



Hello World!

Welcome to School of Machines, Making & Make-Believe's Early 2025 Program!

This cover image is one of my earlier experiments with my friends Eden.Art platform. I wanted to explore the representation of human emotional experience through prompting. In this particular case, I wanted to see what it looks like to wish you could say something to someone that you for some reason just can't bring yourself to say. The words in this case: *it feels like we've known each other since we were kids.*

Of course, results varied. But this image is special somehow, the sentiment was captured. It feels real to me.

It's like with any idea that you think will be great, like mixing mayo and mustard together to dip french fries into. And then you actually try it, and your brain whispers back: Yes. This. Is. It.

I had this the other day, too, when I was thinking about nature and how it can seem so abstract and could I learn something by trying to mimic it? So I decided to flap my arms as wings for five minutes just to see. But before I did, I looked up how many flaps a bird makes and the search said 200 times a second which is a lot.

So I start flapping my arm wings and at first its funny and clunky and slow and I remember that for full effect this should be fast. So I start flapping faster and faster, and at some point, I am feeling a wind generating and I start to feel the gravity all around, the resistance, and it feels interesting and kind of soft, like space is an infinite puffy jacket, which is kind of fitting, I suppose, as most puffy jackets are filled with down feathers. Anyway. In that moment, with those new conditions my brain created, I got to experience a slice of life that was new to

me. And It Was Amazing.

I'm thinking a lot these days about what this chaotic nonsensical world has to offer those of us clinging to sanity for dear life. And with each new uncertain day, there are moments I am reminded of how much art there is still to make, how many ideas still to have and to share, how many eyes we have yet to look deeply into, how many flavors yet to taste, how all this EXPERIENCING could really bring us closer to ourselves and to each other, if only we are willing to stay open and to go where we've never let ourselves go before.

We invite you to open up and to explore these artistic and vulnerable avenues and more with us; this term, through:

- fungi, foraging and sonification;
- biohacking and transhackfeminist tools;
- disconnection/reconnection and explorations of the eco-luddite;
- acoustic ecology, storytelling, and web audio;
- bodies, motion tracking, and stable diffusion;
- touch designer, typography, and social change;
- data science, feminist principles, and visual activism;
- art, manufacturing, and PCBs.

Let's come together to experience, make, create, and dream up new and better worlds for ourselves and our communities. It's time. <3

In Solidarity,

Rachel Uwa,

Creative educator, human, and artist at School of Machines

UPCOMING COURSES

EARLY 2025 COURSES

ONLINE TOPICS | SCHEDULE::

Across the Fungiverse: Fungal Ecologies, Materials and Soundscapes

Tuesdays, 11. February - 11. March, 6-8PM CET
#mycology #fungi #biofabrication #poetics #speculativdesign #foraging #inks #biodata #sonification

GynepunkLAB as Medical Performativity

Mondays, 17. February - 17. March, 6-8PM CET
#transhackfeminist #biohacking #methods #historicaltools #medicalviolence #futures #methodology #subvert #toolkits

Ecologies of Technology: Tools to Disconnect/Reconnect

Wednesdays, 26. February - 26. March, 8-10 PM CET
#environmentalimpact #offline #tools #resources #disinformation #federaldiverse #sustainability

Making Sound-Places

Wednesdays, 19. March - 16. April, 6-8PM CET
#acousticecology #soundsynthesis #sampling #fieldrecording #javascript #webaudio #websockets #storytelling

Mediated Bodies

Mondays, 24. March - 21. April, 6-8PM CET
#bodies #motiontracking #technology #audiovisual #rokoko #touchdesigner #davinci #controlnet #stablediffusion

Generative Narratives for Change: Code, Typography, and Storytelling in Touchdesigner

Thursdays, 27. March - 24. April, 6-8PM CET
#creativeprogramming #generativedesign #realtime #visuals #narratives #typography #socialchange

Data Cyborgs - Constructing Datafied Relations

Thursdays, 27. March - 29. May, 6-8PM CET
#data #datascience #feministprinciples #casestudies #storytelling #python #machinelearning #webscraping #models #visualization

OFFLINE TOPICS | SCHEDULE::

PCB Design for Artists

Saturday/Sunday 2. - 3. April
#art #design #PCB #CAD #graphics #software #automation #manufacturing

NO EXPERIENCE NECESSARY

Women and persons from BIPOC, LGBTQIA+ and other under-represented communities in the tech and arts fields highly encouraged to join us.

