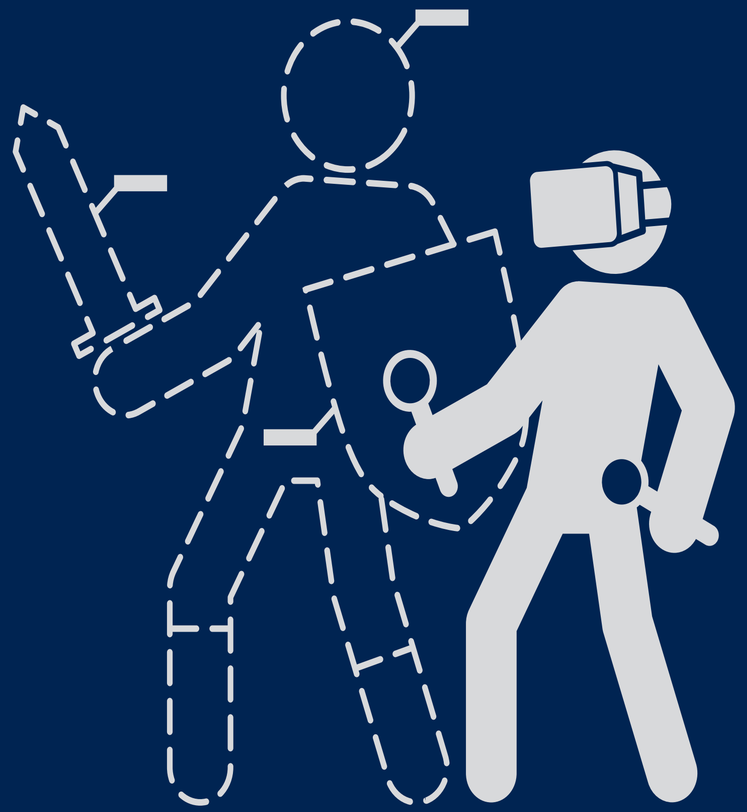


BEYOND VIRTUAL AND AUGMENTED REALITY

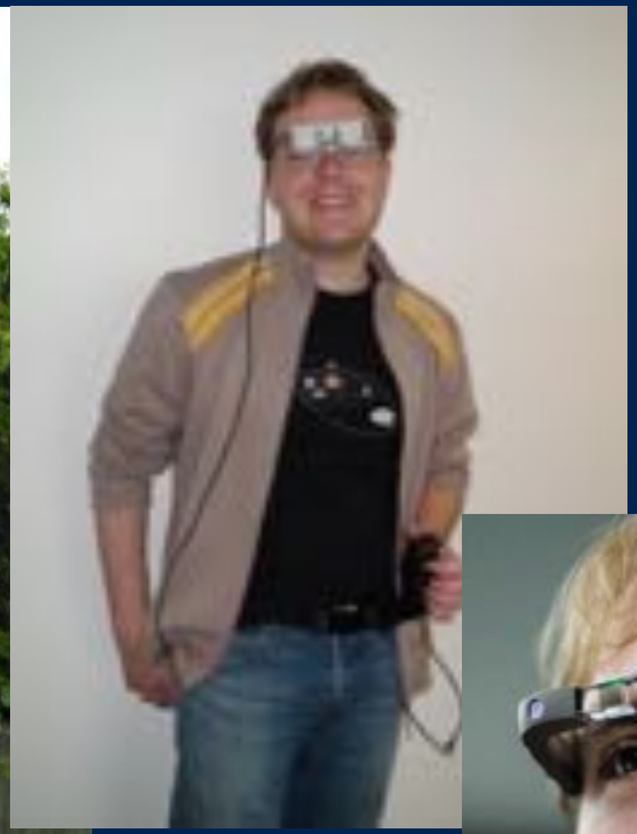
From Superhuman Sports to Amplifying Human Senses

Kai
Keio Media Design
Keio University, Japan

What’s next?

First year for consumer VR/AR

… don’trust me (especially about predictions)



…Seriously 😂

Trend in Japan: Superhuman Sports

Enhance human abilities to overcome limitations using technology

Disclaimer: I'm one of the Society Members

Founders

Masahiko Inami

Human Augmentation

Tokyo University

Ichiya Nakamura

Pop Culture

Keio University

Jun Rekimoto

Human Computer Interaction

Tokyo University

Super Human Sports Society

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SAKAMAKI YOSHINORI A.K.A. SENSE

SHINZI SUDO

SHOICHI HASEGAWA

SHUNJI YAMANAKA

SHUNSUKE AZUMA

SPUTNIKO!

TAKAAKI KATO

TAKASHI KAWAI

TAKASHI NAKAMURA

TAKAYUKI TANAKA

TAKETO KOBAYASHI

TAKUJI NARUMI

TAROU MAEDA

TOMOHISA

TOU

TOUKO

TUTOMU

YOHEI

YOSHIAKI

YUICHI

Robert Riener - Cybathlon

International competition for disabled competitors

with bionic assistive technology, such as robotic prostheses, brain-computer interfaces and powered exoskeletons.

