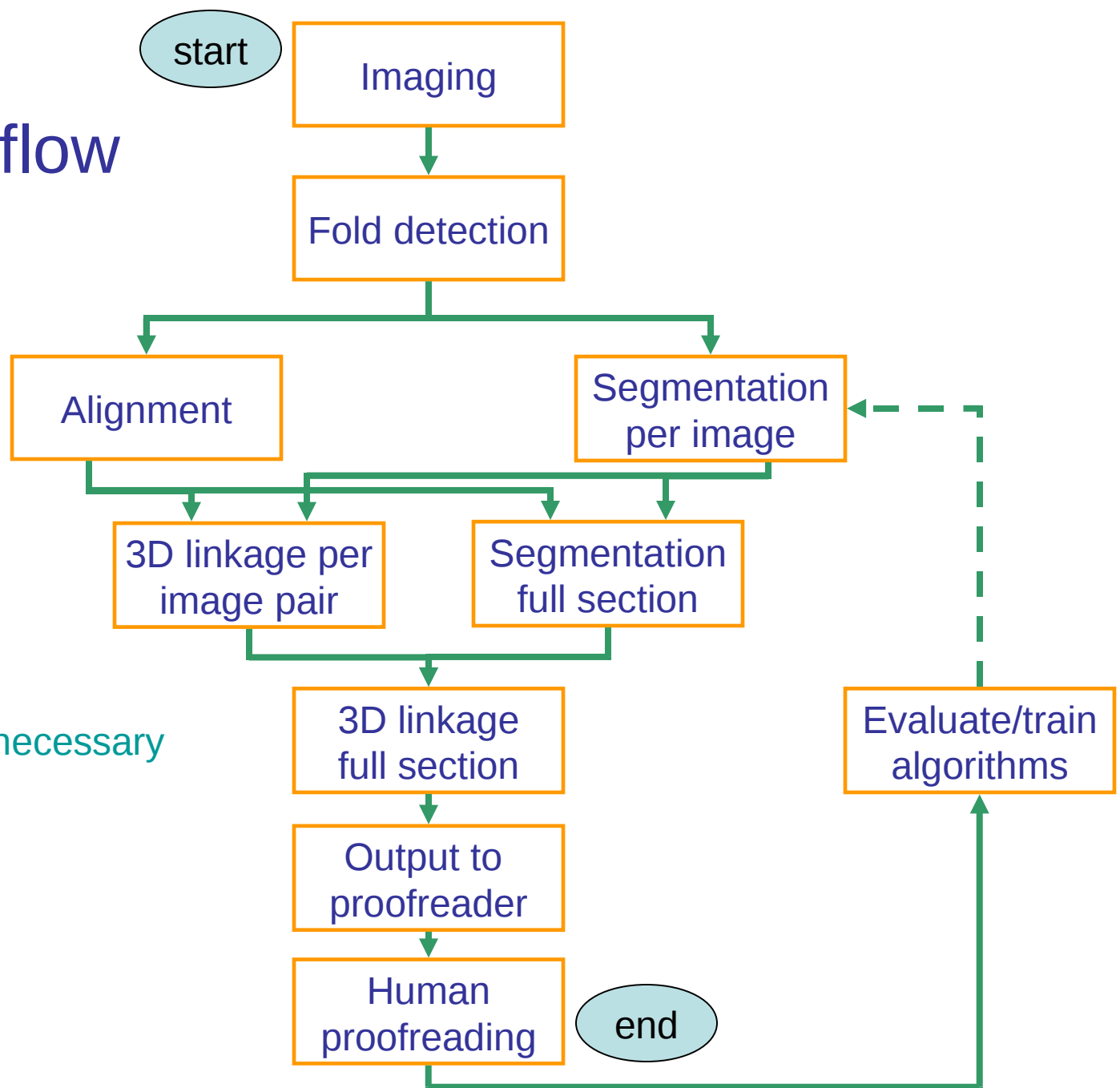# EM Neuronal Reconstruction Pipeline

Chklovskii Lab.,

