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**PIKSEL**  
festival for elektronisk kunst og fri teknologi  
Strandgaten 207, 5004 Bergen, Norway  
+47 90665018 info@piksel.no www.piksel.no

## PIKSEL19 Workshops

to attend: [piksel19@piksel.no](mailto:piksel19@piksel.no)

<http://piksel.no>

Piksel19 is proud to present the workshops for the 17th festival edition. Ranging from bioart workshops which target environmental and ecological issues to smart city technotopias and video manipulation software created for and by artists, all mixed with DIY electronics and, artistic approaches.

**Urinotron** is an installation that can produce electricity at a local or even micro-local level, from an organic waste, familiar but intimate, the urine. The workshop shows how to build up an Urinotron from scratch.

Cy Keener travelled to the Arctic to deploy RGB light and temperature sensors through sea ice, he is using these open source electronics and data at his installation Digital Ice Core. At his workshop “**Environmental / Biological sensing using Arduino and other open source approaches**” he will train the participants on every DIY sensor that he uses to do this project.

**Mapping Smart Futures** the smart city technotopias focusing in South Korea and its smart cities as a case study. In the workshop attendants will unpack the omnipresence of technology in the ‘green’, sustainable, and clean cities and by applying Open Source Intelligence tools, citizen forensics and grassroots journalism we want to look at the current state of internet infrastructure in Scandinavia, with a special focus on Norway.

**Invisible Ecologies Lab:** wind instruments. The Wind Instruments Lab proposes to construct different environmental sensors and explore different sound processes for environmental and meteorological analog data to form a WindSynthLoop, a wind interactive electronic music instrument.

**EXCERPT** video manipulation software. Visual artists need to screen videos of high quality in many different contexts: from clean video work presentation, single channel video in gallery, a series of video for musical support, audiovisual performance with real time video handling, use of pre-recorded material and real time generated images. Excerpt can do all that.

The workshop **Sounding Feet** explores how small postural changes of a dancer can be used to control music. From an artistic point of view, this interactive relationship links the musical outcome of interaction to the proprioceptive awareness of a dancer and it exposes to an audience through the auditory modality a dancer’s minute movements that might be visually hidden. The project follows an approach that combines musical ideation, dance improvisation, interaction design, and engineering. Through this combination the development and design decisions (e.g. the characteristics, number and position of force resistive sensors) can be informed by artistic criteria.



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**Venue:**

Piksel Studio 207  
Strandgaten 207  
5004 Bergen

***Friday 15th - Sunday 17th November***

- Urinotron, *Sandra and Gaspard Bébié-Valérien(FR)*  
*Friday 15:00 - 19:00*  
*Saturday 12:00 - 19:00 - with a break*  
*Sunday 12:00 - 14:00*

***Friday 22<sup>nd</sup> November***

- 10:00 - 13:00 Environmental / Biological sensing using Arduino and other open source approaches by Cy Edgar Keener (USA)
- 10:00 – 13:00 EXCERPT video manipulation software by Gregoire Rousseau (FR)
- 15:00 - 17:00 Sounding Feet by Instituto Stocos: Pablo Palacio, Daniel Bisig, Muriel Romero (ES)

***Saturday 23rd***

- 10:00 - 13:00 Invisible Ecologies Lab: wind instruments by Gabriela Munguía (AR)
- 15:00 – 17:00 Mapping Smart Futures by Andreas Zingerle, Davide Bevilacqua, Linda Kronman (AT/Fl/IT)

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## Urinotron

## Sandra and Gaspard Bébié-Valérien

*Friday 15th - Sunday 17th of November*

Urinotron is a large-scale installation that takes our organic waste (urine!) and transforms it into power. Contribute your urine and then put your feet up as the salts in your liquid gold turn into sustainable pee power. Urinotron combines scientific equipment, engineering skills, reels of electronic wires in an artistic equivalent of an alchemist's workshop will be producing a different kind of gold.

The project is declined according to the contexts it is hosted. For Piksel festival, a unic workshop will be organized to build a new version of the Urinotron, collectively made and opened to improvements or inventive skills. As energy is one of the most important stakes of our society, working together around the Urinotron will offer the opportunity to think about other energetic models and why we are flushing such a valuable resource.