http://www.cybathlon.ethz.ch/

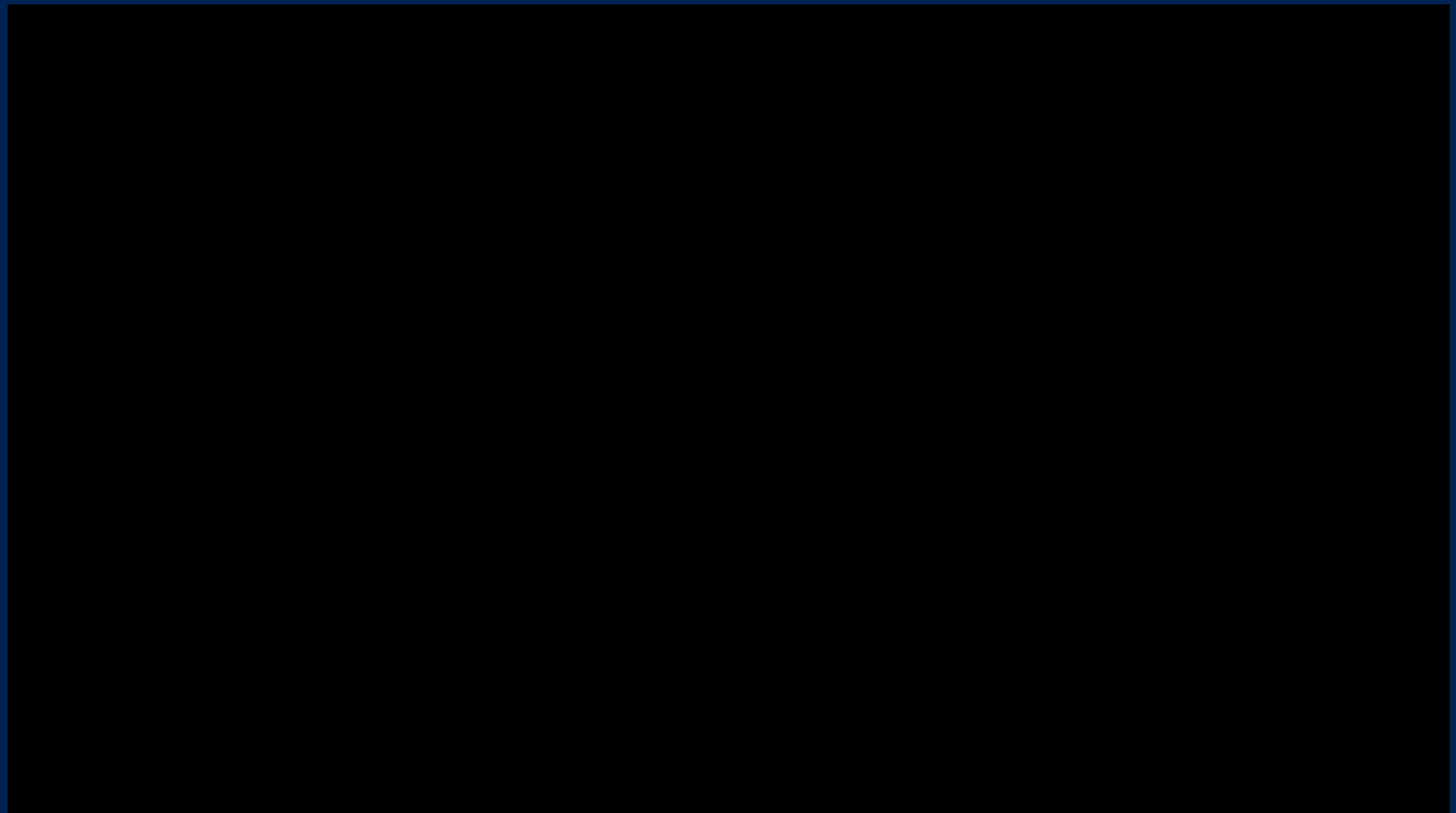
Augmenting our body

Skeletonics

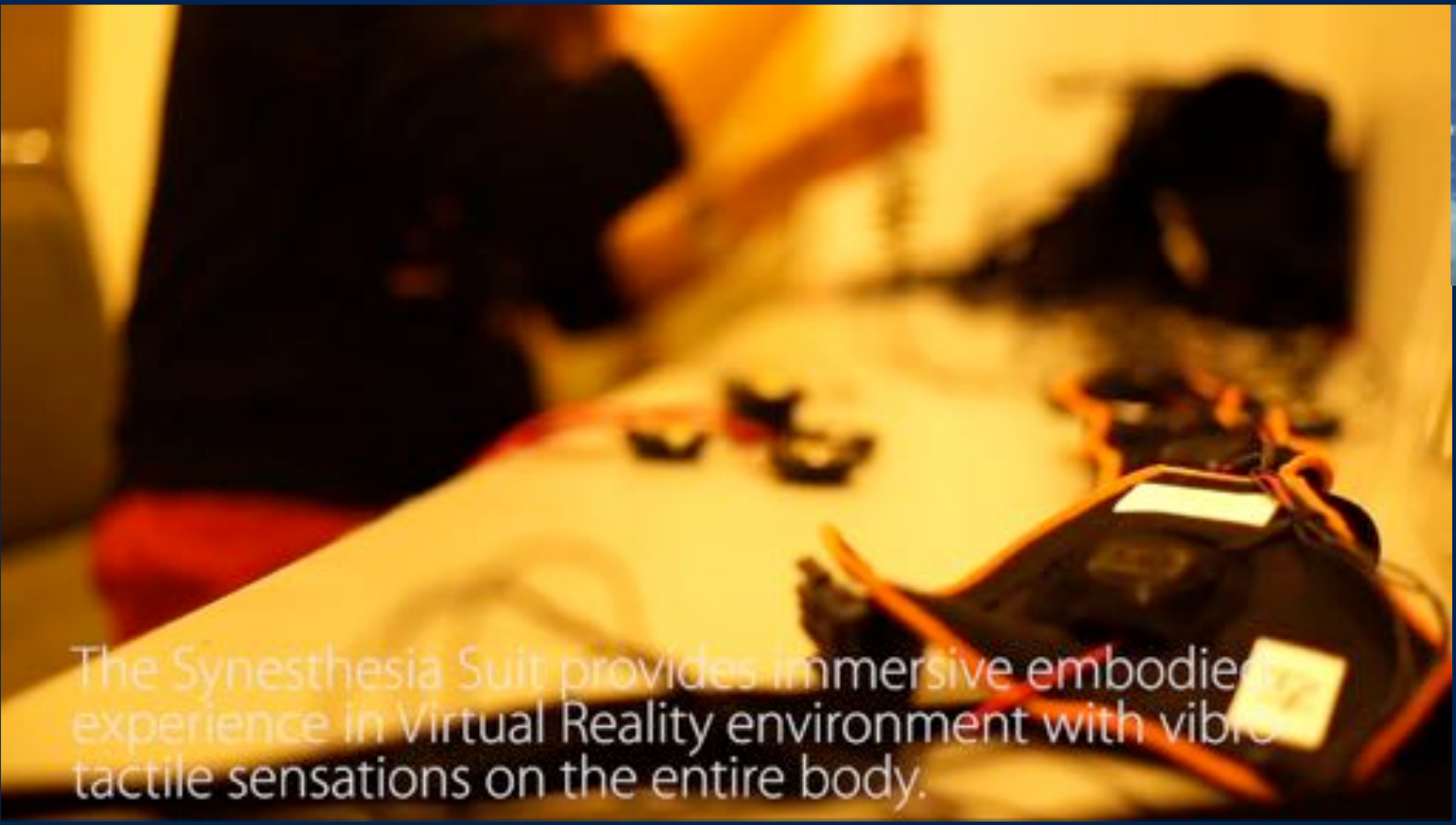
Superhuman Sports Hackathon Finalist

Spider Vision (2014)

