Infra Red Informatics Software

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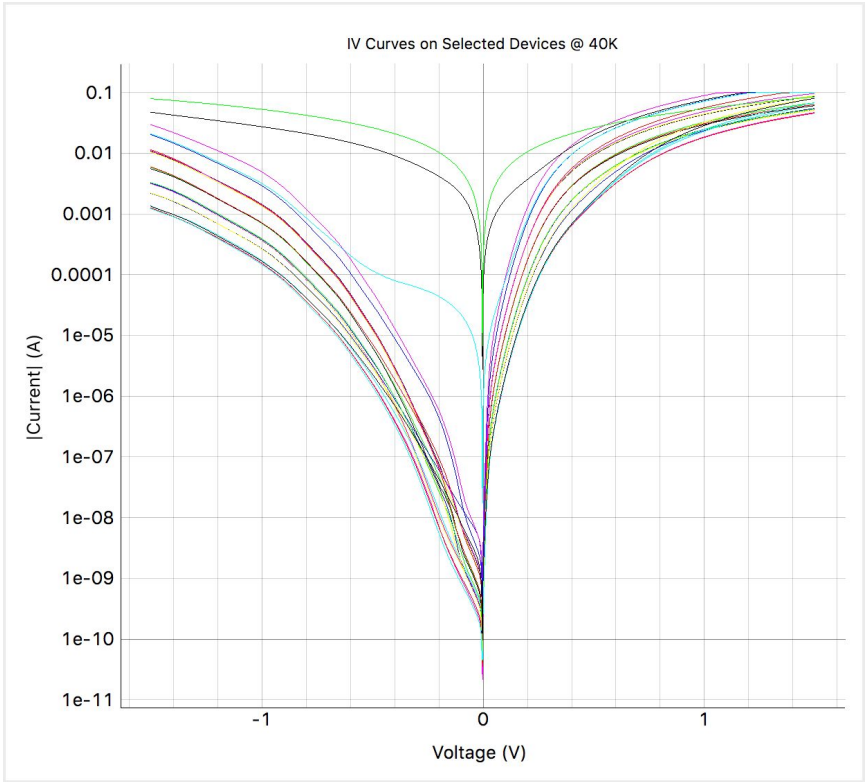
Background

- Research of infrared photodetectors
- Quality analysis
- Dark Current is a cost
  - Dark Current = $f(\text{temperature}, \text{size}, \text{bias})$
- Raw data: current-voltage curves
- Less Dark Current = better devices



Specifications

Create a program that can/is:

- Process the input data thoroughly
- Display processed data elegantly
- Download processed data quickly
- Easy to learn
- Easy to deploy

General Instructions

1. Input the IV data and device size/layout files
2. (Optional)
    a. Opt to download plot graph data and select location
    b. Select extra voltages to be observed (default: ±0.1 V)
    c. Configure low/high threshold filters
3. Click ‘Generate Analysis’
4. Navigate the graphs with the plot type, temperature, voltage, device selection buttons.
5. (Optional) Download data for specific graphs as .csv/.txt

Demo

How It Works

- Iris.py (1200 lines of code)
  - Constructs the window and its widgets
  - Handles all of the button triggers and selections
  - Displays the data accordingly
- Trials.py (150 lines of code)
  - Creates the data structures that store and process the IV data
- Utils.py (100 lines of code)
  - Various methods to assist the program

What’s Next

- Scalable features
  - Documentation for new developers to understand how features are implemented
- Code optimization
  - Data structures can be reorganized
  - Iris.py can be split into smaller files
- Add UI style
  - PyQt library comes with CSS formatter

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