… performing in Excellence

ZEISS Vision Science Lab is a leading group for vision research and conducts rigorous research in order to spearhead the understanding of vision.

We enable the development of products and solutions for natural and enhanced vision in an academic environment that favours creativity for generating ground-breaking ideas and their translation into reality.

Methodology:

The laboratory has considerable experience in various techniques in the fields of ophthalmology and optometry.

Additionally, state of the art eye tracking and stereo systems are applied to learn about eye movements and gaze strategies. The closed loop of using these instruments and understanding more about the eye and the processing in the brain will also lead to a continuous improvement and innovative new instruments for diagnosis or therapy in ophthalmology and optometry.

The lab has expertise in the fields of visual neuroscience, physiological and clinical visual optics. In cooperation with leading experts worldwide and in the outstanding neuroscientific research landscape in Tuebingen, as well as with ZEISS experts having deep knowledge of optical design and optical technologies the lab enables natural and enhanced vision.

Contact

Institute for Ophthalmic Research
ZEISS Vision Science Lab

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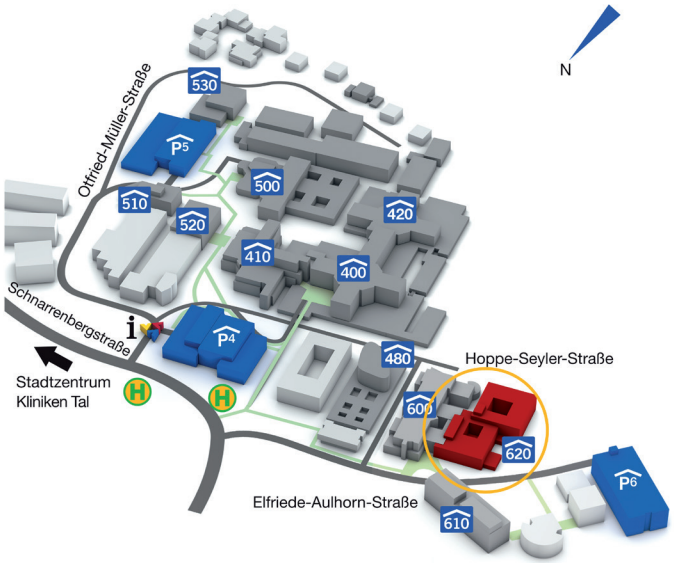

Institute for Ophthalmic Research
Centre for Ophthalmology

UNIVERSITÄTS KLINIKUM TÜBINGEN

ZEISS

ZEISS Vision Science Lab

Natural and Enhanced Vision

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UNIVERSITÄTS KLINIKUM TÜBINGEN

EBERHARD KARLS UNIVERSITÄT TÜBINGEN

"Industry on Campus Professorship" as part of the Excellence Initiative

More than four billion people all over the world are reliant on ophthalmic or medical devices to enable them to optimally utilize their vision potential.

Since ZEISS launched the first modern eyeglass lens on the market back in 1912, many major advances have been achieved in the field of ophthalmic optics, but many fundamental visual processes are still little understood.

Therefore the University of Tuebingen and ZEISS are jointly doing research on the fundamental processes involved in vision within the framework of a totally new type of collaboration.

The ZEISS Vision Science Lab is an "Industry on Campus Professorship" workgroup at the University of Tuebingen. As part of the Excellence Initiative, new collaborative projects are being launched here at the interface between basic research and application orientation.

Today, ZEISS can correct numerous visual defects with eyeglass lenses that are tailored to the needs of each individual wearer.

Thousands of parameters are taken into account to enhance visual acuity, contrast and color vision, UV protection and visual quality in the twilight, at night or in difficult environmental conditions. Wavefront technology, originally used in astrophysics to compensate for atmospheric disturbances, enables a "fingerprint" of the human eye and to take these data into account in the production of individualized lenses.

However, the complex interaction of light waves, the eye, the natural crystalline lens and the eyeglass lens is far from being fully deciphered.

As soon as the processing of the image on the retina in the brain and the occurrence of complex visual defects between the crystalline lens and the retina are fully understood, experts predict a significant advance in the treatment of impaired vision.

Siegfried Wahl

- Dr. rer. nat., Physicist, Neurobiologist
- Principal Investigator ZEISS Vision Science Lab

Katharina Rifai

- Dr. rer. nat., Physicist, Neuroscientist
- Senior Investigator Visual Neuroscience

Arne Ohlendorf

- Dr. sc. hum., Optometrist, Vision Scientist
- Senior Investigator Visual Optics

Research to See

The Institute for Ophthalmic Research

Seeing is an essential part of human life. As a leading centre for vision research we conduct rigorous research in order to break new ground in understanding the principles of vision and the mechanisms of blinding diseases. We are confident that this research will enable us to rationally develop effective treatments that ultimately retain or restore vision.

Within the Center for Ophthalmology at the University of Tübingen Medical Centre, we and our colleagues at the University Eye Hospital jointly strive for scientific excellence, for speed in translating the advancements into patient's benefit, and for training and mentoring the next generation of leaders in our field.

As leaders and partners in multi-national collaborations, we work for continuous strengthening our ties to fellow international scientists in the public and private sector and to foundations, industry and patient organizations.

As an integral part of Tübingen's biomedical and neuroscience campus, we offer a scientific environment that favors creativity for generating groundbreaking ideas, their transfer into reality and their translation into diagnostics and therapy to help those that suffer from vision loss.