Kevin Fan, Jochen Huber, Suranga Nanayakkara and Masahiko Inami.

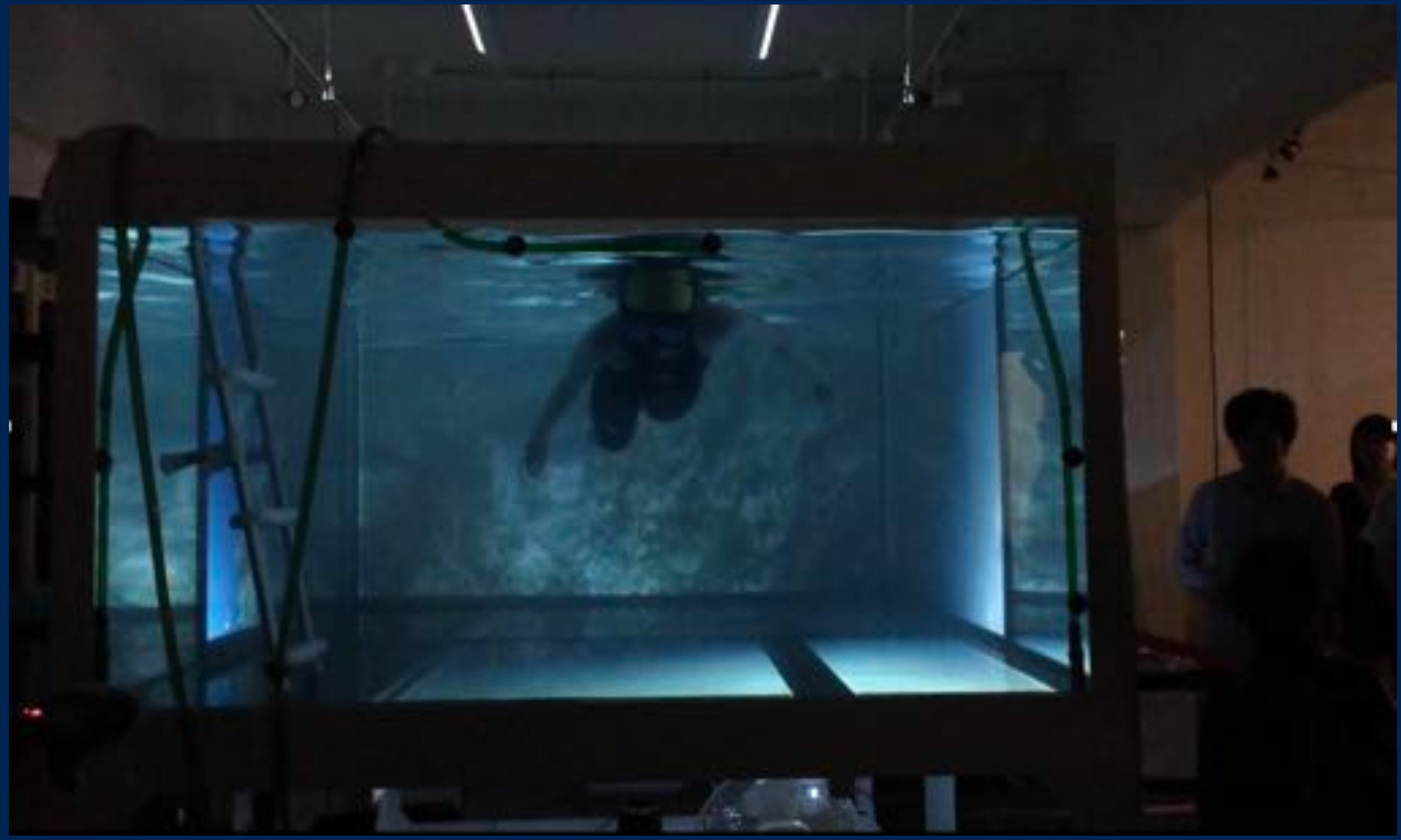


Synesthesia Suit - Full Body Haptic Feedback



Augmenting the sports field

Aqua-Cave - Jun Rekimoto (Tokyo University)



