

# CTO's Requirement on CEO

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# Background Dr. Lukas Krainer

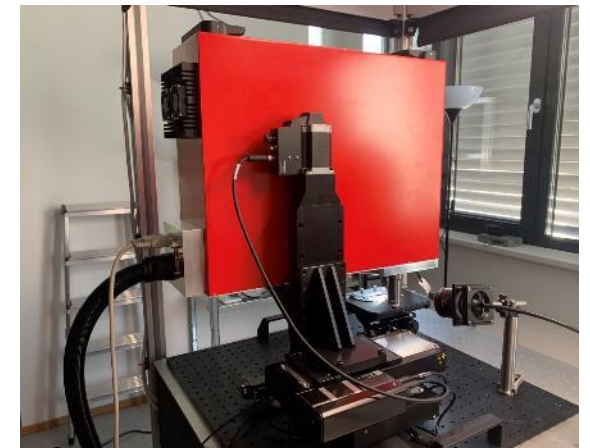
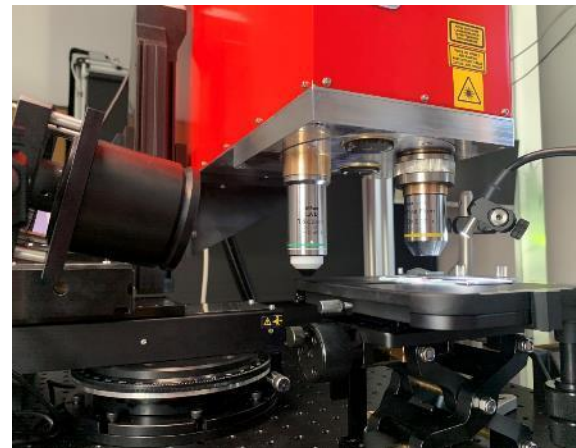
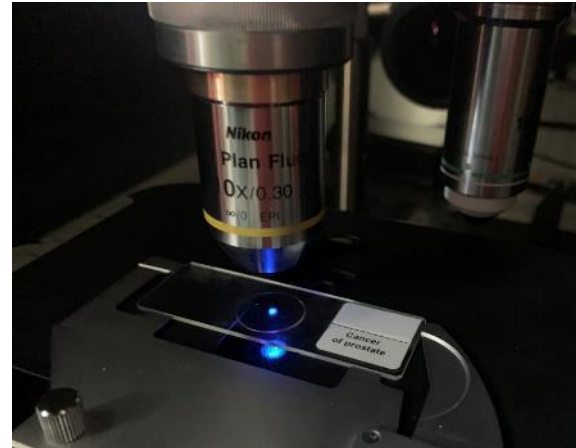
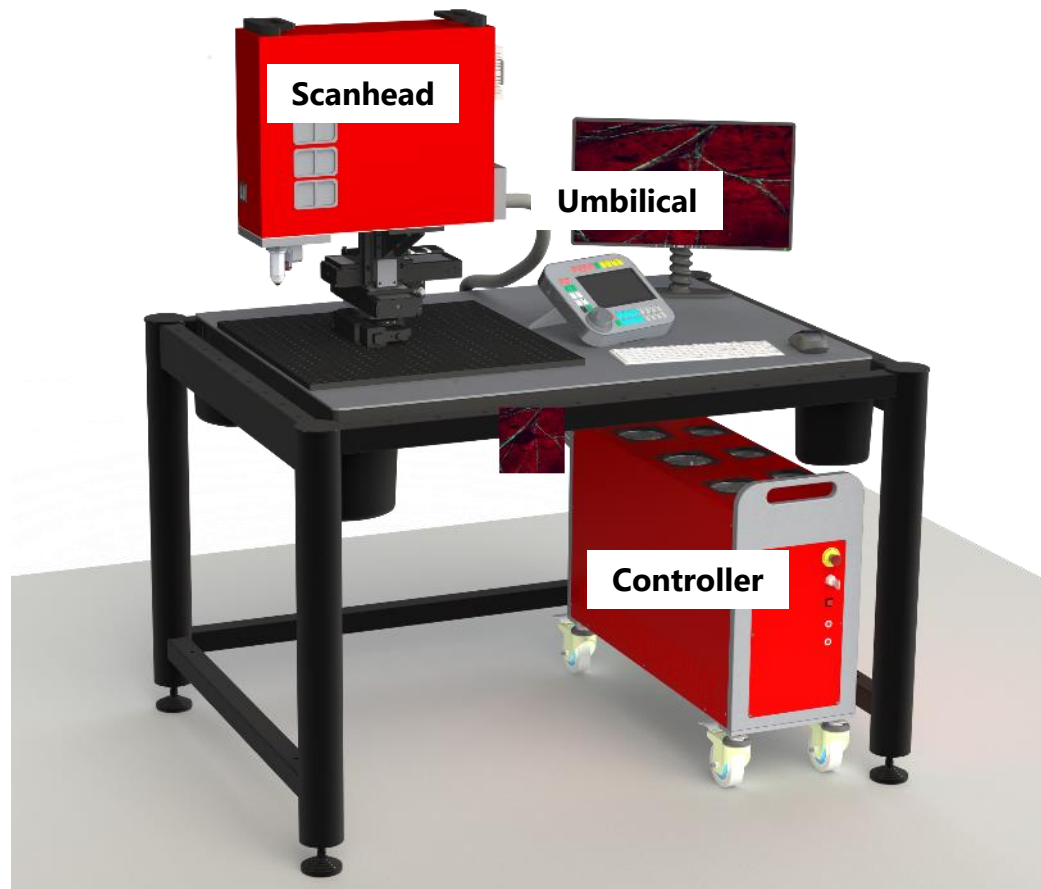
**Dr. Lukas Krainer, Founder & CEO:** <https://www.linkedin.com/in/lukaskrainer/>