Don't forget. We have a limited amount of reduced fee need-based scholarships available for every online course reserved for women, BIPOC, LGBTQ+ and other under-served communities who would otherwise be unable to attend. Info to be found on each course page. Scholarships close one week before program begin.

Across the Fungiverse: Fungal Ecologies, Materials and Soundscapes

- 11. February - 11. March
- Online!
- Five-weeks, Tuesdays, 6-8PM CET
- Small class of participants
- Instructor Catherine Euale



COURSE DESCRIPTION

In this course, we will explore the mysterious and magical world of fungi, combining mycology, history, material science, and sensory experience. We will learn about the origins of fungal biomaterials, from ancient technologies that our planet has been refining and that land-based communities have been using for centuries to modern applications in material science and art.

Throughout the series, we use our bodies as sensory tools to get entangled with the fungal underground. We will start each session by grounding through meditations to connect with the 'mycelial state of mind' and explore the poetic and philosophical aspects of fungi through excerpts from texts like Let's Become Fungal, Entangled Life, The Mushroom People, and Myth & Mycelium. We'll discuss themes such as the ephemeral nature of fungi, their roles in ecosystems, and their symbolic associations with death and rebirth.

Before we get into the hands-on work, we'll co-create a framework for engaging with fungi in an ethical, respectful way. We'll set some ground rules and intentions for our practice, making sure we're approaching our more-than-human collaborators with the care they deserve.

The course will cover the language and knowledge specific to fungi, understanding the specialized terms and perspectives within the mycological community. We will cover foraging and material gathering, where participants will learn about various fungi suitable for creating mushroom paper, pigments, and inks. We will also introduce the basic methods of creating mycelium-based materials using GIY kits and guide participants in creating simple forms such as candle holders or plant pots using accessible molds from recycled containers and making sculptural mixes for free-form fabrication. Lastly, we will learn to translate biological frequencies emitted by fungi into soundscapes using tools like Ableton or simple synth software.

WHAT YOU WILL LEARN?

Theory

- Mycological jargon.
- Historical and modern uses of fungi in biofabrication.
- Ecologies and relationships of fungi with other organisms.
- Fungal poetics through literature and philosophy.
- Mycelial minds meditations.
- Speculative means of engaging with interspecies modes of communication between humans and fungi.

Practicum

- Basic foraging skills to identify and gather local fungi, processing and storage for material use..
- Create mycopaper from foraged mushrooms.
- Make inks from mushrooms for printmaking and watercolors..
- Introduction to mycelium-based objects like candle holders or plant pots using molds or sculpting techniques.
- Use software to turn fungal frequencies into soundscapes with biodata sonification device.
- Collaborative framework for ethical engagement with fungal collaborators.

WHO IS THIS COURSE FOR?

This course is introductory level, it will set anyone without prior experience off with a set of tools and resources for deepening their practice in any of the methodologies covered. It's perfect for budding mycophiles, artists, designers, makers, writers, crafters, scientists, sound artists, and bio-curious folk. It is especially suited for those keen on experimenting with fungi in different materialities.

FOR MORE INFO AND TO REGISTER, CLICK [HERE](#).

GynepunkLAB as Medical Performativity

- 17. February - 17. March
- Online!
- Five-weeks, Mondays, 6-8PM CET
- Small class of participants
- Instructor Klau Chinche



COURSE DESCRIPTION

Medical violence it's a practice imprinted for centuries which inherits abuse from its tools to its rituals. Medical violence is happening, and it's an unfortunate and continuous cycle. Can we imagine a "future of health" where temporal hierarchies can be subverted as they relate to health issues? How can we create open spaces to inform ourselves and practice prevention, treatment, and healing of our "health/illness" conditions? How can biohacking and DIY knowledge and practices provide strategies and speculative scenarios for effective disruptions?