Augmenting training

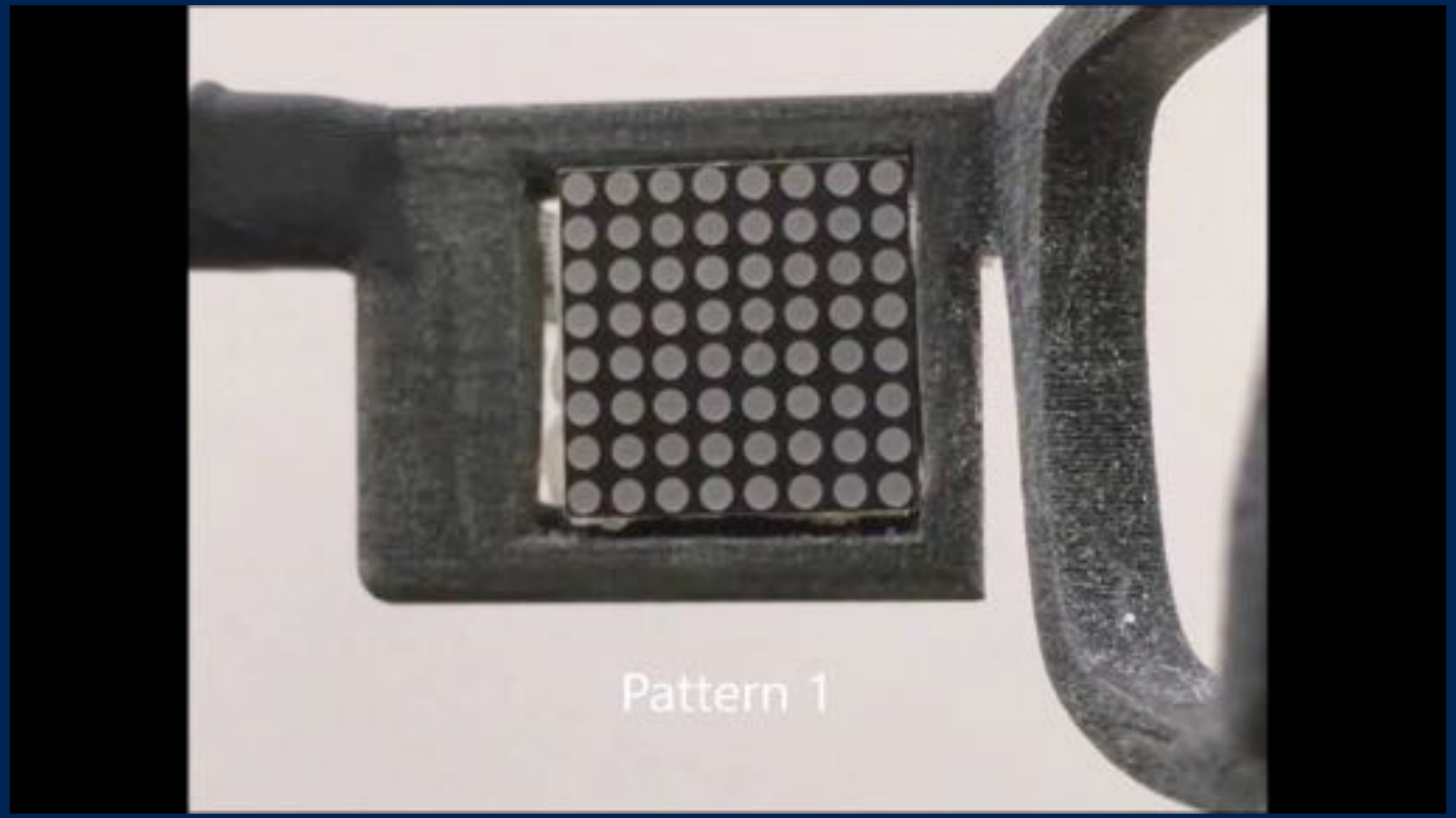
Galvanic Vestibular Stimualtion (2004)

T. Maeda, H. Ando, T. Amemiya, N. Nagaya, M. Sugimoto, and M. Inami. 2005. Shaking the world: galvanic vestibular stimulation as a novel sensation interface. In ACM SIGGRAPH 2005 Emerging technologies. 2005

Peripheral Vision Glasses

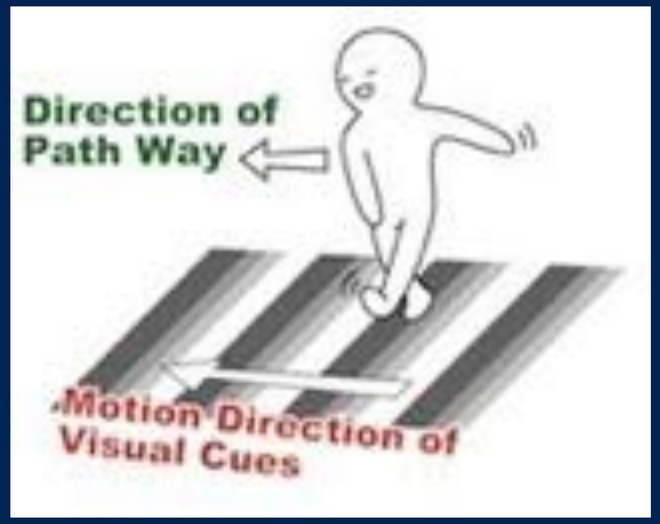
Smart Glasses with a Peripheral Vision Display.
Taruko Nakao, Masashi Nakatani, Liwei Chan and Kai Kunze
VRIC 2016.