Janelia Farm Research Campus,

Howard Hughes Medical Institute.
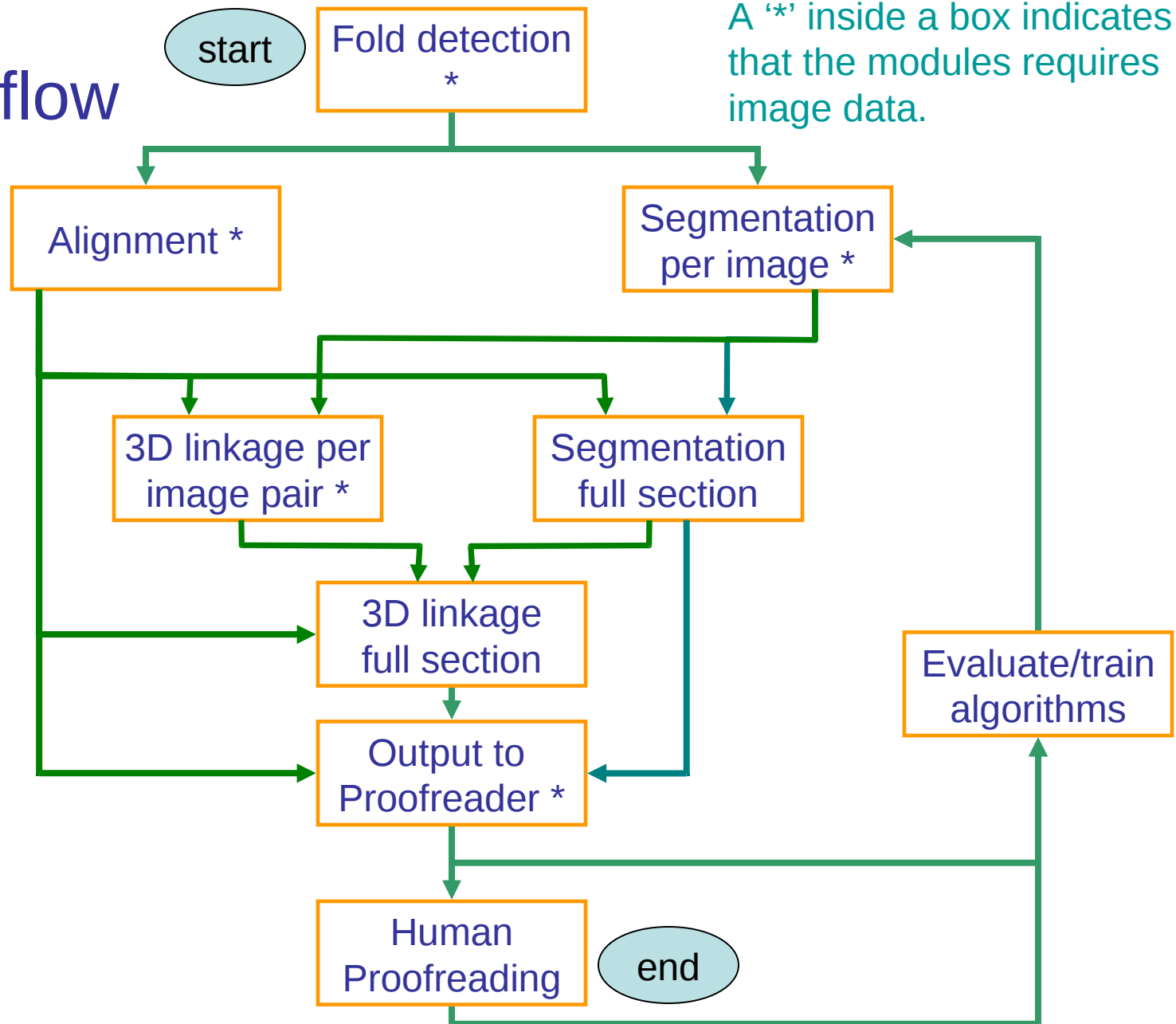
Process flow