From an independent research and practice perspective, we will delve into the effects and interconnections of health, technology, gender and difference, activist/hacker influence and political experimentation. The objective is to re-visit, re-think, co-design and develop processes, tools and technologies of biological exploration, from a transhackfeminist perspective, while focusing on low-cost diagnosis for self-

management of health through tools and techniques, software & databases, and performative narratives.

In this course, we will explore ex-centric & THfeminist methodologies, inhabit together a place of interference, bodily exorcisms, situated technology, techno-scientific wizardry, self-management of nomadic laboratories, critical anatomical illustrations and more. Additionally, we will share comparative historical tools and digital platforms; create, look and find low-cost technologies, share transfeminist biohacking methods and develop depatriarchalized historical narratives to diagnosis and practices. Sharing tools, processes and experiences is vital and necessary to creating preventative resistance and action, practices that anticipate, project and execute changes in personal and collective history around genealogy, blood and memory.

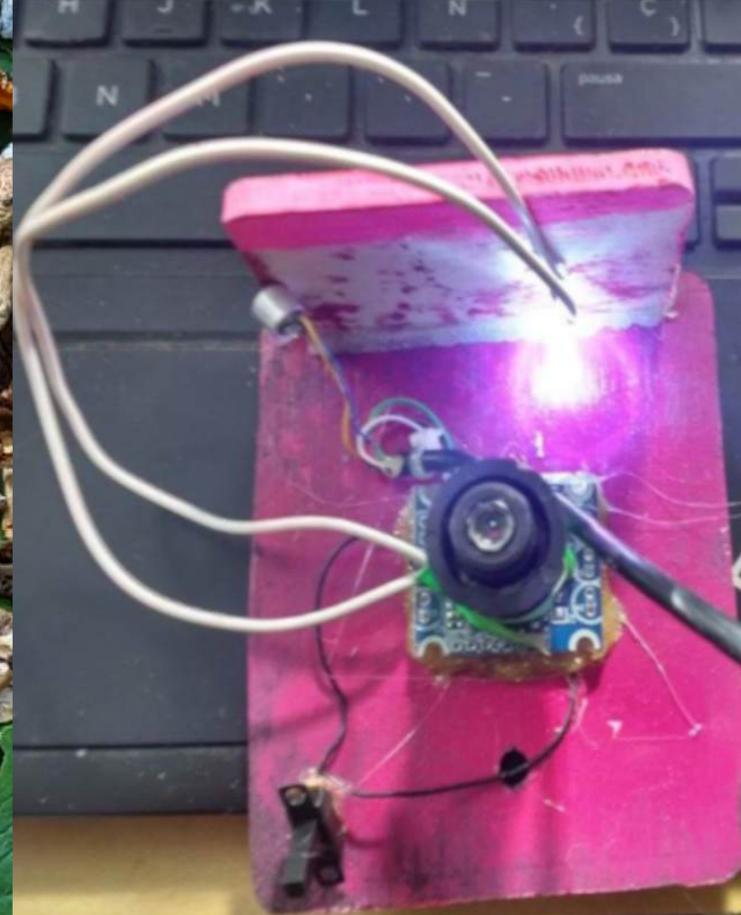
WHAT YOU WILL LEARN?

- Comparative historical tools and digital platforms
- Create, view and find low-cost technologies
- Share transhackfeminist biohacking methods
- Develop depatriarchalized history narratives to diagnosis and practices

WHO IS THIS COURSE FOR?

For everyone that has experienced medical violence. For everyone that has felt uncomfortable in a medical office, for those for whom health and mainstream medicine has only come to mean suffering and disconnection. For health/medical students, health professionals, for all of "we" the potential "patients", and all who wonder: Can this be different? Can we question the meaning of treatment and health systems? How we start and connect? For everyone that is open to discussing and sharing meaningfully in a transhackfeminist based project, come join us.