Patterns For Notifications



Video 1/4 speed

Can we Influence Movement?

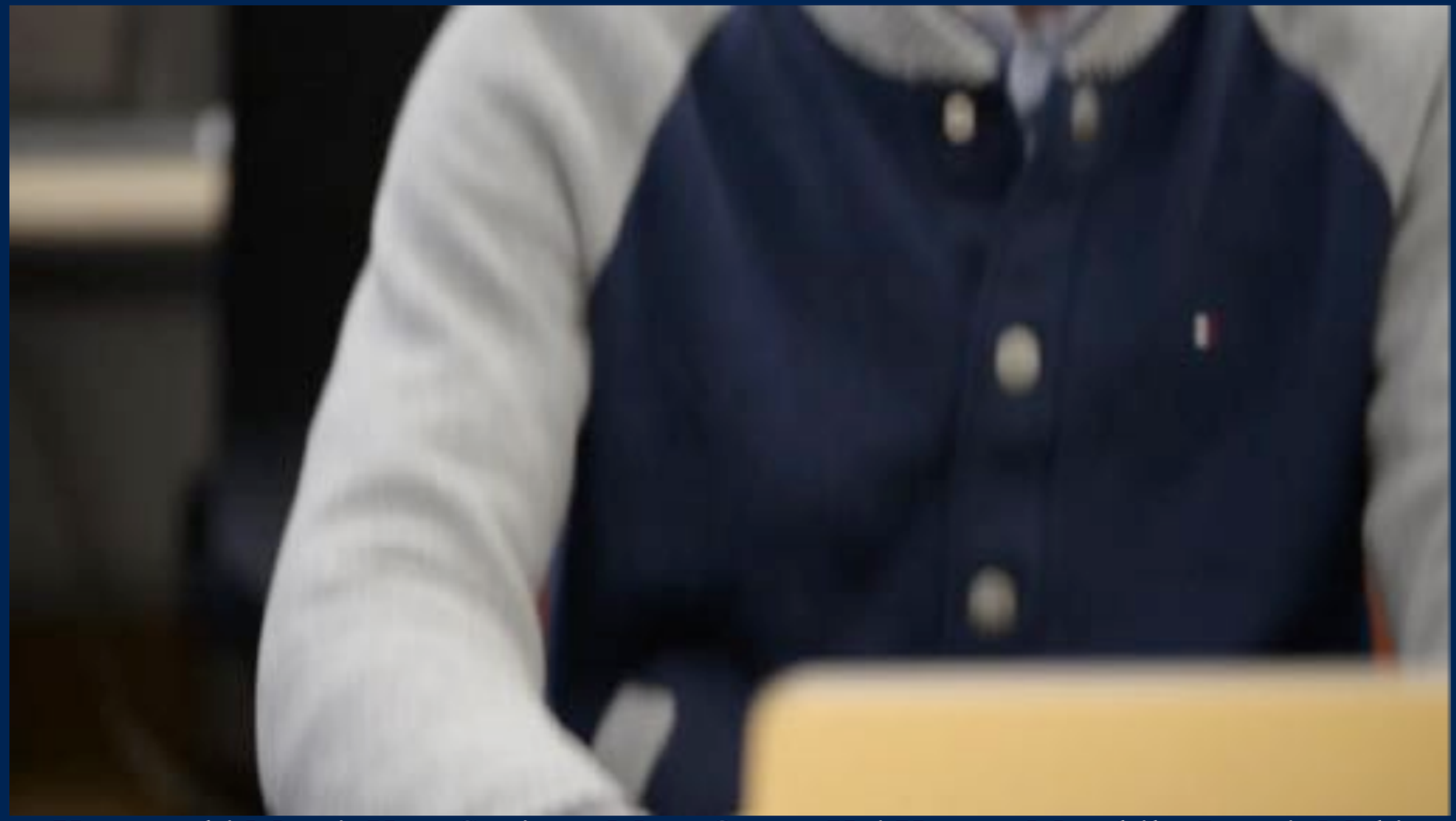


Masahiro Furukawa, Hiromi Yoshikawa, Taku Hachisu, Shogo Fukushima, and Hiroyuki Kajimoto. 2011. "Vection field" for pedestrian traffic control. In Proceedings of the 2nd Augmented Human International Conference (AH '11)

Smart glasses with a peripheral vision display. Nakuo, Takuro and Kunze, Kai. Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing: Adjunct. 2016.

augmenting watch and cheer

Affective Wear (Masai Katsutoshi)



Katsutoshi Masai, Yuta Sugiura, Masa Ogata, Kai Kunze, Masahiko Inami, Maki Sugimoto: Facial Expression Recognition in Daily Life by Embedded Photo Reflective Sensors on Smart Eyewear. IUI 2016:

Affective Wear (Masai Katsutoshi)

