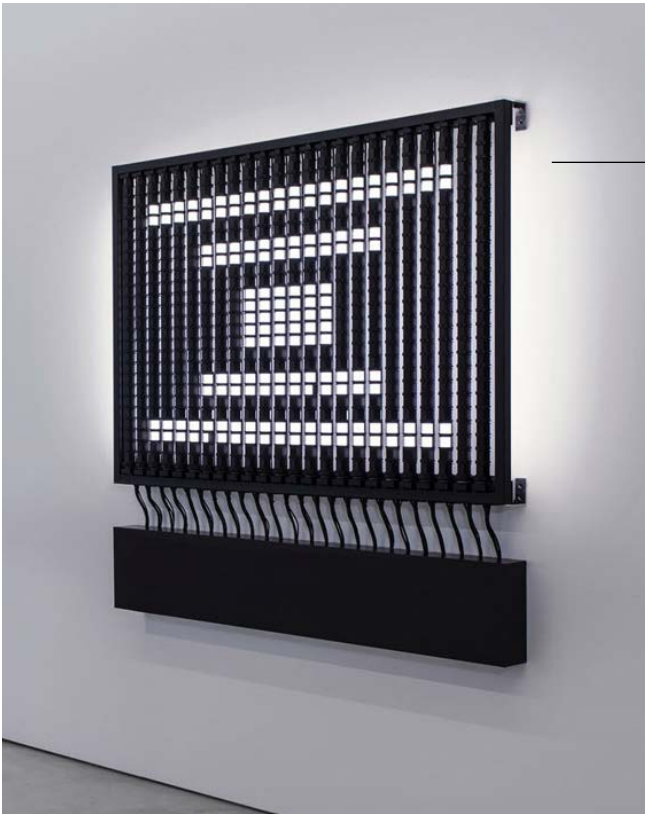


schwittlick_

Hi! My name is Marcel Schwittlick.

I can support your project with consulting and programming skills in C/C++, C#, Python, Java, Javascript. I have experience with the frameworks Unity, openFrameworks, Processing, OpenGL/GLSL, OpenCV, LibAVG, JUCE among others. Moreover, I have worked on projects using machine learning, custom electronics and complex hardware/software systems. And I love giving workshops on these topics, too. To see my professional portfolio, please have a look at the following pages. Feel free to contact me at info@schwittlick.net or call me at +491727262729. To see my artistic portfolio have a look at <https://schwittlick.net>

Thank you for your attention.



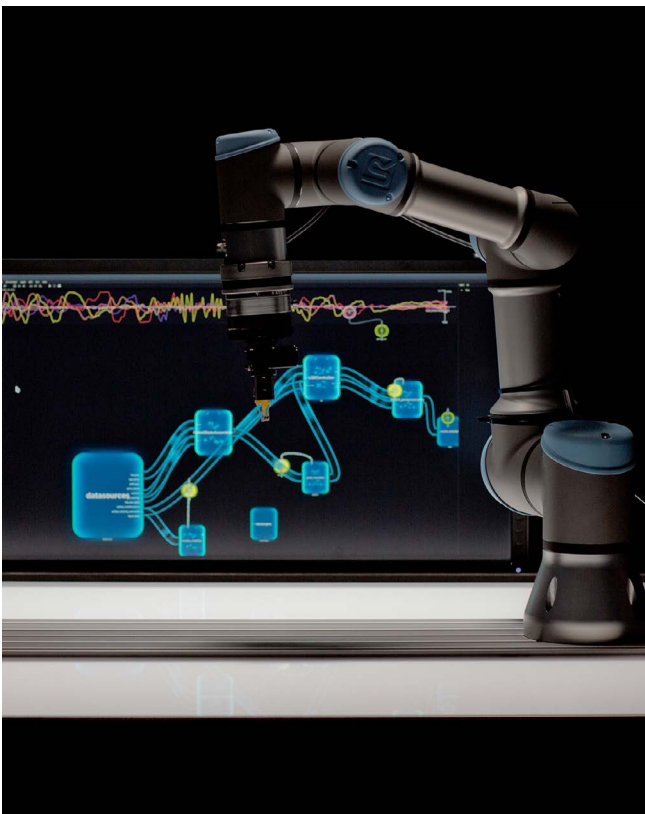
Client: Onformative

true/false (2012/2013)

