Objectives

1. Refine the calibration process for X and Y axes in the processYXaxis() function.
2. Investigate and resolve issues with the calibration process, including data loss and interlacing artifacts.
3. Implement UI updates to enhance control over calibration options.
4. Ensure key image details are preserved during interlacing, calibration, and merging.
5. Collaborate with the team on the implementation of line detection and removal functionality.

Activities

1. **Calibration Investigation:**
    - Checked the processYXaxis() flow and identified potential calibration issues, specifically with interlacing and merging.
    - Commented out the X-axis part to isolate and analyze the Y-axis calibration, finding no issues with the X-axis process.
    - Tested alternative methods (e.g., Median instead of Mean) for pixel reference calculations but reverted due to worse results.
2. **UI Enhancements:**
    - Added options to the control panel for selecting calibration of the Y-axis, X-axis, or both.
    - Introduced a tick box for auto-calibration in the interlacing and merging process, with the default set to "off."
3. **Y-Axis Calibration Testing:**
    - Investigated data loss during calibration and tested a neighbor-based pixel replacement method, which introduced white dots and was ultimately removed.
    - Verified that the Y-axis calibration caused some line loss when applied independently.
4. **Merging Issues Analysis:**
    - Attempted new merging methods to address lost details after calibration but removed changes due to poorer results.
5. **Collaboration and Planning:**
    - Conducted a brief meeting with the team lead to structure the removeDarkLinesSelective and removeDarkLinesSequential functions in a main class for demonstration.

Achievements

1. Confirmed the X-axis calibration is functioning correctly.
2. Updated the UI to provide better control over calibration options, including parameter retention for dual-axis calibration.
3. Enhanced user experience with an auto-calibration tick box for ease of use.
4. Identified root causes of issues in the Y-axis calibration process and discarded unviable methods.
5. Progressed towards structuring the line detection and removal functions for demonstration purposes.

Problems & Solutions

1. **Y-Axis Calibration Issues:**
    - **Problem:** Lines were lost when only the Y-axis calibration was applied.
    - **Solution:** Investigated and ruled out the Median method and neighbor replacement techniques due to poor results; further refinements are needed.
2. **Data Loss in Merged Image:**
    - **Problem:** Key details were lost after merging the calibrated and interlaced image.
    - **Solution:** Tested alternative merging approaches, which were reverted due to degraded output quality; additional investigation required.
3. **Line Detection and Removal Functionality:**
    - **Problem:** Need to structure the functions into a main class for demonstration.
    - **Solution:** Collaborated with the team lead to outline the structure and next steps.
4. **Pixel Reference Calculation Method:**
    - **Problem:** The Median method produced more problematic results than the Mean.
    - **Solution:** Reverted to the Mean method temporarily while exploring better alternatives.