**Normalizing H&E stained images for histology and separating H and E components of the images :**

**→ Full form of H(HEMOTOXYN) and E(EIOSIN)**

→ Hematoxylin and eosin (H&E) stain is one of the primary tissue stains for histology.

→ This is because H stain makes nuclei easily visible in blue against a pink background of cytoplasm (and other issue regions).

→ This enables a pathologist to easily identify and evaluate the tissue; a highly manual process. For automated image analysis these H&E stained images need to be normalized. This is because of the significant variation in image colors arising from both sample preparation and imaging conditions.

**→** The code used in the video is a python adaptation of original MATLAB code.

The original code can be found here: <https://github.com/mitkovetta/staining-normalization/blob/master/normalizeStaining.m>

**→** A method for normalizing histology slides for quantitative analysis :<http://wwwx.cs.unc.edu/~mn/sites/default/files/macenko2009.pdf>

→ Other useful references: [https://www.ncbi.nlm.nih.gov/pmc/arti...](https://www.youtube.com/redirect?event=video_description&redir_token=QUFFLUhqbVNWUXh5a0FKZUNGbEVPdjZRRmtJQVAwSWxKd3xBQ3Jtc0tuNVdDaTZtM2VXa3liMVlZb1gwSGRJS1lLaWRKV3FaWElzbGc1eU5Ca1dtMzI2WkdfQ1JKNGp3VS1faDZ3V29jeW5WeHl0MTRpb3lCSWE5blBpeG44cHJucDZpdlZlbnozdzFhcHdlaWVqU1Q1ZG1DMA&q=https%3A%2F%2Fwww.ncbi.nlm.nih.gov%2Fpmc%2Farticles%2FPMC5226799%2F) and [https://journals.plos.org/plosone/art...](https://www.youtube.com/redirect?event=video_description&redir_token=QUFFLUhqbDF5LW92Mk5MUVE0clc3ZndiSlo4Z3lnWFZmUXxBQ3Jtc0ttbHpaeUdMaExyRFpXNXFVZGgwN3JBck1nVy1zNXk3U2RHTm1NYkF6R3dpZXJPVlgtLWVkZS0xRUZybTNpaEVwOXpIQ2ZmNlBWdF9pODZFLXpiTG5WMmNwWDRiOXBwaDI2SjNGQVZGWXhzWTROSXhyMA&q=https%3A%2F%2Fjournals.plos.org%2Fplosone%2Farticle%3Fid%3D10.1371%2Fjournal.pone.0169875)