Made in Trbovlje

SPECULUM ARTIUM 2020

Predgovor / Introduction

Dvanajsti festival Speculum Artium tako pred organizatorje kot pred obiskovalce postavlja velik izziv. Kakor čas, v katerem živimo, nas zaznamujejo tudi umetniške postavitve, ki nam razkrivajo prihodnost. Humanizacija tehnologije, h kateri stremimo že vrsto let, se poleg vsakoletnih aktivnosti, kot so delavnice, pogovori in vodeni ogledi, tokrat vsebinsko širi tudi na spletno platformo. Tako bomo našo novomedijsko strast še močneje razširili po vsem svetu.
Eksperimentiranje z novo tehnologijo, iskanje možnosti, kako posameznika navdušiti in mu približati določene vsebine, misli in rešitve, nas popelje v svet domišljije in predvidevanja prihodnosti. Vsako leto predstavljamo nove produkcije mednarodnih in slovenskih umetnikov. Izbor gostujočih kuratoric nas v Novi Galeriji nagovori z deli, ki raziskujejo tehnologije v povezavi z naravoslovnimi in humanističnimi znanostmi, v avli pa se znajdemo med virtualnimi in kinetičnimi projekti, ki vsak po svoje pripovedujejo zgodbo o preteklosti, sedanjosti in prihodnosti.
Letos ima posebno mesto na festivalu DDTLab (projekt RUK, mreža centrov raziskovalne umetnosti in kulture), laboratorij, ki prav v času festivala obeležuje svoj prvi rojstni dan. Pod sloganom »Made in Trbovlje« bodo na ogled projekti, nastali v sodelovanju z organizacijami, podjetji in posamezniki, ki delujejo na področjih umetnosti, tehnologije, izobraževanja in gospodarstva. S projekti, nastalimi v DDTLab-u, želimo javnosti pokazati lastno produkcijo ter obiskovalce nagovoriti, da obiščejo naš laboratorij in skupaj z nami odkrivajo meje inovativnosti.
Kot vsi letošnji dogodki je tudi naš festival zaznamovan z nekoliko grenkim priokusom, vendar bomo iz grenkobe izstisnili toliko sladkosti, kot je le mogoče, da vam pričaramo pravo novomedijsko izkušnjo

