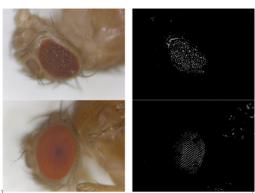
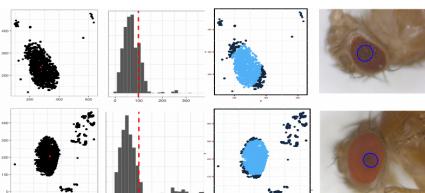


A schematic diagram of our automated image analysis pipeline

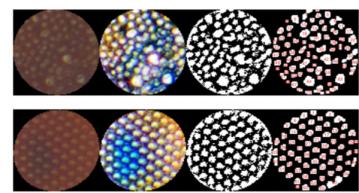
1) White top-hat transformation



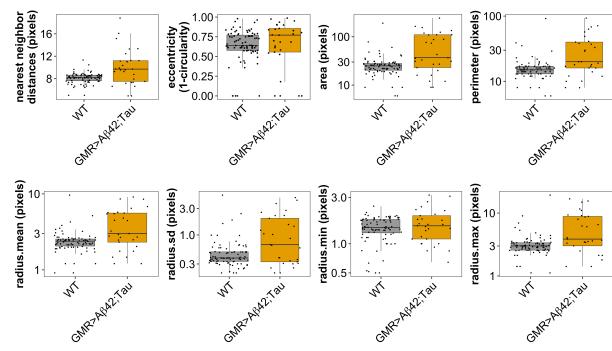
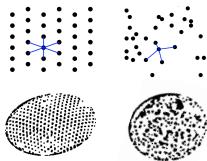
2) Automatic ROI selection



3) Ommatidia detection



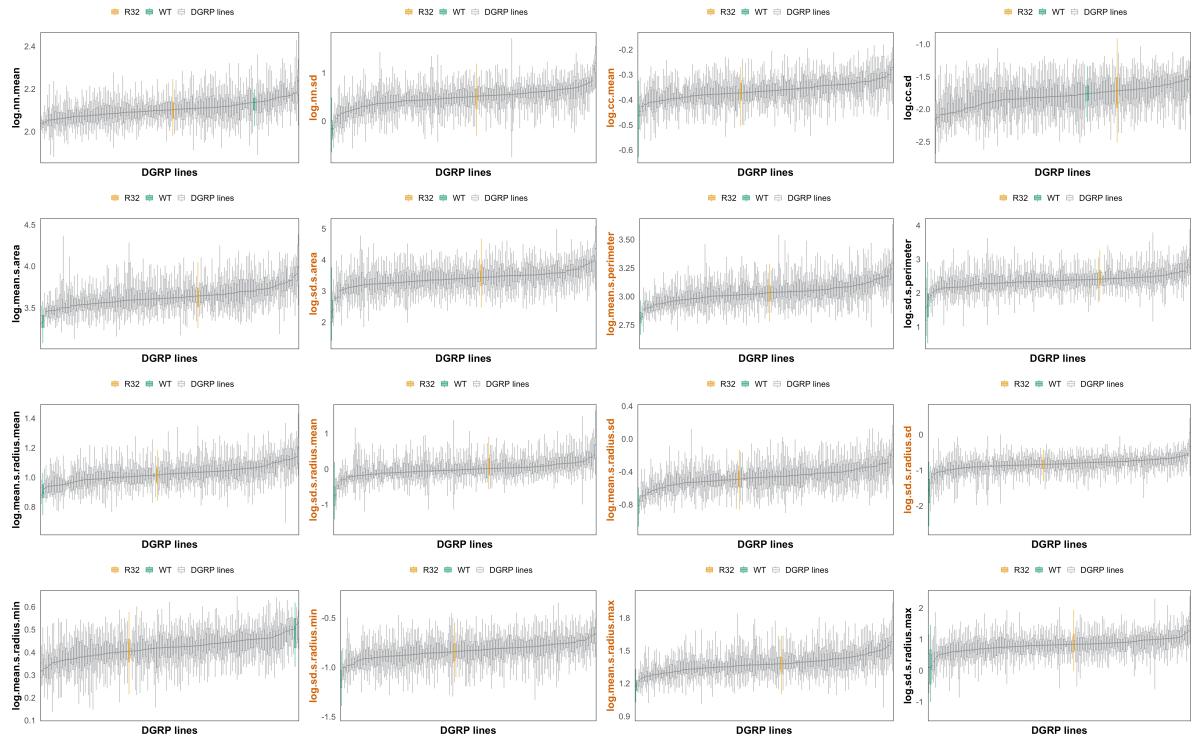
4) Ommatidia measurements and image feature quantification



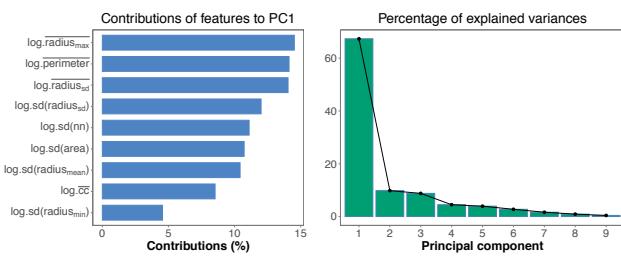
The mean and standard deviation of each measurement distribution are extracted as image features.

5) Feature selection

- Distribution of each of the 16 features across DGRP lines
- Select 9 features which rank control WT as the extreme



6) Principal component analysis (PCA) analysis on the selected 9 features and use PC1 as eye score for each image



7) Ranking DGRP lines based on median eye score