- Prospective Instruments GmbH: CEO (since January 2019)
- NKT Photonics, Regensdorf Switzerland: Project Manager (September 2017 - December 2018)
- Swissphotonics: Executive Board Member (November 2012 - November 2017)
- European Commission: Proposal Evaluation & Project Review (October 2005 - November 2017)
- Advanced Laser Diode Systems A.L.S. GmbH, Berlin: CEO (December 2008 - August 2017)
- Onefive GmbH, Zürich: CEO (September 2005 - August 2017)
- GRE Inc., Zürich: Head of R&D (August 2005 - July 2006)
- ETH Zurich: Post-Doc (March 2003 - August 2005)
- GigaTera, Dietlikon, Switzerland: Principal Laser Scientist (June 2001 - March 2003)

## Education:

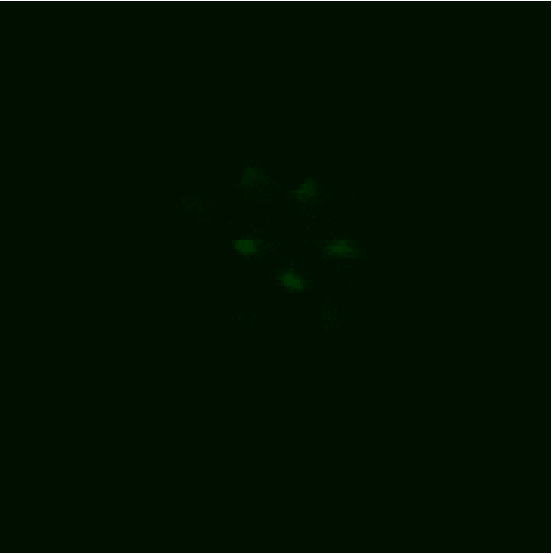
- ETH Zürich PhD, Physics (1992 - 2002)
- Bundesgymnasium Dornbirn (1984 - 1992)