FOR MORE INFO AND TO REGISTER, CLICK [HERE](#).



Ecologies of Technology: Tools to Disconnect/Re- connect

- 26. February - 26. March
- Online!
- Five-weeks, Wednesdays, 8-10PM CET
- Small class of participants
- Instructor Alistair Alexander



COURSE DESCRIPTION

The rapid growth of digital technologies and AI has introduced a new and pressing ecological challenge, with far-reaching impacts on the planet, human societies, and more-than-human communities. These systems extract not only energy, minerals, and labor, but also our data and collective well-being. In this course, we'll investigate the complex ecologies of the platform economy, grounding these seemingly overwhelming issues in our lived experience to uncover ways to navigate, resist, and reimagine them.

Through a blend of discussion, hands-on exploration, and alternative perspectives, we'll rethink our relationship with technology. Drawing from critiques and creative practices—from neo-luddism to open-source communities—we will explore pathways toward more balanced, intentional, and sustainable ways of engaging with the digital world. This is an opportunity to connect deeply with others, with ourselves, and with the living world around us, as we envision a post-digital future shaped by care and community.

WHO IS THIS COURSE FOR?

We'd love in this course a diverse mix of people who want to critically explore their - and our - relationship to technology.

It's a non-technical course, so no prior knowledge is expected. Questioning technologists, artists, researchers, designers, activists would all add hugely to the discussion.

We'd also love people to join who have a particular interest in more-than-human, regenerative and systems-based perspectives. But people who are just curious about those topics, and how they might apply to technology, will have just as much, if not more, to contribute.

IN THIS COURSE YOU WILL LEARN

- How the internet really works - from programmatic advertising to why Silicon Valley is betting the (troll) farm on AI
- An in-depth understanding of the environmental impact of technology
- A very different - but practical - view on how we might look at technology and progress

YOU'LL LEARN NEW TOOLS AND FRAMEWORKS FOR

- Re.evaluating your relationship and technology
- How to go offline gracefully
- How to create boundaries around your digital and non.digital lives
- Tools and strategies for taking your friend and networks to better spaces - on-line and offline

YOU'LL ALSO LEARN PRACTICAL SKILLS FOR

- Understanding the environmental impact of your technology
- How you can keep your devices working for longer and better
- Where you can find tools, resources and communities for low-impact tech
- How to trace disinformation and toxic behaviours online
- Setting yourself on platforms on the fediverse

FOR MORE INFO AND TO REGISTER, CLICK [HERE](#).

Making Sound-Places

- 19. March - 16. April
- Online!
- Five-weeks, Wednesdays, 6-8PM CET
- Small class of participants
- Instructor Jacub Fiala



COURSE DESCRIPTION

Hearing is considered our second most important sense, but the role of sound in shaping our experience of the world is often overlooked. Sound has the uncanny power to radically reframe our other sensations and embed them within spacetime. This makes sound one of the most effective tools for creating a sense of place in physical and digital worlds. Technologies such as headphones along with the Web have transformed the way we perceive our sonic environment. We already live in an augmented sonic reality for much of our waking life. As creatives, artist and designers, we can use sound to construct new sensed places - Sound-Places - accessible from all over the world with only a browser and an internet connection.

This class gives us a set of tools for sonic place-making on the Web. We begin, as sound practitioners always should, by listening. We investigate the sound-places we inhabit using R. Murray Schafer's idea of the Soundscape. We then learn about the basic elements of sound, skipping over the rigour of Western music theory through Daphne Oram's idiosyncratic approach. Once we are able to synthesize sound, we learn about how computers capture, store and play back audio, drawing from sampling approaches with focus on BIPOC artists. We take our sonic toolkit into 3D and learn about composing for places. Finally, we connect our Sound-Places over the Network, learning about digital sound as a tool for shared experiences.