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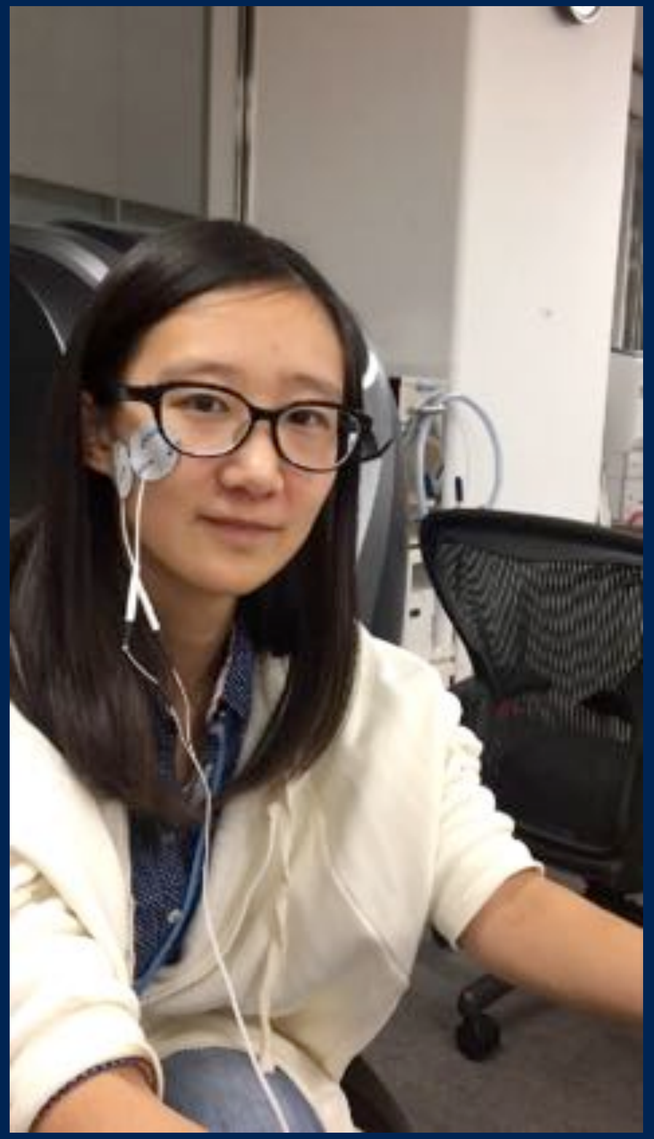
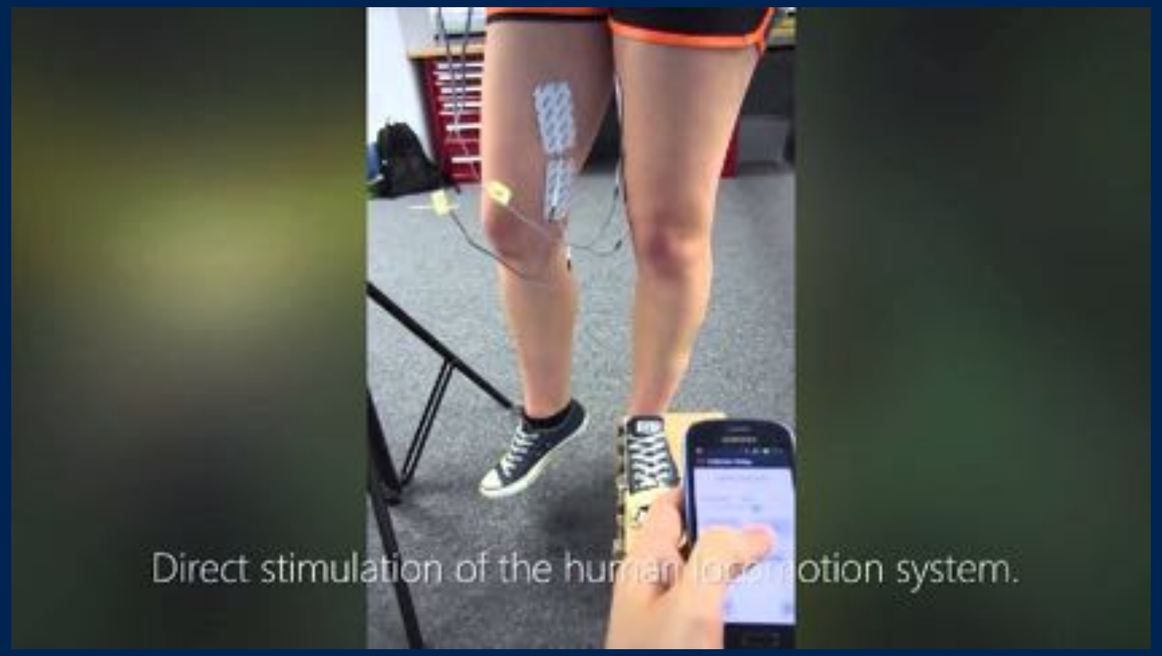
Electric Muscle Stimulation to Make you Smile