start → Imaging → Fold detection

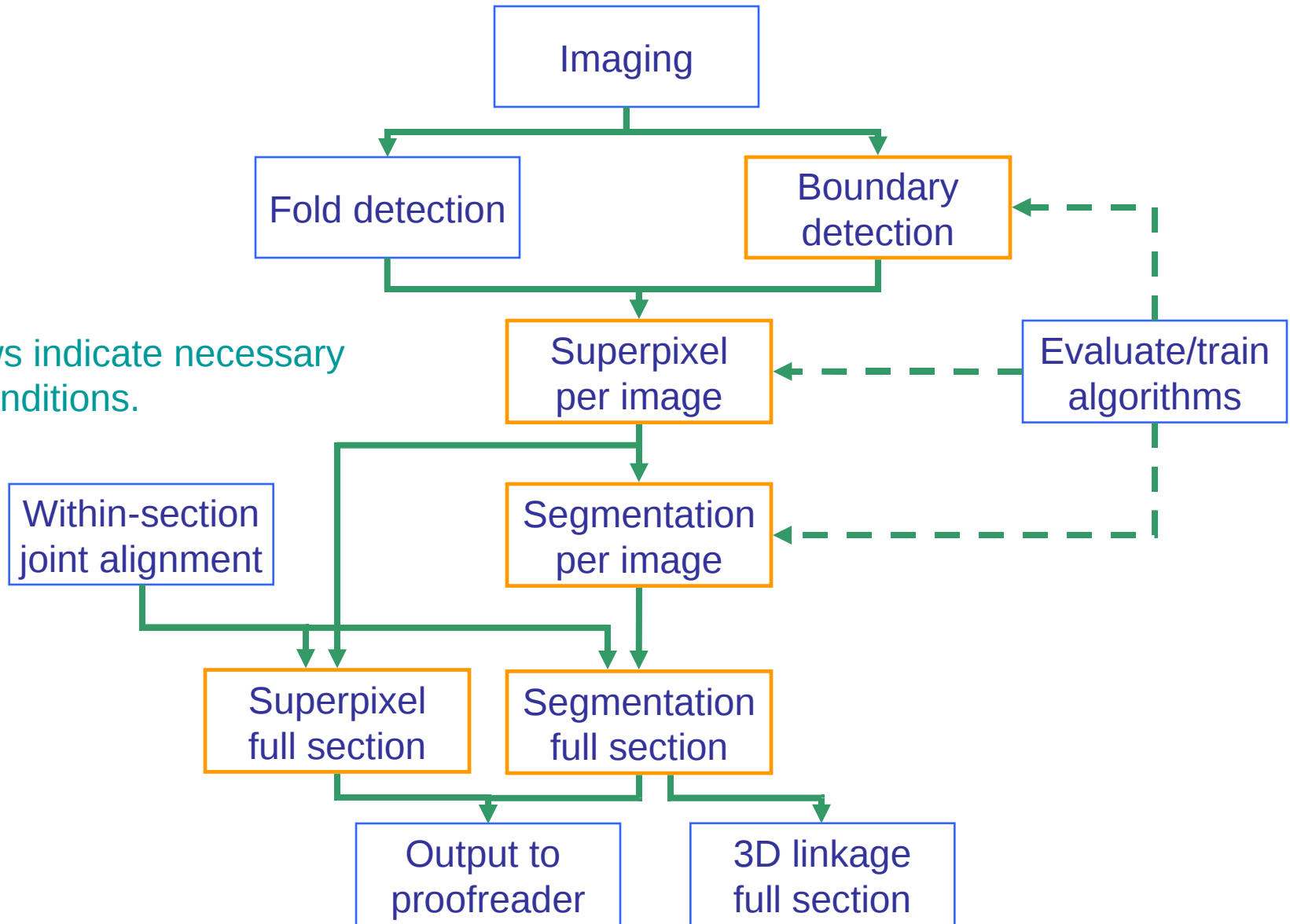Alignment / Segmentation per image

3D linkage per image pair / Segmentation full section

3D linkage full section → Output to proofreader → Human proofreading → end

Evaluate/train algorithms

Arrows indicate necessary preconditions.