The general shape of the Urinotron crosses the aesthetics of alchemy, the assembly of heterogeneous elements such as glass, steel, copper, carbon, aluminium, coal and constitutes a clandestine laboratory within which are assembled tanks, electrodes, batteries, cables. This great whole can be likened to a giant microbial battery, functional and whose objective is not so much to reproduce or improve existing research in laboratories on this subject but rather, through a symbolic and artistic bias, to develop a setting criticism of the technique to test the limits and create, then, a material





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judgment on the industrial and capitalist context about bioenergies.

The challenges associated with the energy transition engage us to rethink our uses, our consumption patterns and industrialization in our societies. From household appliances to transportation, from the management of public lighting to the optimization of web pages (a google search would be equivalent to a boiling water pot), each gesture is the object of the calculation of its carbon footprint and its cost energy. The hyper-industrialization and the abstract nature of pollution and global warming (micro-particles, gases, spatials and elusive temporalities on an individual scale) produce a shift, a decoupling between the production of energy and its use. The growing intermediation of these circuits plays a role in the loss of consciousness of each person's place. Yet as basic, unlimited and easily adaptable resources, renewable energies open up a resilient economic model.

The intention of this project, symbolic and concrete, points the balance of power between a dominant, centralized electricity production and a microelectricity produced by each one of us, recyclable, reusable and sustainable. This form of resistance to this economy in tension can be found outside, also, of the exhibition context, and makes it possible to think the project with a nesting in the public space within which the installation would maintain its specificity but would be connected to common uses, useful and to rethink the public space and its uses.



**Sandra and Gaspard Bébié-Valérien (FR)**

<http://www.art-act.fr/en/>

<http://www.oudeis.fr>

Sandra and Gaspard Bébié-Valérien work together since 2004. Their projects include organic, chemical and electronic materials. Interested in energy, food, climate, health or natural and industrial resources, they explore the intricate dependencies between industrial society and the living (human, animal, plant and microbial). Thinking about nature and industry interest them because it reveals, according to them, a paradigm of power games constitutive elements in our society and break with a romantic vision of nature as an immutable environment. Sandra et Gaspard Bébié-Valérien have exhibited and participated in several exhibitions and festivals including Voltaje Festival (Bogota), Rua Red (Dublin), the EDF Foundation (Paris), the Pyramide du Louvre (Paris), the BIAN (Montreal), Centraltrack (Dallas), the National Dramatic Center (Montpellier), SKOL artcenter and Art Souterrain (Montreal) or the Santa Monica art center (Barcelona)...



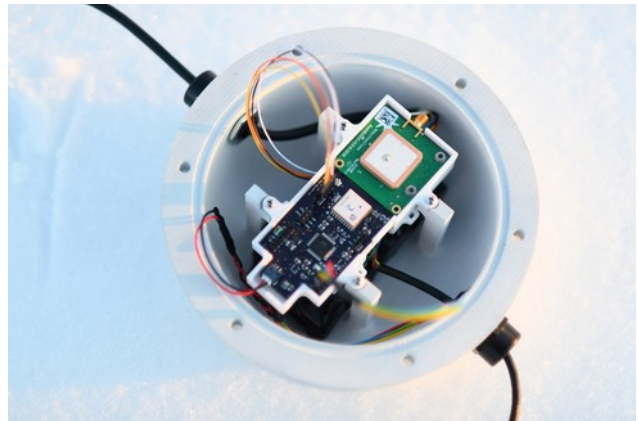
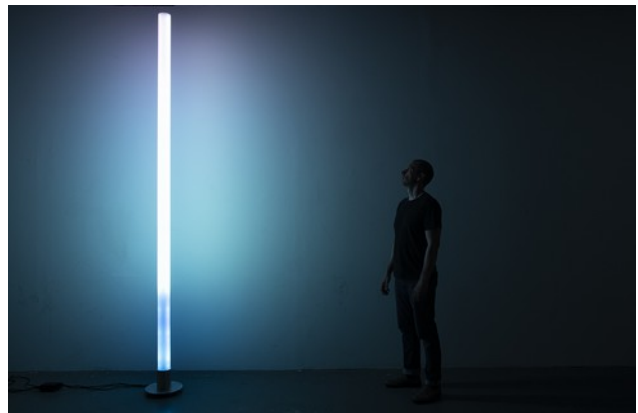


