
CAMPUS OF THE SENSES ERLANGEN

Kick-off 15th September 2017



Human Sensory Perception in the Digital Era



- Human sensory perception is barely understood in its complexity
- Because sensory perception is the interface between humans and their environment it influences each of our wishes and decisions, both, consciously and sub-consciously
- Signals generated with microphones, cameras, pressure sensors or chemical sensors typically do not accurately reflect human perception
- Transferring and using human perception in the digital domain will become a key success factor in many areas of science, economy and society

The Individual in the Digital Era

Need for Digitization of Sensory Perception



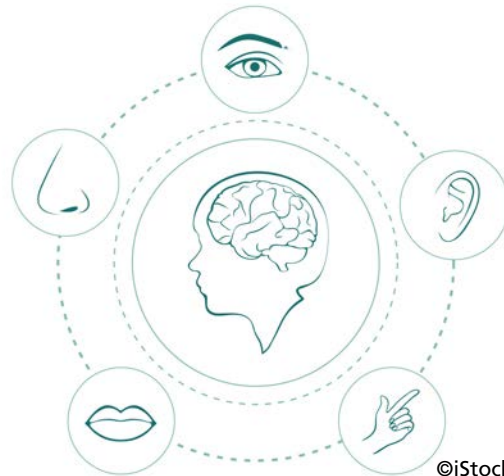
We strive for an holistic integration of sensor technologies and perception. Digital representation of the »Human Factor« leads to exciting new applications for:

- Individualized mass production, tailored service offerings and perceptually optimised goods and experiences
- Better human-machine interactions at work, home and during recreation
- Diagnostic and assistance for humans with and without sensory deficits
- Tools and methodologies for basic research

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Convergence of Disciplines and Domains

human, analogue,
individual,
subjective,
resource-rich



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Understanding human sensory perception requires a comprehensive effort from several domains and disciplines, e.g.

- Fundamental research in human psychophysiology
- Natural sciences, in particular chemistry
- Medicine and neurosciences

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Convergence of Disciplines and Domains



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machines, digital,
objective, scalable

An holistic digital representation of human sensory perception requires a comprehensive effort from several domains and disciplines, e.g.

- Design of robust integrated circuits and systems
- Applied research in smart sensors and medical grade wearables
- Communication systems
- Machine learning and artificial intelligence

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Human perception will be **digitally** represented in **interconnected** technical **sensor and actuator** systems. This is the evolution of

»Internet of Things«



»**Internet of Senses**«

Fraunhofer Institute for Process Engineering and Packaging IVV

Our guiding topics

FOOD, PACKAGING,
PRODUCTS OF DAILY USE



SENSORY ANALYTICS



Fraunhofer Institute for Integrated Circuits IIS

Our guiding topics

**COGNITIVE SENSOR
TECHNOLOGIES**

**AUDIO AND
MEDIA TECHNOLOGIES**

Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)

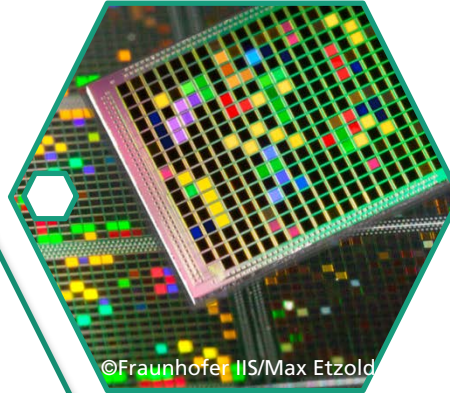
A Strong Partner in Scientific Excellence



- FAU – Germany’s most innovative University and no. 6 in Europe (Reuters Ranking 2017), covering the full-spectrum of academic disciplines
- Committed to interdisciplinary research and teaching across the boundaries of individual subjects and traditional fields
- With about 40,000 students and 4,000 academic staff driving innovation and knowledge creation within and beyond the local ecosystem
- Passionate about the digitization of sensory perception and its implications

