# Lab 3: Strain Guage

Wesley Soo-Hoo

September 18, 2019

**Abstract**

In this lab, a strain gauge was created using a Wheatstone bridge. Calibration measurements were taking using known masses and one unknown mass was measured, which will be calculated by using a linear regression of the calibration data.

## 1 Hardware Setup

Insert description of hardware Setup

## 2 Data

### 2.1 Raw Data

Insert table for raw data

Table 1: Raw Calibration Data

| **Mass (g)** | **Voltage (V)** |
|---|---|
| 0 | 0.001 |
| 8.7 | 0.051 |
| 20.4 | 0.092 |
| 47.3 | 0.16 |
| 72.1 | 0.25 |

### 2.2 Data Analysis

Insert Data Analysis section here

$$A_{out} = A_{in}\frac{B_2}{B_1} \tag{1}$$

If you want to get fancy, you can align multiple lines of math, e.g.

$$A^2 + B^2 = C^2 \tag{2}$$

$$\frac{C}{2D} = E_1E_2E_3 \tag{3}$$

$$\left(\pi\frac{y+x^2}{\sqrt{\sin(\theta)}}\right) = \text{something magical} \tag{4}$$

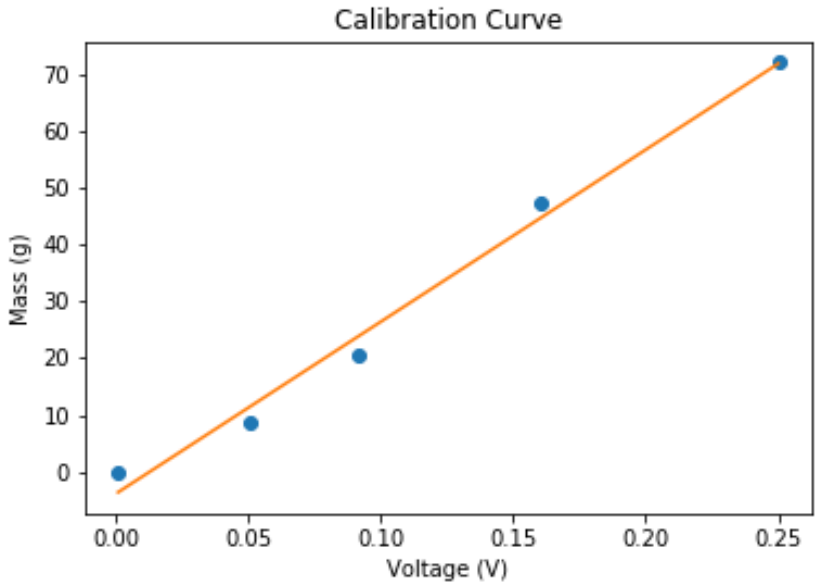


Figure 1: Graph of the calibration data including the line of best fit

## 3 Other Useful Features

Another fun thing you can do in LaTeX is lists.
For example, here are some random syntax tips:

- To create quotes correctly, use backticks for the opening quote: “this is in quotes”
- To write special characters as text, try adding a backslash in front of the character, e.g. $

You can also create numbered lists. Here are some useful resources when trying to learn LaTeX:

1. To find the LaTeX command for an unknown symbol, use Detexify!
2. A great general resource is ShareLaTeX’s learning site
3. For more than you’d ever want to know about LaTeX, check out the LaTeX Wikibook

You can also make tables, although it’s a bit of a pain. Two useful resources for tables in LaTeX are tablesgenerator.com and the ShareLaTeX page on tables. Your mileage may vary, but you can reference Table 2 below as an example.

Table 2: NINJA Office Hours

| | **Sun** | **Mon** | **Tue** | **Wed** | **Thu** | **Fri** | **Sat** |
|---|---|---|---|---|---|---|---|
| **6 - 7pm** | Sophia | Jeremy | | | | | Franton |
| **7 - 8pm** | Sophia | Jeremy | Vivien | Annie | Vivien | | Franton |
| **8 - 9pm** | Emma | Vivien | | Emma | | | |
| **9 - 10pm** | Emma | Maggie | Franton | Emma | Maggie | | |
| **10 - 11pm** | Annie | Annie | Prava | Prava | Prava | | |

# 4 Finishing Remarks

With the right packages, you can do anything from tables to subfigures to bibliographies. Like almost everything else, you can find out a lot about using LaTeXby searching online.