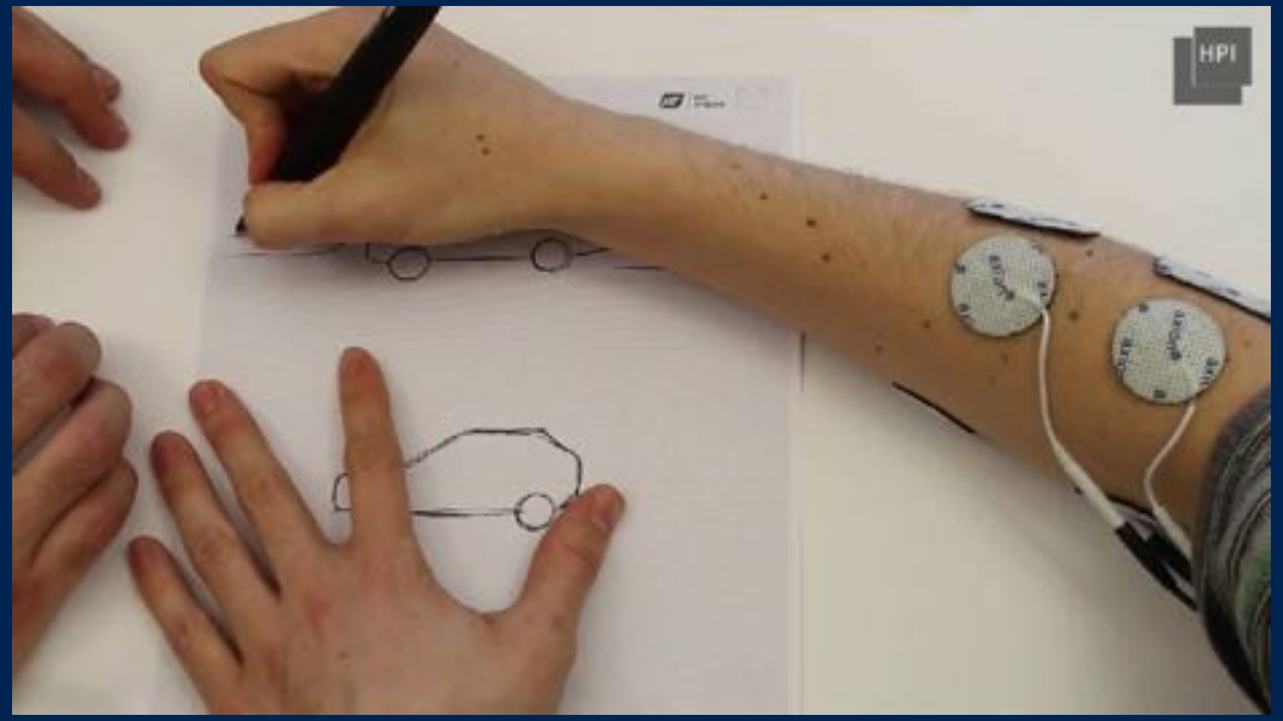


Lai Yen-Chin, YuanLing Feng, Junichi Shimizu, Takuro Nakao, Kai Kunze. Eyewear To Make Me Smile – Can Electric Muscle Stimulation increase Happiness? Accepted at TEI 2017 WIP.

References for more serious EMS work



Cruise Control for Pedestrians: Controlling Walking Direction using Electrical Muscle Stimulation. Max Pfeiffer, Tim Duente, Stefan Schneegass, Florian Alt, Michael Rohs. Proc. of CHI 2015