Campus of the Senses Erlangen

Unique in Bavaria and worldwide



Sensors,
electronics, and
artificial
intelligence

Interdisciplinary
research and
teaching across
the boundaries
of traditional
fields



Multi-sensory
analytics, food
and flavour
optimisation



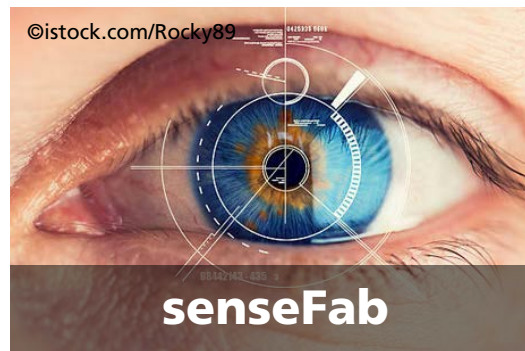
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Three domains, three value propositions

What we offer

The digital sensory transition in your enterprise is catered for by

- multi-sensory optimisation of products and services
- new technologies for digital acquisition and generation of sensory perception
- transfer and generation of knowledge with experts, partners and customers alike



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Optimisation in the senseLab

Sensory optimisation of products for diverse branches (food, articles of everyday use, mobility, construction, etc.)

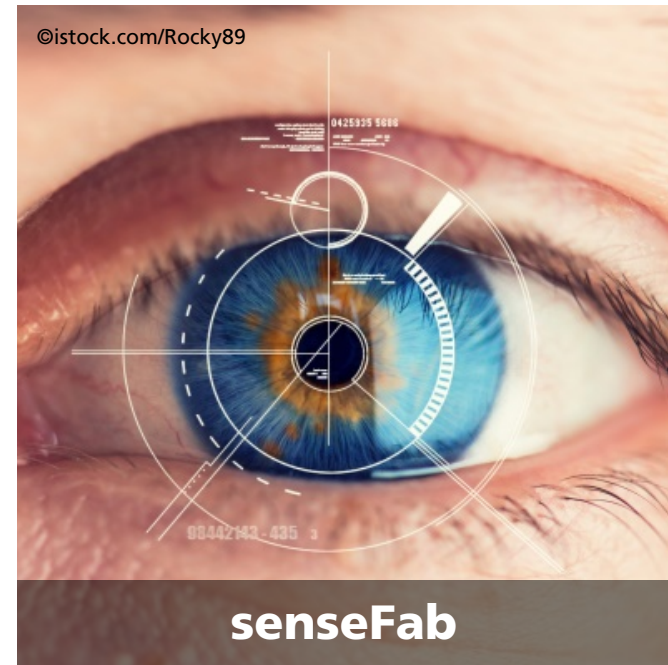
- Focus groups, certified test subjects and certified test systems
- Research on (multi)sensory perception and information processing
- Development of novel psychophysiological instrumentation to record cognitive and emotional states



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Technologies from the senseFab

- Development of new technologies for sensors and analytical devices, control, diagnosis and dosing for sensory stimulation and perception applications
- Development of new psychophysiological assessment techniques
- Pool of AI methods focussing on interpretability, transferability, reliability



