

Input Data

- Photomicrograph of the human cochlea (709×1091 pixels)
- Tissue resistivities from existing models
- 1 mA constant current source



Image Processing and Segmentation

- Performed in Adobe Photoshop
- Separated 11 different tissue types into layers
- Added 2 additional regions representing the intracochlear electrode array



Solid Modelling and Mesh Generation

- Performed in Simpleware ScanIP
- Converted pre-processed slices into masks
- Generated volume mesh (as .mphant file) using +FE Free algorithm



Finite Element Analysis

- Performed in COMSOL Multiphysics
- Assigned material properties to corresponding domains
- Applied load at active electrode
- Imposed ground at nerve trunk