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# Environmental / Biological sensing using Arduino and other open source approaches Cy Edgar Keener

Friday 22nd November - 10:00 - 13:00

Find out what it takes to untether your Arduino prototypes from your laptop, and deploy them in the field for environmental or biological purposes. Learn the basics of batteries, solar, Wi-Fi / cellular / satellite communication and sleep modes. Get the download on batteries – what kinds are out there and all the factors that determine how long a battery will last. Try out different solar panels, and learn about charge controllers. Check out cellular communication from Particle.io, and satellite communication via the Rock Block. Find out why sleep modes are so important, and see a range of hardware approaches to reducing power consumption such as using a bare microprocessor and switching auxiliary devices. See how to bring all this info together using both data sheet and empirical approaches to building a current budget, so you can predict how long your untethered device will last. Info and strategies can be applied to a range of projects including wearables, IOT devices, and environmental / biological monitoring. This session will be a mix of info, hardware show and tell, and hands-on activities with a variety of sensors.



**Cy Edgar Keener (US)**

<http://www.cykeener.com/>

Assistant Professor of Sculpture and  
Emerging Technology, University of  
Maryland  
United States



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In March of 2019, Cy Keener travelled to the Arctic to deploy RGB light and temperature sensors through sea ice. *Digital Ice Core* is a light sculpture that re-presents ambient light readings in the ice and ocean below at full scale, recorded at noon local time between April 5 and June 14. The sculpture enables viewers

Cy Keener is an interdisciplinary artist who uses environmental sensing and kinetic sculpture to record and represent the natural world. He is an Assistant Professor of Sculpture and Emerging Technology at the University of Maryland's Department of Art. His work includes a range of data-based installations to visualize diverse phenomena including sea ice, wind, rain and ocean waves. He received a Master of Fine Arts from Stanford University, and a Master of Architecture from the University of California, Berkeley. Cy has completed commissioned installations at the Scottsdale Museum of Contemporary Art, Stanford University, Suyama Space in Seattle, and the Rubin Center for the Visual Arts at the University of Texas. Over the past year Cy has presented his work at the International Symposium on Electronic Art in Durban South Africa, the National Academy of Sciences in Washington D.C., and OCAD University in Toronto.





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## EXCERPT video manipulation software

**Gregoire Rousseau**

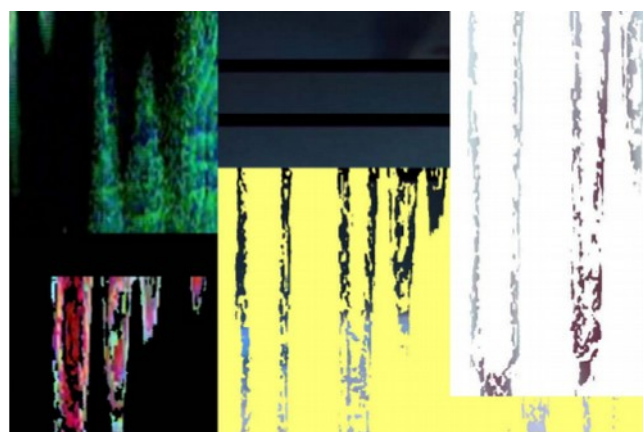
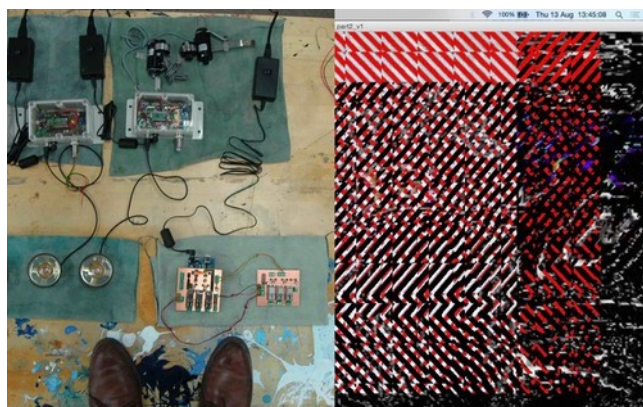
*Friday 22nd November - 10:00 - 13:00*