True/False is a kinetic sculpture composed of arrays of circular black metal segments set in mechanical columns. Interlocking and rotating around fluorescent light tubes, the cylinders cover or expose the light to display an endless number of patterns. My work for this art slash design project interdisciplinary, ranging from software development in Java and Arduino to physical prototyping with AutoCAD and 3D-Printing. This installation displays the Google Analytics data of the Onformative website in real-time.

Keywords: Arduino/C, Java, Electronics, Neon Tubes, Stepper Motors, Parametric Design, AutoCAD, Google Analytics, 3D Printing, Seven Segments Display.

<https://onformative.com/work/true-false>



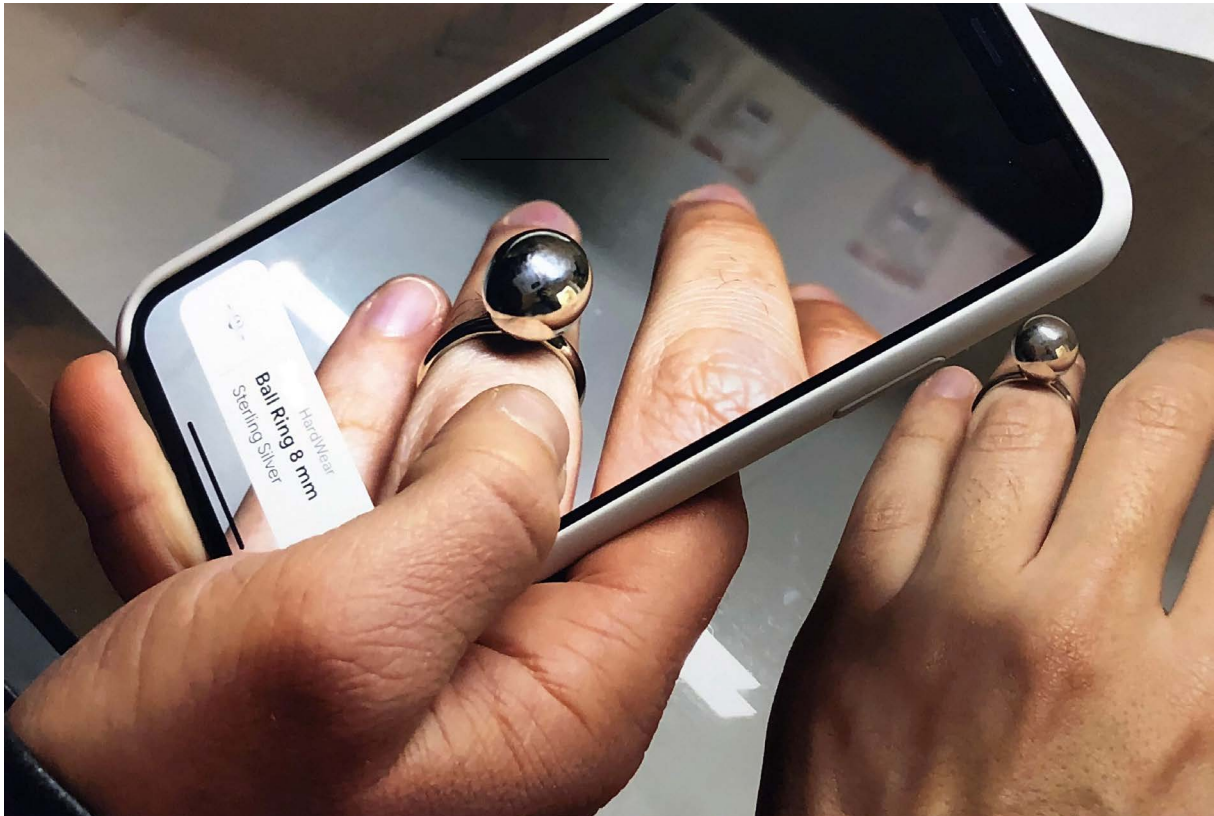
Client: Micropsi Industries GmbH

Micropsi Editor Shell (MESH)
(2018/2019)