# Turn-key compact multi-photon imaging platform – **MP-series**

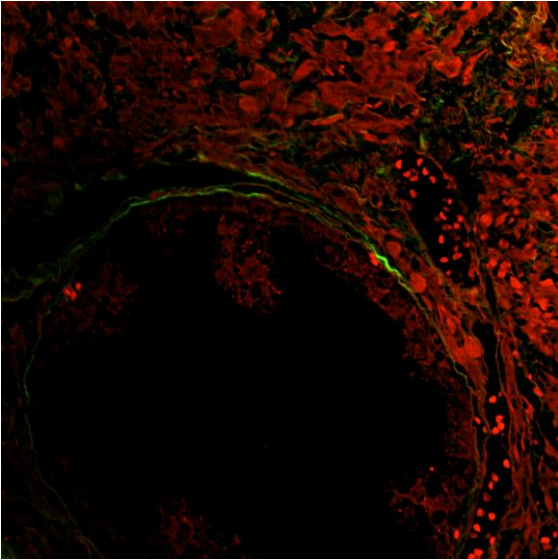




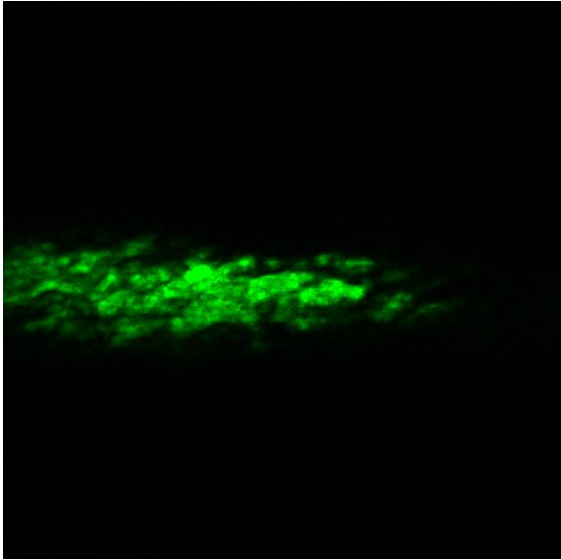
**Pollen z-stack**



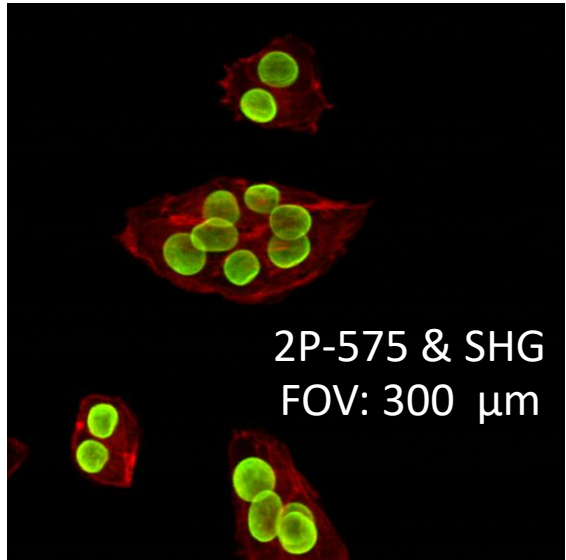
**Prostate**



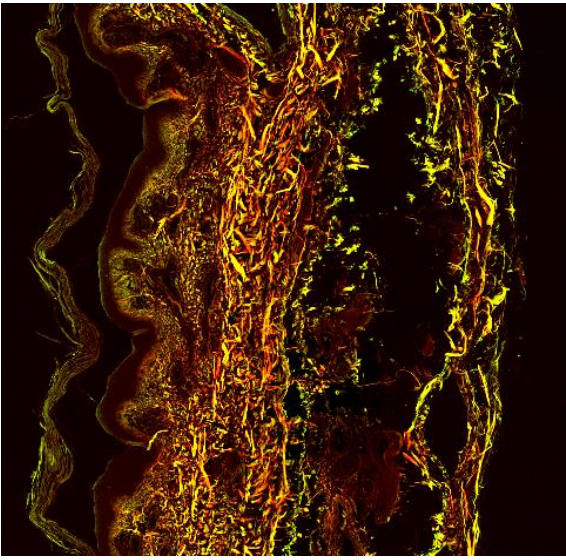
**Artificial artery z-stack**



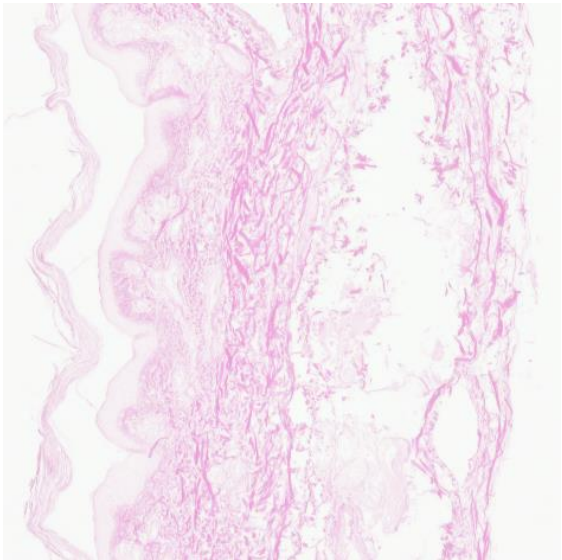
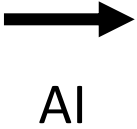
**Mouse fibroblasts**



