Development of a Java Application to Expedite Microscopy Image Analysis
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**Research Question**
Can the efficacy of current image analysis be improved with the creation of a new Java program?

**Abstract**
Previous modes of image analysis were determined to be unfit for efficient usage in laboratory analysis tasks. Improvements were made upon the Java application created during Summer 2020 FURI, including heightened automation ability, cell counting, and overlayed signal characterization. The precision tools included in the customizable program allow for time efficient and accurate analysis of colorimetric (i.e. horseradish peroxidase) and fluorescence (i.e. immunofluorescence) staining in tissue samples.

**User Interface:** *NEW ASPECTS*

**Image Analysis**
- One way ANOVA
  - Female mice
  - Varying Contra vs. Ipsi Stains
- Control vs Experimental

**Signal Across Samples**
- * Demonstrates significant difference between Ipsi F1 and Contra F1 signal values
  - Sidak’s Multiple Comparison Test (alpha of 0.05).
- ~ demonstrates significant difference between Ipsi F2 and Contra F2 signal values
  - Due to optimal staining & consistent program results

**In Lab Contribution**
- TUNEL, RIPK1, MLKL stains are being completed for continued analysis
- The code is available on GitHub at: [https://github.com/kswizzle67/FuriImageProcessor.git](https://github.com/kswizzle67/FuriImageProcessor.git)
- The code is available for download at kristinhuber.com
- Images gained in future semesters will be analyzed with the application.

**Outlook**
- The code is available on GitHub at: [https://github.com/kswizzle67/FuriImageProcessor.git](https://github.com/kswizzle67/FuriImageProcessor.git)
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**Acknowledgement**
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**References**
- [https://github.com/haraldk/TwelveMonkeys.git](https://github.com/haraldk/TwelveMonkeys.git)
- Java Swing Libraries