Machine learning for industrial robots. An AI-based, sensor-driven, real-time robot control system. Learning a MIRAI skill means training a neural network to generate the right movements and forces when presented with a configuration of images and sensor readings. My work for focuses on developing the visual programming language for the machine learning backend, a node-based graphical interface written in C++ and OpenGL to connect sensors with corresponding ML algorithms.

Keywords: C++11/14, JUCE 5, Python 3.5, OpenGL, Websockets

<http://www.micropsi-industries.com/tech.html>



Client: PCH Innovations GmbH
Jewelry Detection (2019)

For this project I have developed a machine-learning based object detection system for jewelry. An automatic pipeline to record training data, annotate this data and train a robust detection system. The objects were mostly made of reflective and shiny material, a big challenge for computer vision systems. Moreover it was challenging to make the model robust enough to detect jewelry in various positions.

Keywords: Python, turicreate, iOS, C++, Openframeworks, Big-data, Machine Learning



Science Center Ostrava (2014/2015)

This science center exhibition in Ostrava, Czech Republic consists of more than 130 interactive and multimedia exhibition pieces. Using Python and C++, I have developed these screen-based as well as physical installations. Apart from software development I was responsible for server administration and the physical setup on-site. I have updated new versions of the applications remotely via the internal remote-deployment system.

Keywords: Interactive Media Software, Python 3, Kinect, LibAVG, C++, Custom Projection Mapping Software, SysOps, Server Administration, Remote maintenance

<http://www.archimedes-exhibitions.de/projects/exhibitions/OSTRAVA>

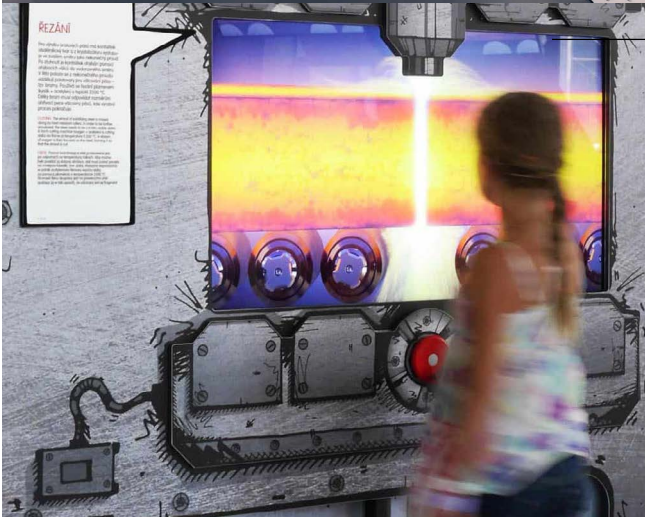


Ey Alter | Mercedes-Benz (2015)

This educational exhibition on the topic of the demographic change was initially opened in Bremen, then moved to Stuttgart and Berlin. I have developed interactive and durable multimedia exhibitions. One challenging aspect was the main piece, an 2x-4K interactive particle system controlled via two LIDAR-scanners.

Keywords: C++11, openFrameworks, LibAVG, LIDAR Scanner, Interactive Media Software, Python 3, Custom Projection Mapping Software, Sysops, Server Administration, Remote Maintenance