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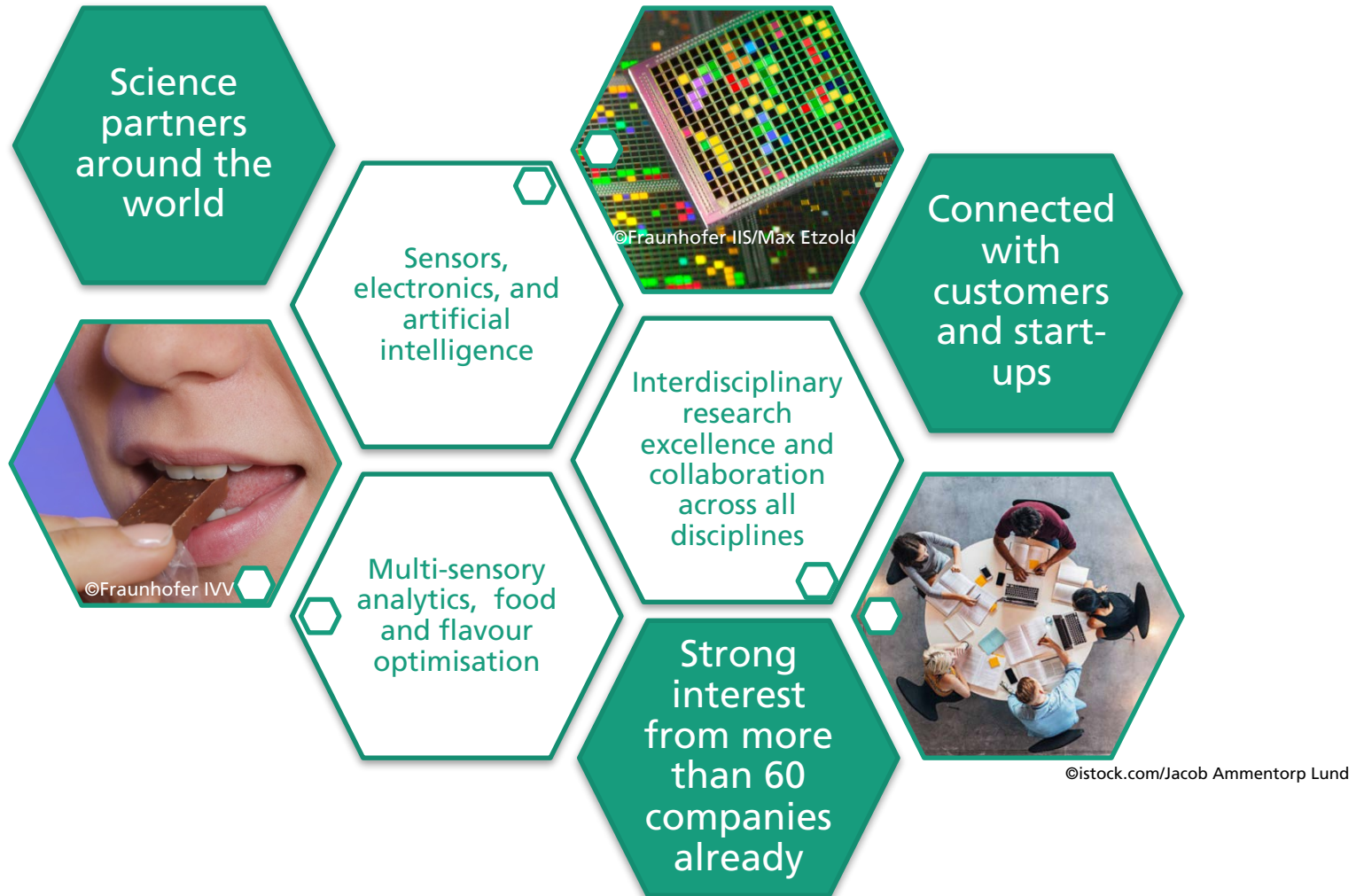
Networks in the senseHub

- Customer co-creation workbench
- Sense for Excellence Track: Top young scientists work in interdisciplinary teams with your enterprise
- Advancement via Tech Radar and training offers
- Networking through exclusive »Sixth Sense« events



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Let's Shape the Future of Digital Senses Together



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Join us!



- The Campus of the Senses Erlangen will host a unique combination of skills and people passionate about the digitization of human senses
- We seek for partners from industry and academia to build strong consortia around specific R&D programs
- We offer access to know-how, talents and infrastructure

Join us from the beginning!

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