Visual artists need to screen videos of high quality in many different contexts. Possible context spans from clean video work presentation, single channel video in gallery, a series of video for musical support, audiovisual performance with real time video handling, use of pre-recorded material and real time generated images.

We started coding in Processing/Java programming language software to manipulate video as a constant stream of single still images. EXCERPT software allows reaching or manipulating each pixel of the picture/frame from the video materials, and outputs it as new video stream.

This perspective allows a new type of work in real time video manipulation. EXCERPT does not only work as a video mixer that would merge video streams into a single channel, EXCERPT intends as well to gather video streams in screen spaces, and a ground to implement real time generated images. An Excerpt is defined as an extract from a larger work. EXCERPT software screens part of the video material in division of space and techniques.

EXCERPT connects perfectly with Arduino, and triggering video material with sensor data happens easily. Moving images can be controlled by real world sensors bridging the gap between sensible world and on-looker position. Once the code ready for the specific use, it can be exported to an application for computer and scheduled to activate



**Gregoire Rousseau (FR)**

<http://rousseau.fi>

Academy of Fine Arts, Finland.

University of Applied Arts, Aalto Finland.

Rabrab Press, Finland.

Gregoire Rousseau is a Helsinki-based artist, educator and expert in technology. He graduated in Computer Science in 2006 and received Master of Fine Arts in 2018. His



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according to gallery opening hours.  
EXCERPT is open source and it is encouraged to be shared!

Skills acquired:

- Introduction to Processing and related video founded and contributes to Rabrab Press.

libraries.

- Image manipulation at pixel level
- Use of real time or pre-recorded footage
- Use of the keyboard as video editor
- Combine multiple video stream into a single channel
- Connect to Arduino over serial port
- Connect to MIDI
- Introduction to Arduino and sensor technology.

research focuses on electricity as a form of energy in the arts and its social and political implications. He lectures on technology in contemporary art practice in art academies in Europe, exhibits internationally and co-

His artistic practice originates in early 2000s with sound performances using self designed analogue electronic instruments. He drifted toward visual form and since held exhibitions in Helsinki, Oslo, Pristina, Berlin, Istanbul, Research Pavillion in Venice, residency for 3rd Tiblisi triennale, C.A.C Shanghai, and recently at cité internationale des arts in Paris.

Participants should bring their laptops. No specific competences pre-required.

## Sounding Feet by Instituto Stocos: Pablo Palacio, Daniel Bisig, Muriel Romero

Friday 22nd November - 15:00 - 17:00

**Sounding Feet** explores how small postural changes of a dancer can be used to control music. From an artistic point of view, this interactive relationship links the musical outcome of interaction to the proprioceptive awareness of a dancer and it exposes to an audience through the auditory modality a dancer's minute movements that might be visually hidden. The project follows an approach that combines musical ideation, dance improvisation, interaction design, and engineering. Through this combination the development and design decisions







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(e.g. the characteristics, number and position of force resistive sensors) can be informed by artistic criteria.

Teachers: Instituto Stocos: Pablo Palacio, Daniel Bisig, Muriel Romero



### MURIEL ROMERO

<https://www.stocos.com>

INSTITUTO STOCOS

Spain

Is a dancer and choreographer. Her work is currently focused on the investigation of generative choreographic structures and the incorporation of abstractions taken from other disciplines such as music or mathematics. She has won several international prizes such as Moscow International Ballet Competition, Prix de la Fondation de Paris-Prix de Laussane and Premio Nacional de Danza. She's been first soloist in some the most prestigious companies around the world including Deutsche Oper Berlin, Dresden Semper Oper Ballet, Bayerisches Staatsballet Munchen, Gran Théâtre de Genève o Compañía Nacional de Danza. During her trajectory she's worked with some choreographers of our time like W. Forsythe, J. Kylian, Ohad Naharin or Saburo Teshigawara. She teaches at the Professional Conservatory of Madrid.