Data flow

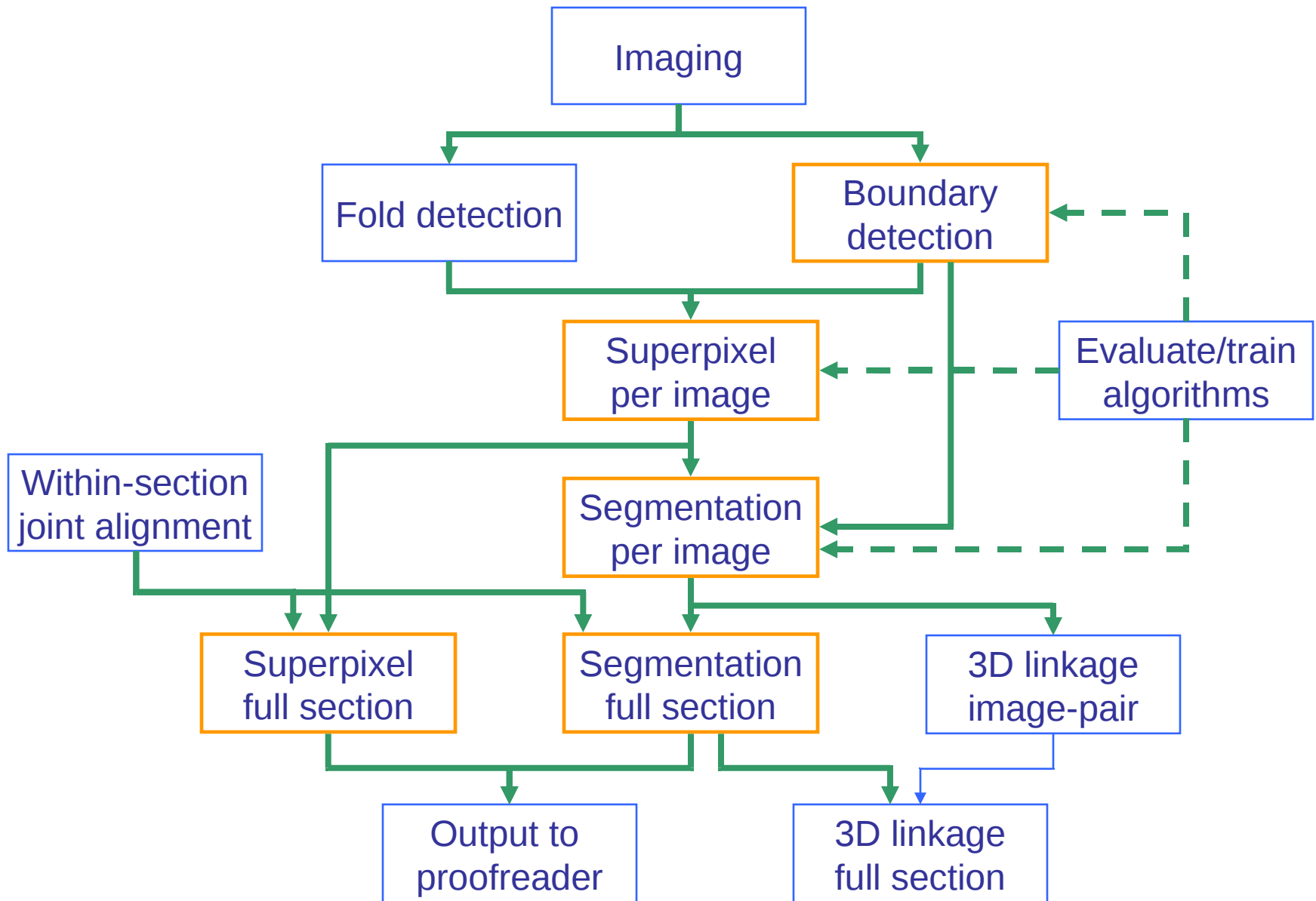A '*' inside a box indicates that the modules requires image data.