By the end of the course, we will have grasped the fundamentals of analogue and digital sound, learned to program using JavaScript, Web Audio and WebSockets and explored a variety of ideas from music, engineering and ecology. We'll have had an intimate encounter with our sonic environments and discovered tools for creating Sound-Places within digital worlds. We will have created three sound art pieces on the Web, and a collaborative networked composition.

IN THIS COURSE YOU WILL BE INTRODUCED TO

- Acoustic ecology
- Sound synthesis
- Sampling
- Field recording
- JavaScript
- Web Audio
- WebSockets

WHO IS THIS COURSE FOR?

Creative folks who want to build digital places, programmers who want to use code to make sound, musicians interested in (non-musical) soundscapes, sound artists keen to work with web technologies. Prior programming experience is helpful but not strictly required. Code examples and 1-on-1 help will be provided if you are struggling with the programming parts.

FOR MORE INFO AND TO REGISTER, CLICK [HERE](#).

Mediated Bodies

- 24. March -21. April
- Online!
- Five-weeks, Mondays, 6-8PM CET
- Small class of participants
- Instructor Jessica Tucker



COURSE DESCRIPTION

This course invites us to think about how bodies perform with and within technological media. We will consider how bodies are represented in virtual media, from painting to photography, video, and the digital, and how the body itself is a medium and mediator. We will make and share our own experimental artworks while exploring radical and canonical artists and theorists from this multifaceted field.

We will consider the virtual body and the virtual perspective: how we see and how we are seen within technological fields of representation. We know that the movements and framing of a camera shape our experience of a film, putting us in a kind of virtual body moving around the world of the film to see what happens there. We also know that moving image technology allows us to see our bodies and others' bodies in ways that exceed our own capabilities and defy reality -- we can slow things down, speed them up, pause, repeat, zoom in, and manipulate the image in so many ways. When we work in virtual worlds, like 3D simulations, games, or motion-interactive video, we can bend bodies and perspectives even more beyond the real, and yet we still relate to what we experience there, with our bodies.

In this course, we will expand our understanding of embodiment with virtual technology, learning and experimenting with body tracking tools inside TouchDesigner, DaVinci Resolve, and Stable Diffusion. We will create new video works that use these tracking devices to remap, reinterpret, translate, and manipulate our own lived and experienced motion. We will reflect on the nature of these tools and their complicated histories, as well as their current applications in the world, in order to situate our own creations within this broader critical context.

IN THIS COURSE YOU WILL

- skeletal tracking with Rokoko Vision
- responsive body-tracking tools inside Touch Designer
- camera-tracking inside DaVinci Resolve
- ControlNet techniques with Stable Diffusion
- multi-platform processes, using motion tracked in one program to control animation in another

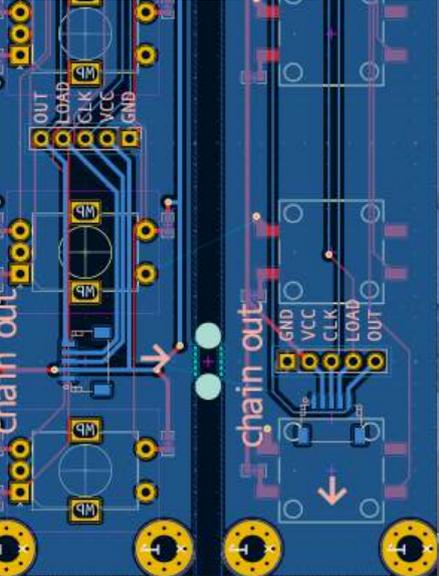
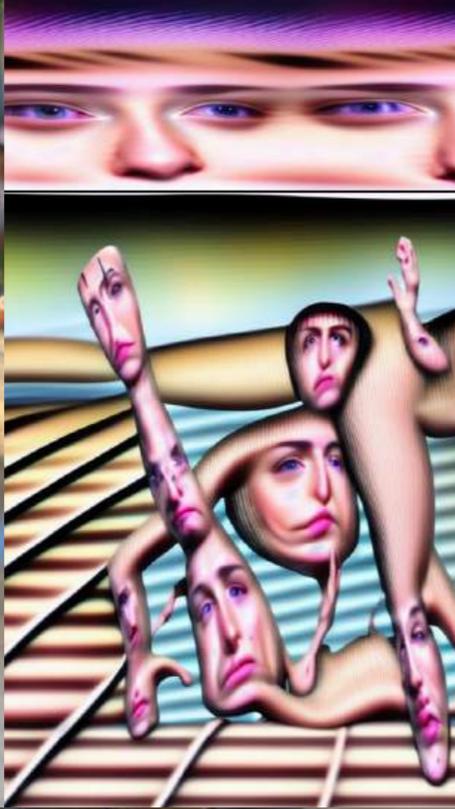
COURSE OBJECTIVES