<http://www.eyalter.com>

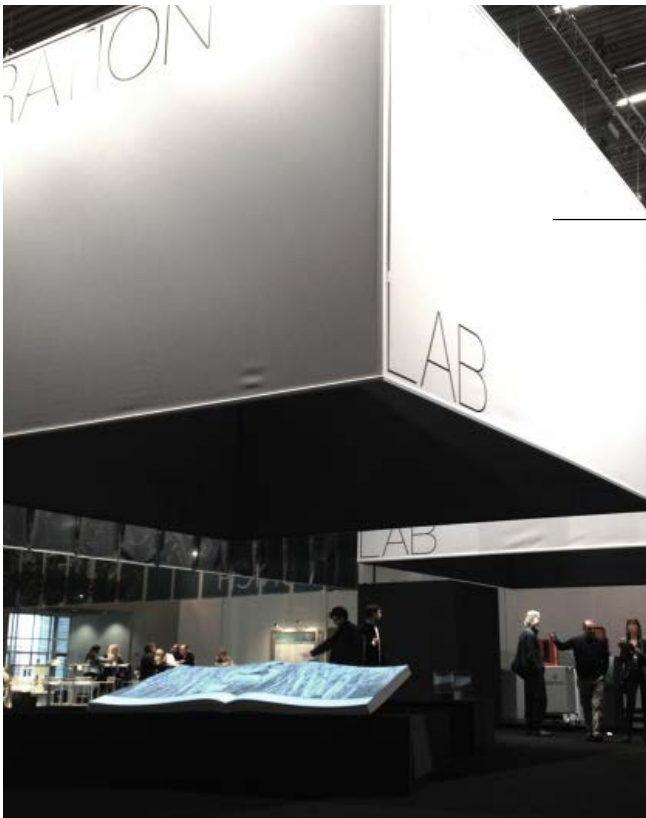


Journey of Steel (2015)

This exhibition in Ostrava, Czech Republic is not static but uses an interactive and dynamic approach. Using Python and C++, I have developed these screen-based as well as physical installations. Apart from software development I was responsible for server administration and the physical setup on-site.

Keywords: Interactive Media Software written in Python 3, LibAVG, Custom Projection Mapping Software, SysOps, Server Administration, Remote maintenance

<https://www.plotmag.com/blog/2015/10/journeyofsteel/>



Client: Yves Peitzner

Interactive Magazine (2016)

A larger-than-life wooden magazine acts as a projection screen for multimedia content. Visitors can browse through the content via body gestures. The pages magically turn as you swipe your hand through the air. Content can easily be added, removed or updated via custom-made software and content management systems. Pictures, movies, animations – any form of multimedia content can be displayed. I have developed the software from beginning to end. Including a licensing model.

Keywords: Kinect V2, GStreamer, C++11, OpenFrameworks

<https://yvespeitznerlab.com/interactive-magazine/>



Client: GSP GmbH

Passenger Information System (2017)

GSP creates large scale distributed real-time customer information software-system for trains. I have supported them for some months for the new software for the S-Bahn in Hamburg, writing lock-free concurrent and multithreaded systems for the train-internal signal distribution. Working with a 30-year old 500.000 LOC C++ codebase.

Keywords: C++11/14, Qt5, Test Driven Development

www.gsp-berlin.de/en/

Client: Flora&Fauna Visions



Adidas Gazelle Backyard Gallery (2016)

For the Adidas Showroom in Berlin I have worked with Flora&Fauna Visions on a kaleidoscopic media installation. A C++ application to play certain videos and share the photos to social media.

Keywords: C++11, OpenFrameworks, OpenGL, Touchscreen Interface, Social Media Sharing

<http://florafauvisions.de/portfolio/a-kalei-doscopic-experience-adidas-gazelle-backyard-gallery/>