- start
- Fold detection *
- Alignment *
- Segmentation per image *
- 3D linkage per image pair *
- Segmentation full section
- 3D linkage full section
- Evaluate/train algorithms
- Output to Proofreader *
- Human Proofreading
- end

Segmentation process flow

Segmentation data flow

Alignment process flow

Fold detection

Within-section
pair-wise alignment

Across-section
pair-wise alignment

Within-section
joint alignment

Full stack
joint alignment
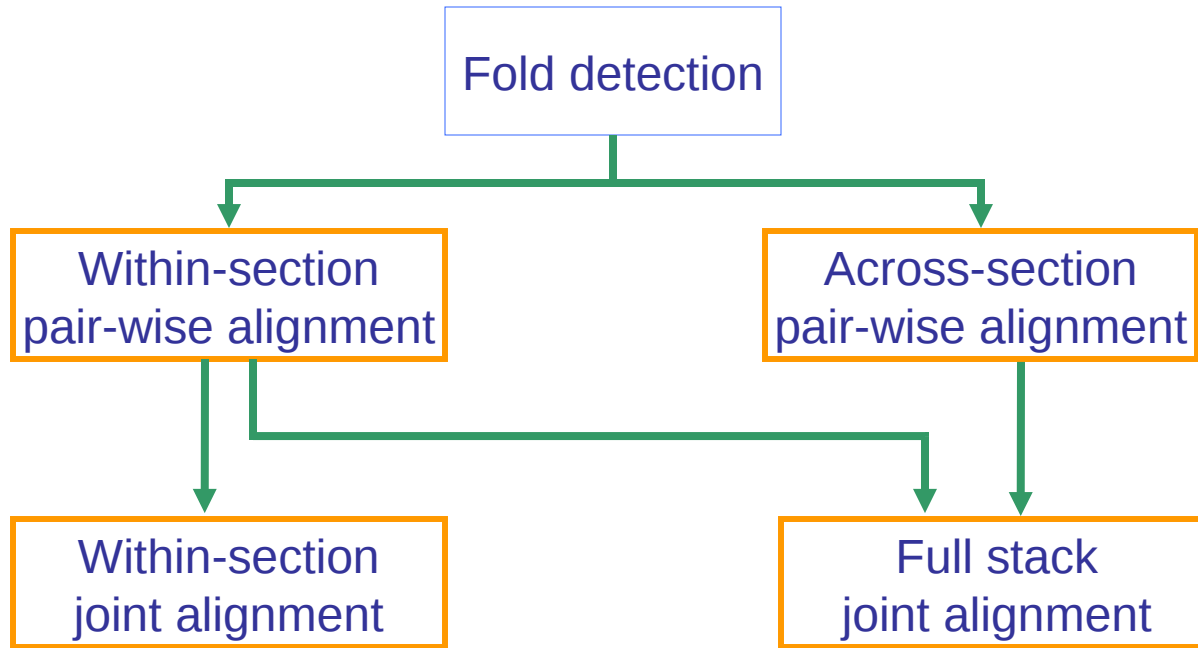
Alignment data flow

Arrows indicate necessary preconditions.