**Human skin**



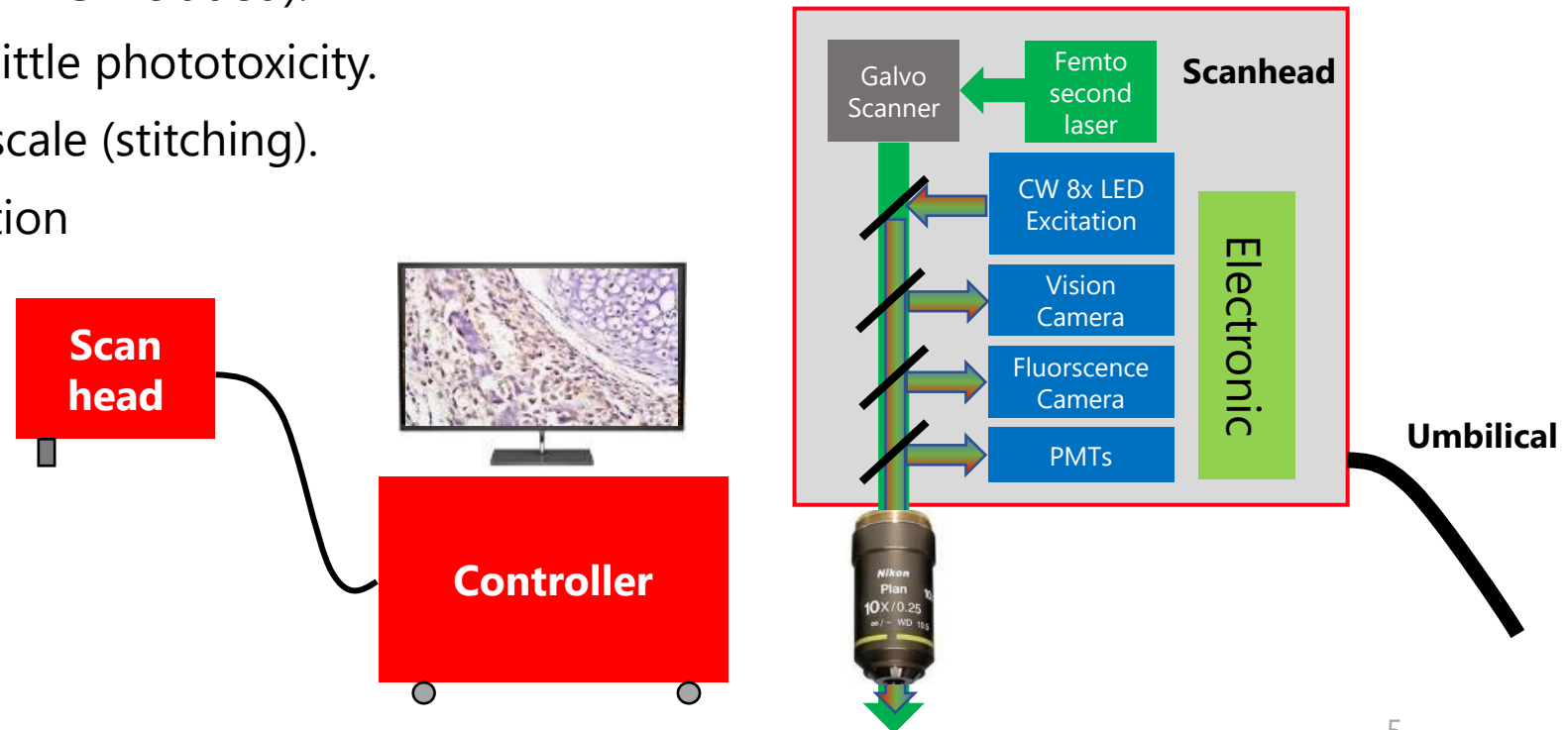
**Output**



# MP2-1040 multi-photon microscope



1. Combining complementary modalities into one compact and easy to use device:  
Multiphoton (SHG/THG/2PE; fs laser + PMTs), Fluorescence imaging (camera + LED excitation), Vision camera (brightfield).
2. Freely-moveable scanhead, all-integrated, no alignment, easy to operate and to install (even PC included).
3. Label-free, no tissue preparation, little phototoxicity.
4. Mosaic imaging: from mm to cm scale (stitching).
5. Epi-detection in backscatter direction



# Core competence

- Opto-mechanical instrument design (microscopes).
- Light source development (Femtosecond lasers, cw excitation lasers, LED-based light engines).
- Embedded hardware & software design of complex mechatronic systems.
- High resolution microscopy techniques.
- Label free imaging cellular level.
- Metabolic visualization, microenvironment in oncology.
- Deep learning for digital staining and image analysis.
- Medical device development for future #instantpathology diagnostics.
- Pathology diagnostic techniques.

# CTOs requirement on CEOs (and vice versa).



- Deep understanding of the underlying technology.
- Profound understanding of the wider technical landscape.
- Detailed overview of competing technologies.
- Talk the language of the CTO and “his” engineers.
- Understand the pitfalls of the R&D process.
- Buying decisions are often made by engineers – CEO needs to talk their language.
- Understand the cost & business impact of “features” engineers want to implement.
- CEO needs to be able to replace the CTO – and vice versa.

**That's it – thank you!**

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