- Broaden knowledge of the historical evolution of media technologies, their precursors, practical applications, and cultural effects, especially regarding the body.
- Become familiar with a wide range of artists whose works address, exemplify, or employ mediation of the body.
- Gain understanding of body-motion-tracking methods in contemporary creative software, and apply one of the demonstrated methods to a conceptually driven audiovisual project of your own.
- Develop a meaningful and applicable knowledge of how relationships between technologies and bodies shape identity and society.

WHO IS THIS COURSE FOR?

This course is suitable for all experience levels and will be exciting for anyone interested in how visual culture and technology shape our understanding and experience of our own bodies. Whether your interests are more with the body or more with the machine, our experiments with the meeting of the two will be enriching for anyone wanting to find more room for creative expression within our current multi-mediated reality. Those with prior experience in any of the covered techniques will find new ways of thinking about and combining these tools in their work. All participants will have a broader understanding of how and why tracking tools work, and the possibilities for using them counter-to the status quo.

FOR MORE INFO AND TO REGISTER, CLICK [HERE](#).



Generative Narratives for Change: Code, Typography, and Storytelling in TouchDesigner

- 27. March - 24. April
- Online!
- Five-weeks, Thursdays, 6-8PM CET
- Small class of participants
- Instructor Sahar Homami



COURSE DESCRIPTION

In an age where narratives shape our realities and define our identities, this course invites participants to explore the profound potential of generative design and code as catalysts for social transformation. Through the lens of TouchDesigner, we will navigate the intricate tapestry woven from storytelling, language, and typography, recognizing these elements not merely as tools, but as vessels of love and agency that can ignite collective consciousness.

Participants will engage in crafting dynamic, text-based compositions that play with meaning, form, and perception. Together, we will interrogate how code, as a tangible material, can transcend traditional narrative structures and invite new ways of seeing, feeling, and experiencing the world. Through the interplay of visual and textual storytelling, we will harness the power of generative design to articulate visions of hope, resilience, and change.

This course emphasizes both personal expression and our collective responsibility to create art that reflects our deepest values and aspirations. With each project, we will engage in embodied activism, allowing our creative practices to resonate with the heartbeat of the communities we inhabit. In doing so, we will strive to create work that is not only aesthetically compelling but also politically charged—art that speaks to the urgency of our times and the transformative power of love.

WHAT YOU WILL LEARN?

- Creative programming in TouchDesigner
- Generative design techniques with a focus on text
- Real-time visual narratives
- Code poetry and visual literature
- Code as a tool for political and social change
- Conceptual approaches to typography and narrative design

WHO IS THIS COURSE FOR?

This course is for artists, designers, coders, poets, storytellers, activists, and anyone interested in exploring the intersection of language, code, and visual design. While basic familiarity with creative coding is helpful, no prior experience is necessary,

FOR MORE INFO AND TO REGISTER, CLICK [HERE](#).