Fold detection
*

Within-section *
pair-wise alignment

Across-section *
pair-wise alignment

Within-section
joint alignment

Full stack
joint alignment

Segmentation
full section

3D linkage
full section

Output to
proofreader

3D linkage per
image pair
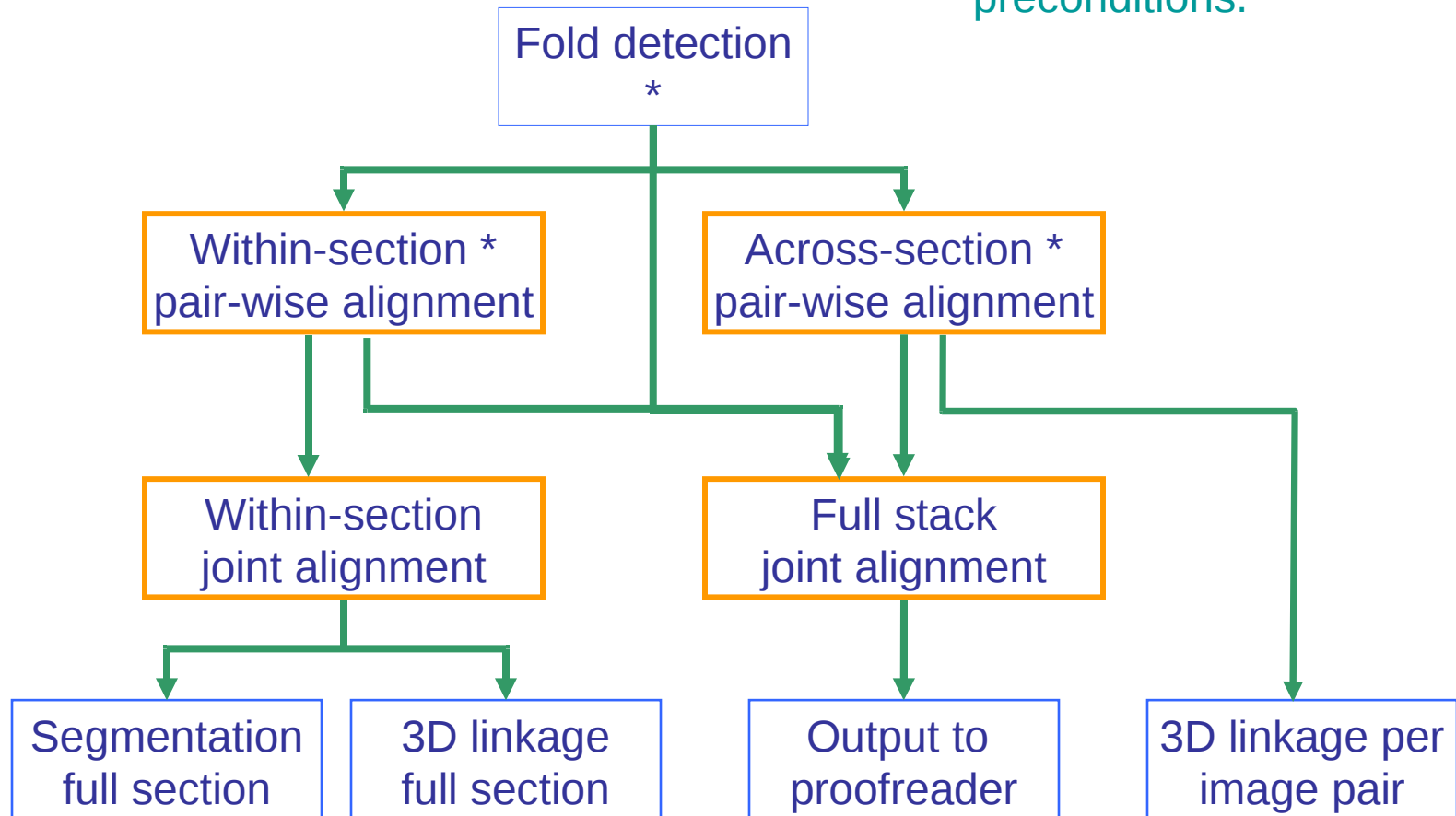
3D linkage process & data flow

