**Objective:**

To determine the production stages of ancient stone tools using automated measurements taken of experimental microdebitage.

**Goals:**

To create a model that will accurately determine the production stage that an ancient stone tool was undergoing based off the features of the microdebitage left behind.

**Roles:**

Project Manager – Rodrigo / Luke

Scribe – Kimi / Jose

**Describe the dataset(s), data acquisition, and data preparation:**

We received data for three different stone tools in the form of Excel files via Box (file sharing platform). The Excel files contain features about the physical properties of the microdebitage and each file contains data for each stage of the tool. In preparing the data, we removed features that were the exact same value across all the datasets – values that would make no difference – and removed features that immediately seemed irrelevant to our objective.

**Explain problem space and motivated questions:**

**Problem Space:**

We need to create a machine that can determine what stage of production the stone tool was in based off the microdebitage that was left behind. We plan on creating and tuning different models, testing how they perform based off the data and use the one that works the best for this task. We will be using accuracy and precision to determine which model works best.

**Motivated Questions:**

What features of the microdebitage will be relevant in determining what stage the stone tool was in?

What will be the best supervised model for this dataset?

What hyperparameters will give us the best model?

**Approach and list of tasks:**

1. Download and load the Data
2. Exploratory Data Analysis
3. Try different models and find the best one for our goal
4. Find the best hyperparameters for the model
5. Train our data
6. Make Predictions
7. Print our results