Data Cyborgs - Constructing Datafied Relations

- 27. March -29. May
- Online!
- Ten-weeks, Thursdays, 6-8PM CET
- Small class of participants
- Instructor Alexandre Puttick



COURSE DESCRIPTION

The oppressive structures of modernity rely on the construction of three abstract divisions— mind/body, individual/collective, and civilization/nature— in each case, imposing a relation of dominance of the former over the latter. The body reduced to an object, freedom equated with individualism, and nature rendered savage and exploited.

According to Togolese anthropologist and architect, Sénamé Koffi Agbodjinou, surveillance techno-capitalism optimizes for and accelerates the deepening of these schisms, moving fast and breaking things towards culmination in the Smart City, a factory for data extraction, where the idea of the optimized self is sold for the price of privacy and agency, a society driven by algorithmic governmentality.

This course will explore how a new balance can be struck, empowering participants to understand both the misuse of data and models and how they can instead be harnessed for acts of resistance and liberation. We will reframe the design and implementation of data science projects, combining the framework of value-sensitive design with eco-feminist principles and drawing from Simone de Beauvoir, Donna Haraway, James Bridle, Silvia Federici and others.

Situated within this reframing, students will acquire practical knowledge that will empower them to recognize and resist data as oppression and contribute to the construction of new datafied relations that aim not to divide but to unify.

IN THIS COURSE YOU WILL BE INTRODUCED TO

- basic Python (learn by doing approach)
- web scraping
- synthetic data generation
- machine learning
- visualization, and other tools for interpreting data and models
- Anvil for quickly prototyping Python webapps

COURSE OBJECTIVES

- Bring forth the limitations, oversimplifications, and hidden assumptions of data science, grounded in concrete examples that reveal the sociotechnical context and numerical encoding of power structures.
- Use that knowledge to reframe data science as data storytelling and world-building, teaching theoretical concepts through three case studies, each reflecting an act of building a data-mediated bridge across the divides created by oppressive power structures.
- Give participants practical knowledge and tools through demos and exercises in a collaborative learning environment, working towards the co-creation of new data stories by prototyping projects that aim to enact liberating change.

WHO IS THIS COURSE FOR?

Anyone with a desire to explore data science concepts in the context of data activism/activism. People looking to understand the algorithms that govern much of modern society. Artists, journalists or activists searching for ways to use data to explore an issue or further a cause. No prior experience necessary.

FOR MORE INFO AND TO REGISTER, CLICK [HERE](#).

PCB Design for Artists

- 5. - 6. April
- Sat. - Sun., 10-5PM CET
- IRL! at [School of Machines](#) in Berlin, Mitte
- Small class of participants
- Instructor Samuel Mann



COURSE DESCRIPTION

Printed Circuit Boards are modern sorcery: the amount of technology packed in their tiny footprint is bewildering, and incomprehensible to most of us. When we open up an old computer, we look with awe and wonder at the maze of copper traces and cryptic markings laid on its motherboard. Printed Circuit Boards are fascinating!

Can we as artists tap into wonder evoked by these mysterious high-tech objects?

In this course, we will misuse PCBs. We will look away from their functional, electronic purpose, and instead use the medium for artistic expression.

We will learn EDA software required to design PCBs, export production files, and learn how to place orders from JLCPCB.com. We will combine this with other graphics software (Illustrator, Procreate, etc) and see how PCB design is indeed quite accessible to visual artists, illustrators and graphic designers. More interestingly, we will discuss the aura around PCBs, look at the graphical elements that characterize them, and design our own artistic PCBs.

By the end of this course you will have learned the technical skills required to design and manufacture your own PCBs, and will have been exposed to references and rich conversations enabling you to elevate your designs.

WHAT YOU WILL LEARN?

- learning design automation software to design your own unique printed circuit board
- constraints and ordering process of PCBs
- Basics of graphic design tools (as necessary)

WHO IS THIS COURSE FOR?

This course is for artists, illustrators, graphic designers, objects designers, architects and anyone curious about exploring the possibilities of the PCB as an artistic medium. No prior PCB experience is necessary.

FOR MORE INFO AND TO REGISTER, CLICK [HERE](#).

