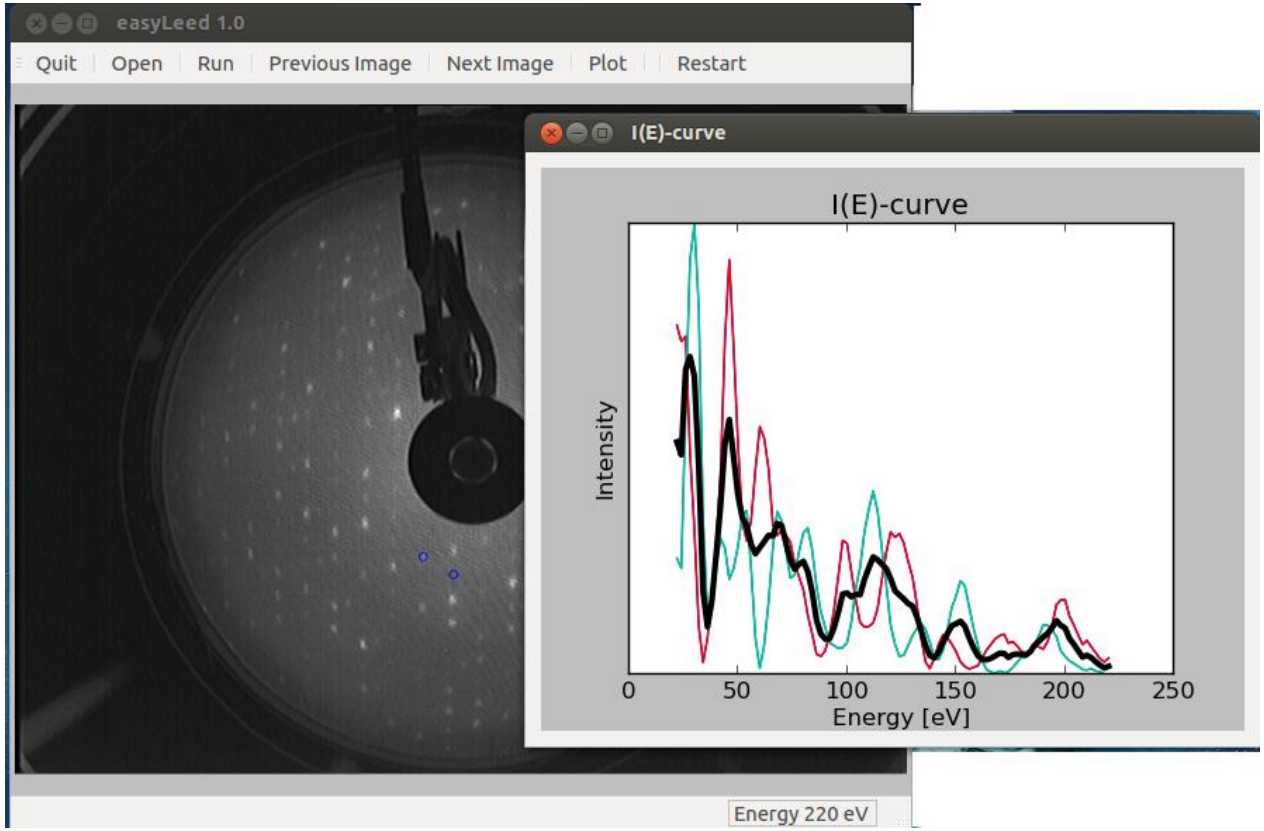
Resolution

The following features were added to easyLEED:

- plotting the intensities and the average of the intensities
- widget for selecting plotting method
- quick access toolbar
- exporting the plot as PDF file
- exporting/importing the initial spot locations
- widget for setting tracking parameters

Resolution

- Plotting intensities & the average intensity



Analysis

- Initial requirements done, some additional ones
- Future work:

  - manual follow

  - improved tracking algorithm -> not really useful without

  - make available online

- Not managed to get an opinion from employer yet due to holiday