Output to proofreader
- process and data flow

Full stack joint alignment

Imaging

Stitched images

Superpixel full section

Segmentation full section

3D linkage full section

Output to proofreader

Evaluate/train algorithms

Human proofreading
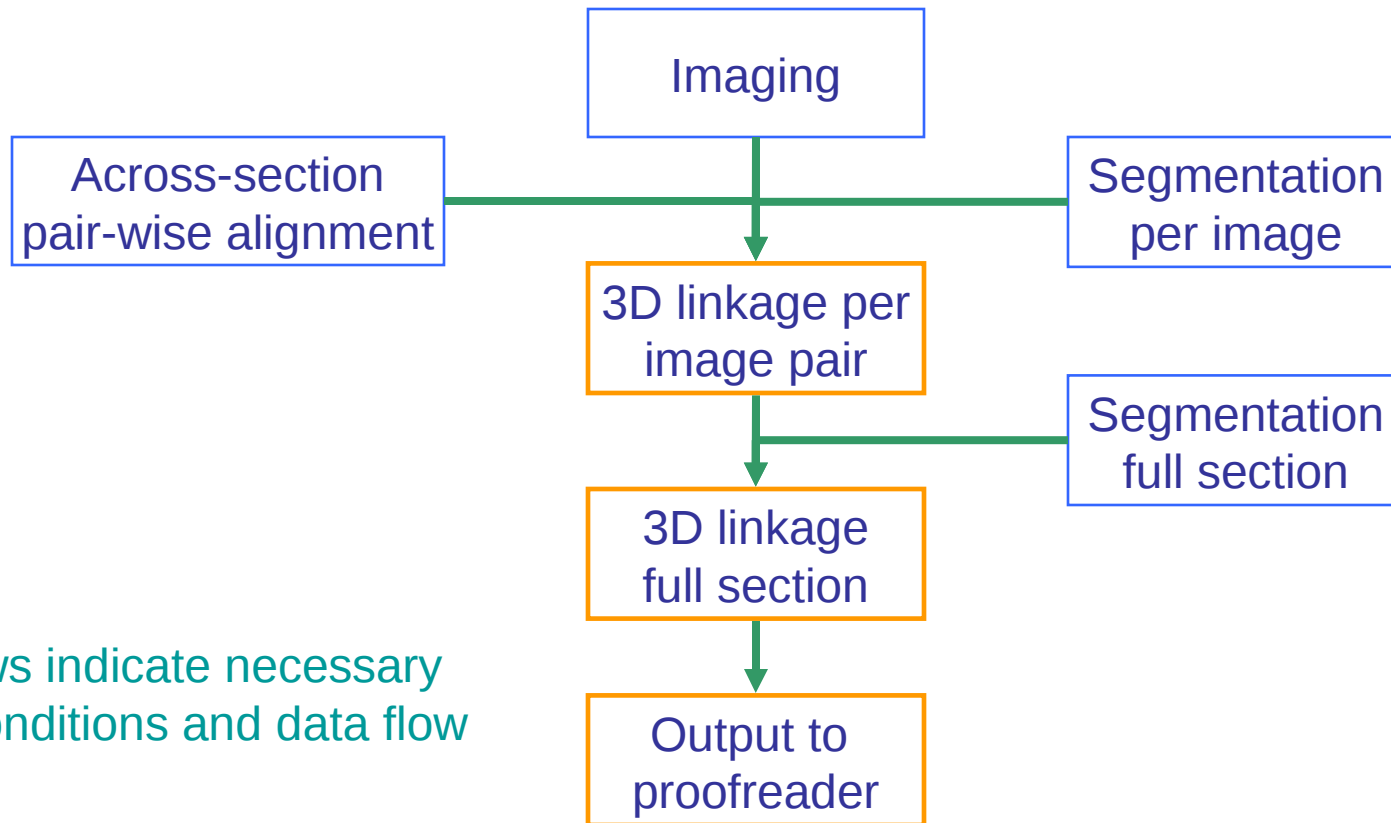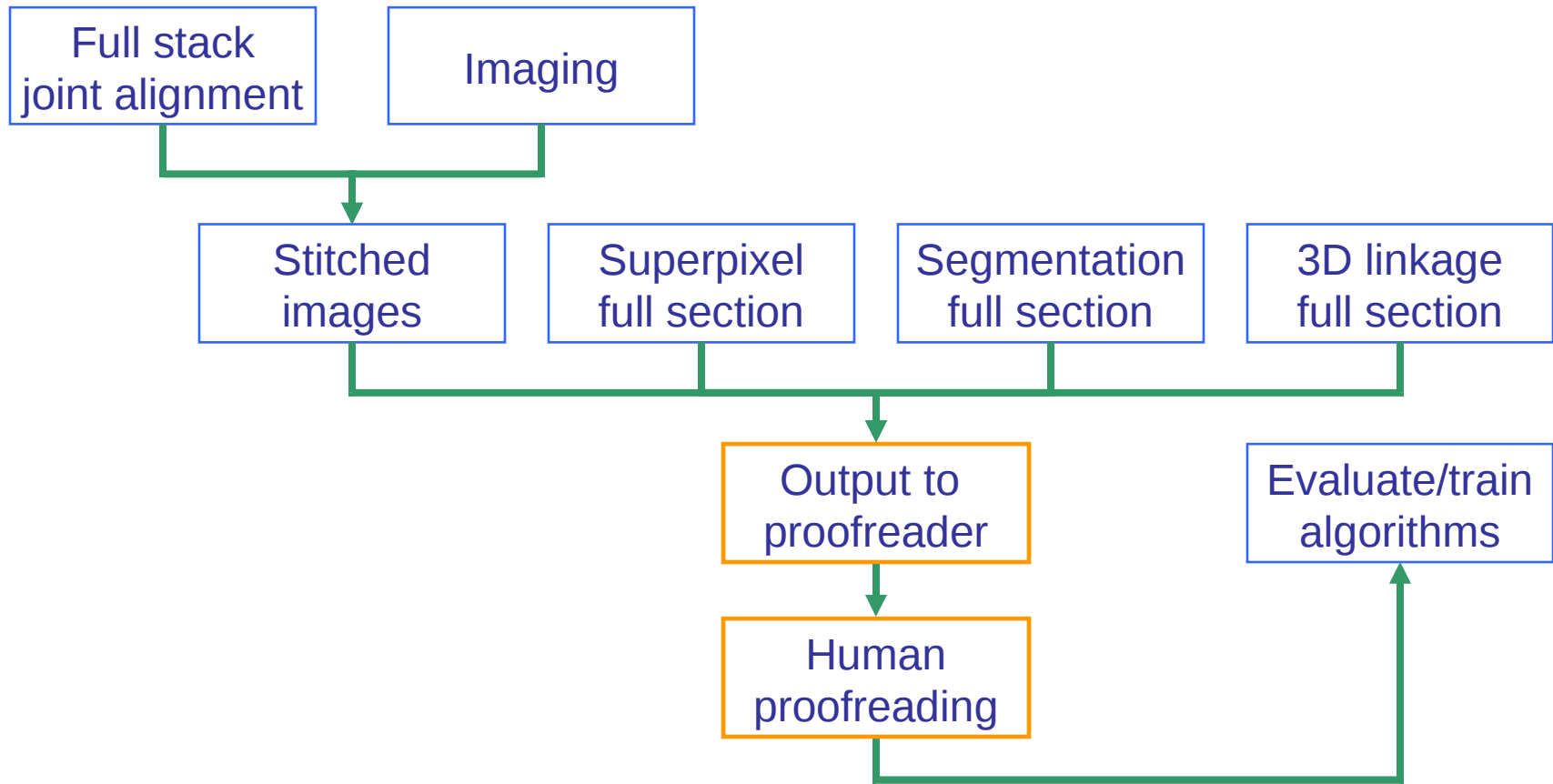
Arrows indicate necessary preconditions and data flow.