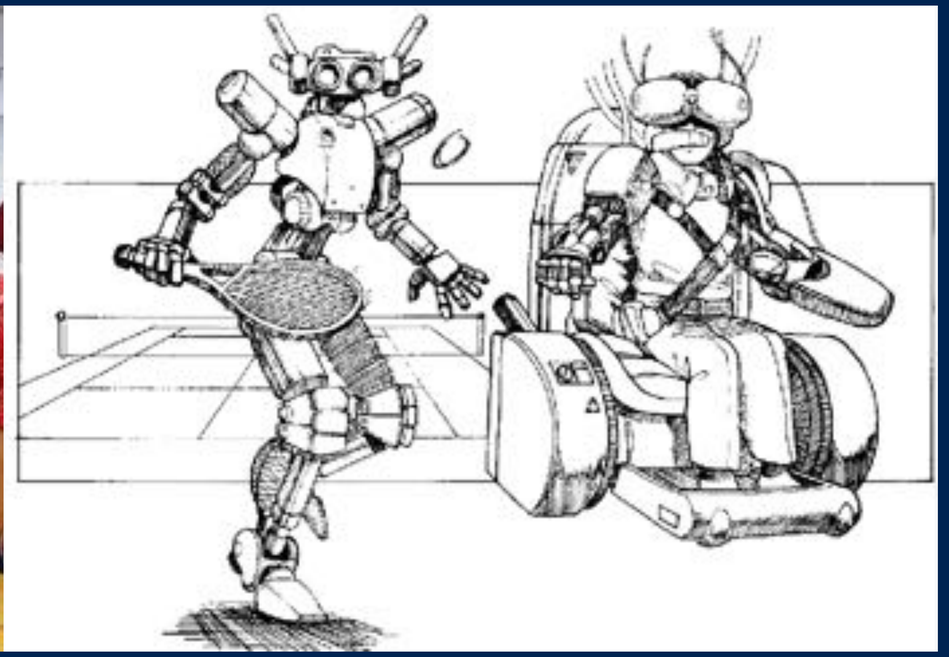


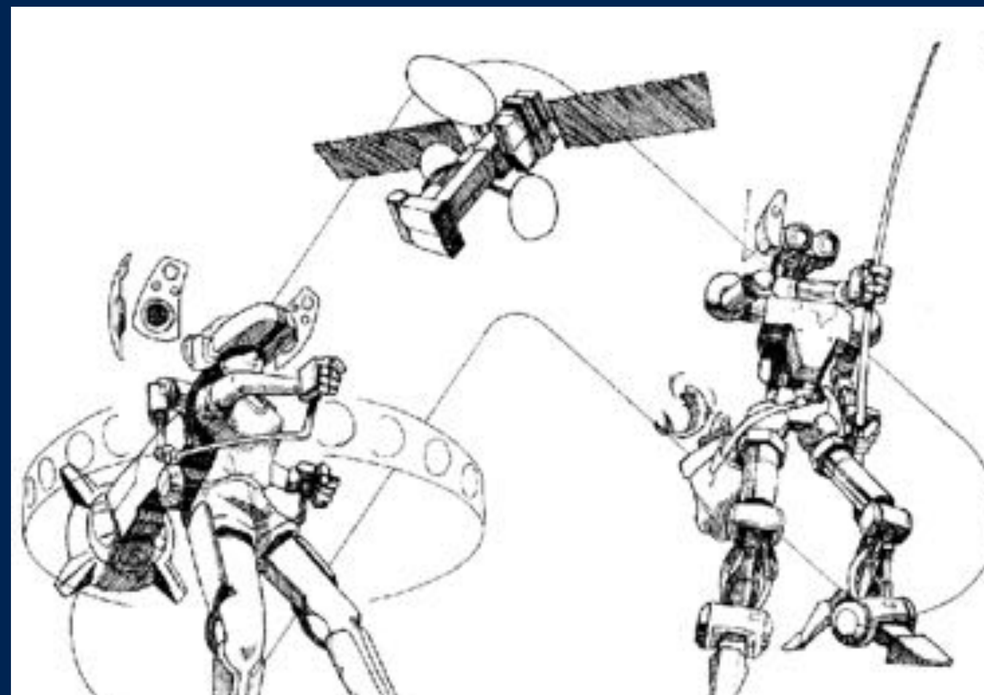
Muscle-plotter: an Interactive System based on Electrical Muscle Stimulation that Produces Spatial Output. Pedro Lopes, Doğa Yüksel, François Guimbretière, Patrick Baudisch. UIST 2016

https://bitbucket.org/MaxPfeiffer/letyourbodymove/wiki/Home http://plopes.org/ems/


TOKYO 2020
CREATE AUGMENTED GAMES CLUTURE

Organising Workshops - Example: YCAM





Proof our concept by making and playing sports

Getting fit ourselves

Creating not only new sports but also educating s3 creators

What is the scientific impact?

Superhuman Sports is

a great testing ground for intuitive interfaces to amplify human senses

I’m interested in recognising cognitive activities …
concentration, attention etc.

https://media.ccc.de/v/31c3_-_6460_-_en_-_saal_g_-_201412292115_-_eye_wear_computing_-_kai_kunze

J!NS MEME

J!NS MEME

3-axis accelerometer
3-axis gyroscope
2-axis electrooculography

Collective Open Eyewear

Support from the Japanese Government

JST Presto Project on Open Collective Eyewear

Open Eyewear Designs to track cognitive activities

focus on attention management

Looking for Collaborators

Send me a mail to kai@kmd.keio.ac.jp with “eyewear” in the subject.

Sensors Already Better Than Human Senses …

Example: Digital Camera Systems

higher framerate than the human eye

Perception of a broad spectrum – beyond the visible light etc.

Can we create new and amplified artificial senses based on digital technologies that are natural and intuitive to use?

Based on discussions with:

Albrecht Schmidt

http://www.hcilab.org/amplify/

Amplifying Human Senses — A very Simple Demo

Squint to Zoom

Thanks to …

Mio Sugimoto, Yuji Umea, Masashi Nakatani Yuta Sugiura, Masa Inakage,
Albrecht Schmidt, Kazutaka Inoue, Masato Kimura, Oliver Amft,
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Cody Sumter, Paul Lukowicz, Bernhard Sick, Jingyuan Cheng,
Kamil Kloch, Gerald Pirkl, Michael Beigl, Niels Henze,
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Yuan Ling Feng,

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Takuro Nakao,

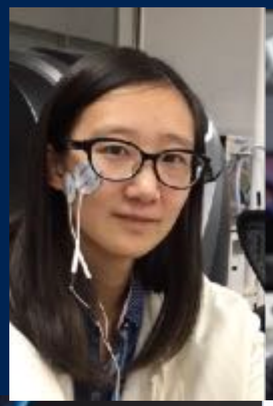
Haruna Fushimi,

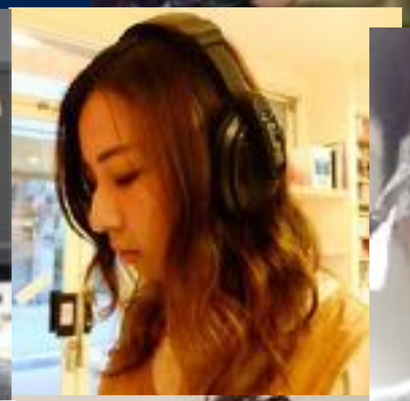
Cedric Carêmel,

Benjamin Tag,

Masai Katsutoshi,

Chen Jiajun





QUESTIONS, REMARKS, VIOLENT DECENT?

http://kaikunze.de/

@k_garten

kai@kmd.keio.ac.jp

github.com/kkai

Interested in: Open Eye Wear

or Superhuman Sports

mail with “eyewear” /
“superhuman ”in the subject

Shameless Advertisement:

Amplify Human Senses Workshop at CHI 217

with Jun Rekimoto, Albrecht Schmidt, Woontack Woo …

http://www.hcilab.org/amplify-chi17/

Deadline: 6th February 2017

Dagstuhl Seminar on Beyond VR

http://www.dagstuhl.de/17062