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**PABLO PALACIO**

<https://www.stocos.com>

INSTITUTO STOCOS

Spain

Pablo Palacio is an independent composer currently living in Madrid. His pieces have been performed in many countries and edited by the label Sub Rosa in Anthology of Noise and Electronic Music. He is also an active composer for dance and performing arts. He has divulged new perspectives and technologies in sound composition and interactive music through publications, workshops, and talks in several conservatories, universities and institutions such as University of Genoa (Italy), International Computer Music Conference (ICMC), Missouri State University (E.E.U.U), or International Symposium of Movement and Computing (MOCO). He co-directs Instituto Stocos, a project focused on the analysis, research and development of the interaction between body gesture, music and interactive visual imagery, integrating in a performative context abstractions taken from other disciplines such as artificial intelligence, biology, mathematics or experimental psychology, participating in pioneering European research projects such as WhoLoDancE, Metabody, and D.A.N.C.E.

**Daniel Bisig**

Institute for Computer Music and Sound  
Technology, Zurich University of the Arts  
Zurich, Switzerland



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## Invisible Ecologies Lab: wind instruments Gabriela Munguía (AR)

*Saturday 23rd November - 10:00 - 13:00*

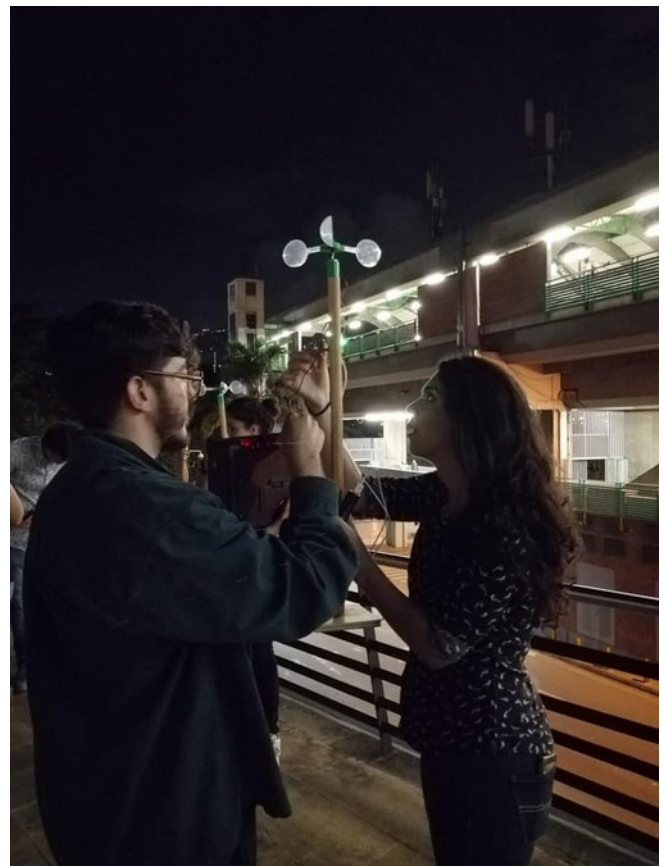
The Invisible Ecology Laboratory is an experimental educational proposal which from the exchange of disciplines and the creation of open low-cost technologies, looks to activate processes of decentralization of knowledge and the development of tools and languages in common for artistic production and co-creation with nature and territorial phenomena.

The Wind Instruments Lab proposes an intensive work space of 3 days 3 hours each encounter in which we will construct different environmental sensors, explore different sound processes and visualization of environmental and meteorological data. At the end each participant will develop their own WindSynthLoop, an electronic musical instrument that generates sound which is modified by the wind speed from a homemade anemometer.