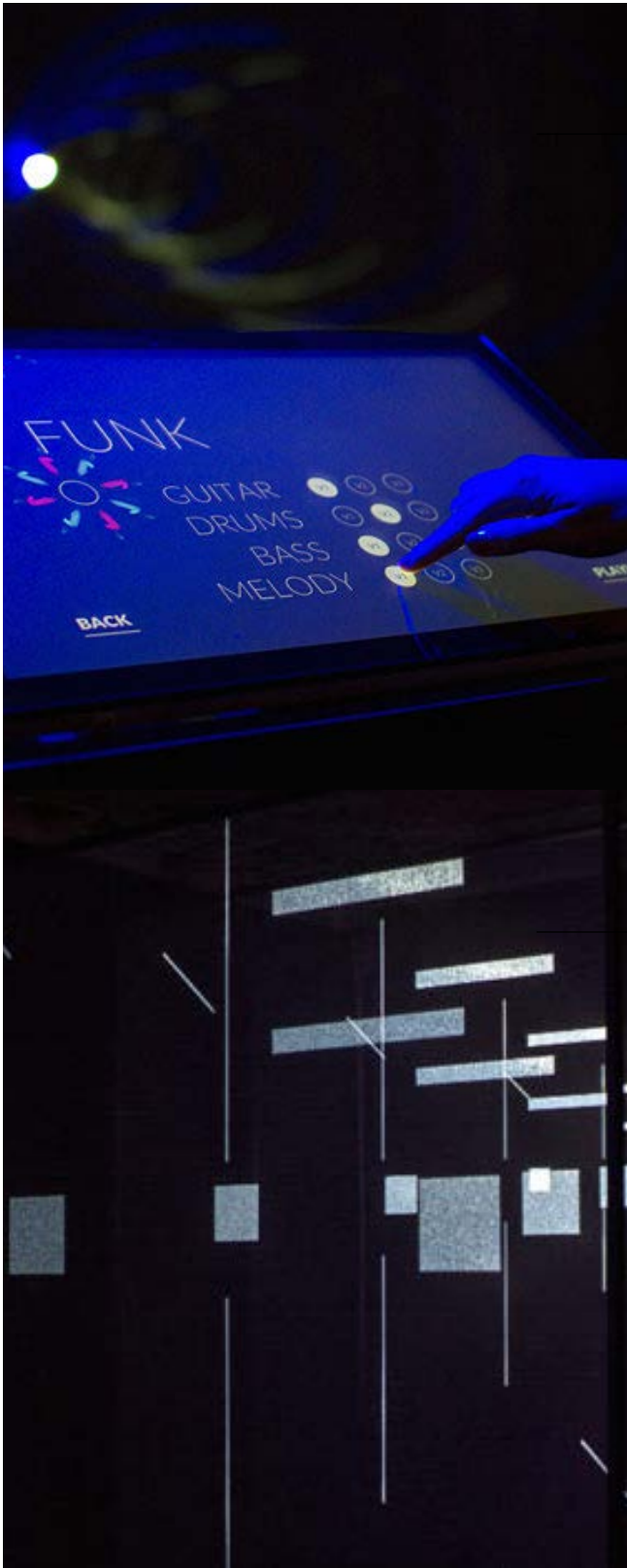


Audemars Piguet - Super Sonnerie (2016)

With Flora&Fauna Visions I have developed an audio-reactive visualization iPad-App for the showroom of Audemars Piguet. The visitors of the exhibition can use an external high-quality microphone to capture the sounds of AP's watches. It was a big challenge to distinguish between very subtle differences in the audio signal from the ticking of the watches.

Keywords: C++11, OpenFrameworks, OpenGL, iOS Development, C++ Audio and Music DSP Maximilian

Client: Flora&Fauna Visions



Electronic Beats Exhibition | Deutsche Telekom AG (2016)

Interactive Audio-Visual Installation with projections onto several semi-transparent surfaces. The generated sounds and visuals are based on the interaction with the visitors. The self-created work can be instantly uploaded to several social media channels. The interaction was supported with paper sheets that can be marked with a pen. These markers are detected with a webcam and turned into an audio-vision composition.

Keywords: C++11, OpenFrameworks, OpenGL, OpenCV, Social Media Sharing from C++

<http://florafauvisions.de/portfolio/electronic-beats-exhibition-deutsche-telekom-ag/>

Overflow | Toyota C-HR Festival (2017)

Interactive Audio-Visual Installation with projections onto several semi-transparent surfaces. The generated sounds and visuals are based on the interaction with the visitors. The self-created work can be instantly uploaded to several social media channels. The interaction was supported with paper sheets that can be marked with a pen. These markers are detected with a webcam and turned into an audio-visual composition.

