

## Publication

### Long-range optical coherence tomography with extended depth-of-focus: a visual feedback system for smart laser osteotomy

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This work presents a long-range and extended depth-of-focus optical coherence tomography (OCT) system using a Bessel-like beam (BLB) as a visual feedback system during laser osteotomy. We used a swept-source OCT system ( $\lambda_c = 1310$  nm) with an imaging range of 26.2 mm in the air, integrated with a high energy microsecond Er:YAG laser operating at 2.94  $\mu\text{m}$ . We demonstrated that the self-healing characteristics of the BLB could reduce the imaging artifacts that may arise during real-time monitoring of laser ablation. Furthermore, the feasibility of using long-range OCT to monitor a deep laser-induced incision is demonstrated.

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