### **Gabriela Munguía**

<http://www.gabrielamunguia.com/>

She is an artist, professor and researcher. Her work explores the imaginaries and biopoetics/politics that construct our understanding about the living and the natural phenomena, merging the fields of ecology, electronic arts, bioart and diy technologies. She studied Arts and a master in Electronic Arts, UNTREF, Ar. She is professor at UNTREF. Is co-founder Electrobiota Collective and co-coordinator of the Subaltern Geopoetics Laboratory. Recently was part of the exhibition "La Fabrique du vivant" at the Pompidou Center. She has participated in different international festivals and art residencies in Mexico, Argentina, Brazil, Colombia, Netherlands, USA, Iran, Egypt, Switzerland, Portugal, among others. Currently is part of the INNOVART, France-Argentine Program of Art and Innovation.







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# Mapping Smart Futures

## Andreas Zingerle, Davide Bevilacqua, Linda Kronman

*Saturday 23rd November - 15:00 - 17:00*

We are interested to continuously explore methods which brings forth new forms of artistic research, especially in context of digitalization, and everyday use of technology in urban environment. Following previous academic and artistic research projects 'Behind the smart world' and 'The Internet of other people's things', we want to continue to focus on artistic research that investigates the relationship between increasingly corporatized cities and their citizens. In the research we intend to focus on smart city technotopias and their implementations. We are interested to artistically explore:

- 1) what implications corporate power has on the rights of citizens,
- 2) how it affects citizens' behavior and,
- 3) how sustainable these smart city concepts are and if the Internet infrastructure is actually ready to serve the future demands.

A smart city: sustainable, green, effective and clean. It citizens protected from disasters, safe and secure. A sensing city full of life. This is how smart city proposals imagine our future urban life. Specially-built new cities, rising from swamps and marshland, built in deserts or on farming land. There is a disconnection between the vision of the smart city and the incomplete real city. In reality software fails, hardware becomes obsolete, the city is constantly



**Andreas Zingerle (AT) & Linda Kronman (FI)**

<http://www.kairus.org>

KairUs Art+Research





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under construction, projects are on hold, and interests of citizens and corporations are competing. Smart cities are actually business models, demo cities, test-beds and playgrounds to benchmark who is willing to become a citizen in these high-tech neoliberal environments.

In this workshop we want to investigate the sustainability aspect of smart cities and its underlying infrastructures. One of the aspects of the focus lies on the very same use of "sustainability" in the jargon of smart urban planners, which claim the eco-friendliness of the smart world – which means saving resources and optimizing operational costs thanks to the adoption of better technologies. In this case, the sustainability becomes one further rhetorical dispositive of green capitalism to enforce the production of more and more devices. Based on previous research in South Korea we observed material traces of smart city failures in form of empty malls, dysfunctional high-tech waste management infrastructure, and obsolete tele-presence technology. In the workshop we will unpack the omnipresence of technology in our 'green', sustainable, and clean cities and by applying Open Source Intelligence tools, citizen forensics and grassroots journalism we want to look at the current state of internet infrastructure in Scandinavia, with a special focus on Norway.

Together we will create a visual representation of our research on material traces, green electricity and eco data-centers.

KairUs is a collective of two artists Linda Kronman (Finland) and Andreas Zingerle (Austria). Currently based in Bergen (Norway), they explore topics such as vulnerabilities in IoT devices, corporatization of city governance in Smart Cities and citizen sensitive projects in which technology is used to reclaim control of our living environments. Their practice based research is closely intertwined with their artistic production, adopting methodologies used by anthropologists and sociologists, their artworks are often informed by archival research, participation observations and field research. Besides the artworks they publish academic research papers and open access publications to contextualize their artworks to wider discourses such as data privacy & security, activism & hacking culture, disruptive art practices, electronic waste and materiality of the internet.

Principal contact for editorial correspondence.

### **Davide Bevilacqua**

<http://www.davidebevilacqua.com/>

Davide is artist and curator working in the blurry area between media and contemporary art. He is interested in the rhetorics of the technological development as well as on the understanding of the art exhibition as an "interface", a processual space for exchange. Lives and works in Linz, Austria.