Keywords: C++11, OpenFrameworks, OpenGL, OpenCV, Social Media Sharing from C++

<http://florafauvisions.de/portfolio/overflow-c-hr-festival-berlin/>



Open Source Library

ofxDarknet (2017)

A openFrameworks wrapper for darknet.

Darknet is an open source neural network framework for machine learning written in C and CUDA. It is fast, easy to install, and supports CPU and GPU computation.

Keywords: C++11, OpenFrameworks, Machine Learning, Object Detection, Image Classification

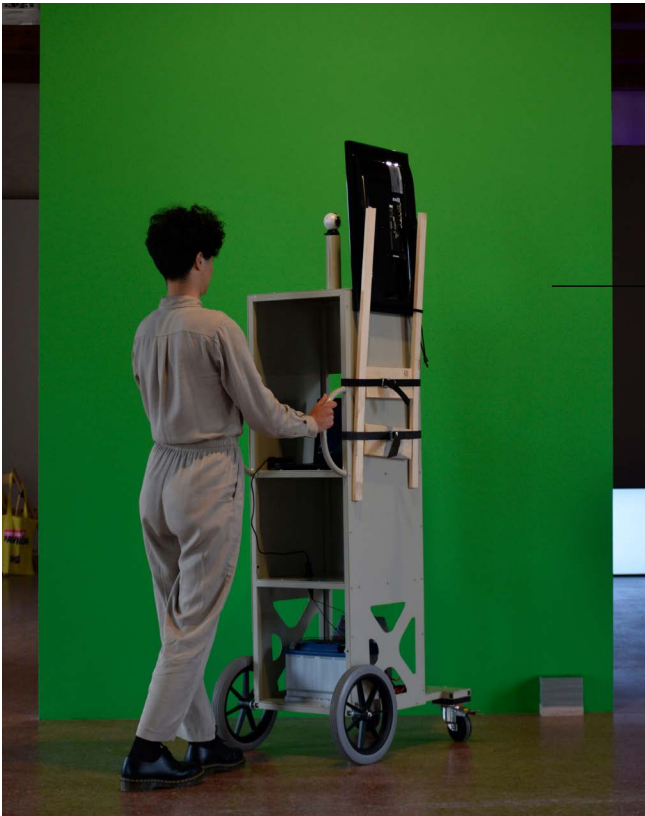


Bachelor Thesis

Realtime Computer Vision System (2013)

A network camera is observing the Spree river in Berlin. With this software, all boats and ships are being recognized and monitored, independent of the weather and light conditions. Using Computer Vision and a custom GUI to control the parameters. During my thesis, I had the chance to learn and research the foundations of computer-vision.

Keywords: C++11, OpenCV 3.0 (GPU)



Client: Mireia Saladriguez

Virtual Present Tour | Venice Biennale
(2016)

Virtual Tour is a recursive exhibition during the Venice Biennale 2016. The piece is a Unity3D game that reconstructs the very same exhibition. The users can explore and modify the exhibition and it's pieces in virtual.

Keywords: Unity3D, C#

<http://www.mireiasaladrigues.com/w/virtual-tour>



Client: Julius von Bismarck

VR Realtime Room Scanner (2018)

Through the VR glasses, you see the point cloud of the LIDAR scanner that is mounted to the head. The point clouds are being merged together dependent of the movement of the user in real-time. Aligning the consecutive point-clouds of the LIDAR-scanner when the head is a challenging task, even using existing pointcloud-registration libraries. My system worked in real-time with very high accuracy.

Keywords: Realtime PointCloud Registration, Samsung Odyssey VR Headset, Unity3D, Velodyne VLP-16 Lidar Scanner, C++11/14, PointCloudLib, OpenMP

