

## Description of Additional Supplementary Files

Supplementary Movie 1: Comparison between simulation and experiment of TIR characterization

Supplementary Movie 2: Image improvement through TIR correction of a mouse ear vasculature

Supplementary Movie 3: Image improvement through TIR correction of a mouse ear microcapillary

Supplementary Movie 4: Image improvement through TIR correction of a human red blood cell

Supplementary Movie 5: Image improvement through TIR correction of a zebrafish brain vasculature