<http://juliusvonbismarck.com/bank/index.php>

Client: Annie Dorsen

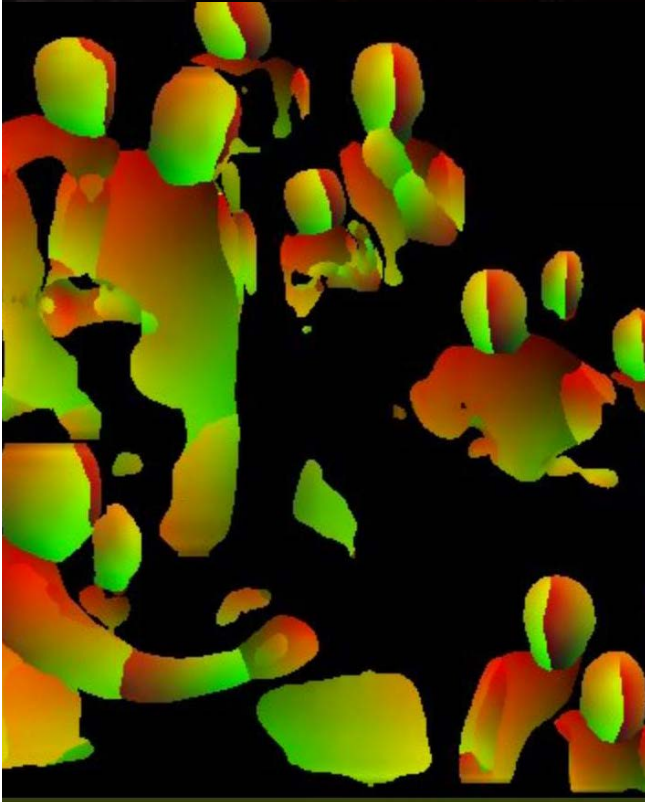


The Great Outdoors (2017)

The Great Outdoors is a theater piece by NYC-based director Annie Dorsen. Her interest lies in algorithmic theater and I have developed and written a software system for this piece of 1h duration. The monologue of this piece was based on scraped conversations from reddit and 4chan. The software I have written uses a custom python-motorway streaming architecture and NLP-technology to analyze scraped text and construct a story for the theater piece. Each performance was unique and based on text scraped on the day before the show.

Keywords: Python 3 text scraping pipeline (Reddit&4chan), Natural Language Processing

<http://www.anniedorsen.com/showproject.php?id=30>



The Slow Room (2018)

The Slow Room will investigate the uncertain space between the virtual and the embodied, as well as the possible pitfalls of language itself. This theater piece is similar to “The Great Outdoors” and examines the text with a custom python pipeline. I am analyzing by entropy, word count, sentiment, sentiment and word-embedding similarity among other techniques.

Keywords: Python 3 Natural/Processing

<https://www.artforum.com/news/annie-dorsen-receives-the-spalding-gray-award-76418>



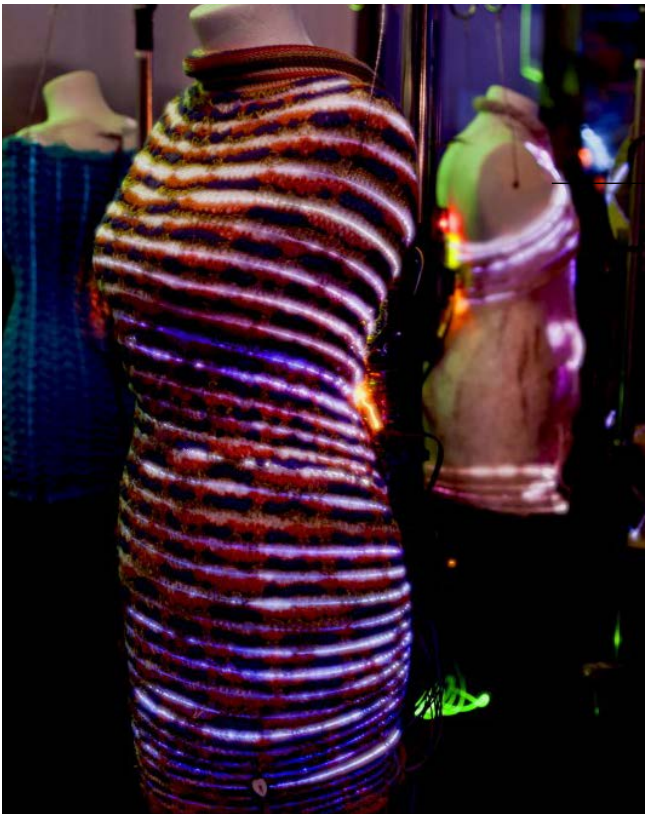
Client: Analema Group

KIMA (2016)

KIMA is a performance series that is playing with the visualization of sound by generating and modifying chladni-figures, caustics and fluid-simulations. The sound of singing-bowls and vocals are captured and analyzed in realtime. The visuals are generated on the spot. I have learned a lot about sound and it's analysis in this project.

Keywords: C++11, OpenFrameworks, Java, Processing, OpenGL, GLSL, Audio Reactive, Fluid Dynamics Simulation

<https://analemagroup.com/projects/kima-at-in-cloodu-art-festival-2015-london/>



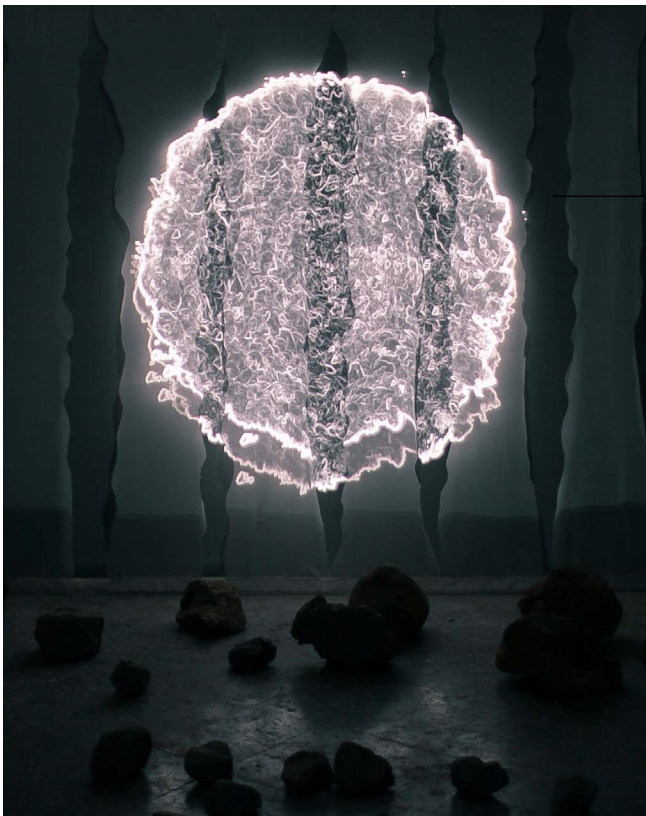
Client: Raune Frankjaer

Lightning Bug (2014)

„Lightning Bug“ is an interdisciplinary design research project, investigating the application of light in the extension of interpersonal communication. A small but complicated decentralized network of XBee-Radios to control lights and sound. Microprocessor-programming is an challenging but interesting area.

Keywords: XBee Radio Communication (Point-to-Point), Arduino, Electronics

<http://urbaninteraction.net/project-lightning-bug/> <http://frankjaer.de/creating-wearable-networks-with-soft-circuits/> Link3: <http://frankjaer.de/lightning-bug/>



Client: Agnes Chavez

Origination Point | Havana Biennale (2015)

Origination Point is a generative interactive projection installation originally exhibited at the 12th Havana Biennial in Havana, Cuba. I have developed the Kinect V2 interaction and storylined generative visuals that explore the depth of materiality. Written in C++.

Keywords: Timelined Generative OpenFrameworks graphics, Audio Reactive, Interactive via Microsoft Kinect 2, C++11, Detecting rocks placed in front of the installation

<http://agneschavez.com/xtreeprojectother-works/origination-point/>



BIOTA (2019)

BIOTA is a data visualization installation that explores biodiversity loss through the micro-macro lens of new sensing technologies. This bio-data was used to generate an algorithmic pattern of growing circles visualizing the diversity of species collected from the Rio Fernando and their relational abundance.

Keywords: Timelined Generative OpenFrameworks graphics, C++11

<http://agneschavez.com/biota/>