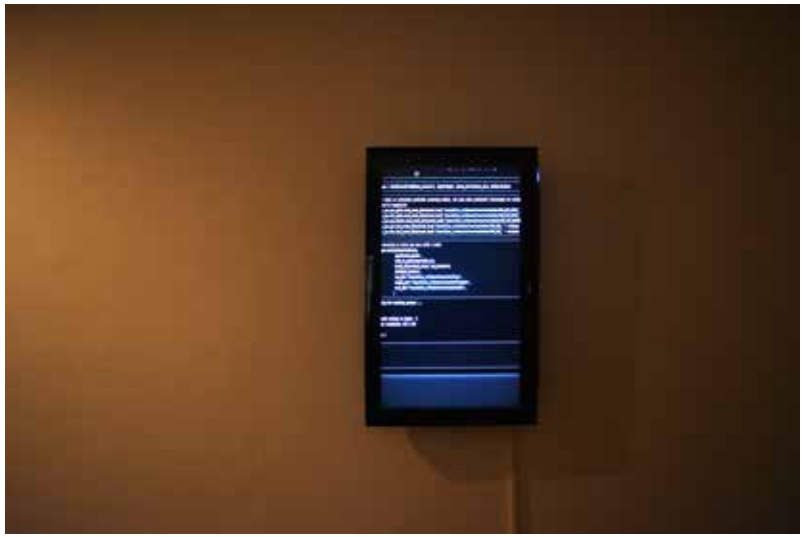
mag. Špela Pavli Perko

The twelfth edition of the Speculum Artium Festival poses a great challenge to both the organizers and the visitors alike. Just as we are defined by the time in which we live, so are we defined by these artistic installations that show us the future. The humanization of technology, which has been our motto for many years, as well as annual activities such as workshops, talks and guided tours are expanding more intensively on to the web platform this year. With the online program we will spread our new media passion even more strongly around the world.
Experimenting with new technology and finding ways to inspire and bring different content, thoughts, and solutions closer to the individual, take us into a world of imagination and foresight. Every year, we present new productions by both international and Slovenian artists. The selection of guest curators in the New Gallery presents works that explore technologies in connection with the natural sciences and humanities.
In the Great Hall, we move through a space filled with virtual and kinetic projects, each telling a story of the past, present, and future in its own unique way.
This year's festival holds a special place for the DDTLab (part of the RUK project, a network of research arts and culture centers), a laboratory that celebrates its first birthday during the festival. Under the banner »Made in Trbovlje" projects will be created in collaboration with artists, organizations, companies, and individual researchers who work in the fields of art, technology, education and economy. All the projects created in DDTLab exhibit our own production while encouraging visitors to visit our laboratory and, with our help, discover the limits of innovation.
Like all events, this year's festival is marked perhaps with a slightly bitter aftertaste, but we will squeeze all the sweetness we can out of bitterness to conjure up a real new media experience.

Kristina Tica (RS) - Digitalna molitev / Digital Prayer

Projekt Digital Prayer uporablja eno izmed metod računalniškega vida za generiranje slike, katere končni rezultat spominja na pravoslavno ikono. Preko generiranja pikslov – z uporabo tehnike strojnega učenja in generativno kontardiktorne nevronske mreže – se vzpostavi povezava med kanonično strukturo pravoslavne ikone in umetno-inteligenčne slike, generirane s pomočjo računalniškega programa.
Avtorica je izdelala računalniški program in zbrala bazo podatkov s približno 4000 digitalnimi reprodukcijami pravoslavnih krščanskih ikon, na osnovi katerih se računalnik uči ustvarjanja popolnoma novih oblik.
Cilj tega umetniškega projekta je demistifikacija moči umetne inteligence, ki v neoliberalizmu predstavlja to, kar je v fevdalizmu predstavljal bog. Ikona je imela ves srednji vek isti namen. Bila je okno do nematerialnega, projektivnega, duhovnega. V dobi, ko vse podatke hranimo v metaforičnem mestu, imenovanem oblak, je očitno, da obstaja simbolična podobnost z religioznim pomenom neba.
Naše potrebe, odgovori na vprašanja, moralni napotki in vplivi se danes prej hranijo znotraj virtualnega kot pa duhovnega prostora. Preko usmerjanja algoritmičnih procesov k imitaciji jezika ikon, si dva virtualna vmesnika nasprotujeta – virtualni svet slike in tradicionalno ročno izdelana ortodoksna ikona.
Slika, ki jo vidimo, je zgolj vizualizacija kod in podatkov v ozadju, kar nas pripelje do analogije, ki jo je predstavil Boris Groys: “Digitalna slika je vidna kopija nevidne datoteke slike, nevidnih podatkov. V skladu s tem slika deluje kot bizantinska ikona, vidna kopija nevidnega boga.”

The Digital Prayer project uses one of the methods of computer vision to generate an image whose end result resembles an Orthodox icon. Through the generation of pixels - using machine learning techniques and a generatively adversarial neural network - a connection is established between the canonical structure of the Orthodox icon and the artificial intelligence image generated by a computer program.
The author created a computer program and collected a database with about 4,000 digital reproductions of Orthodox Christian icons, on the basis of which the computer learns to create completely new forms.
The goal of this artistic project is to demystify the power of artificial intelligence, which, in in today's neoliberalistic society, takes the position of a feudal God. Throughout the Middle Ages, the purpose of a icon remained the same; it was a window to the immaterial, the projective, the spiritual. In an age when all data is stored in a metaphorical place called a cloud, this draws an obvious symbolic resemblance to the religious meaning of the Sky/ Heaven.
Today our needs, answers to questions, moral guidance and influences are kept within a virtual rather than a spiritual space. By directing algorithmic processes to imitate the language of icons, two virtual interfaces come into opposition - the virtual world of the image opposes the traditionally hand-made orthodox icon.
The image we see is merely a visualization of the codes and data in the background, which brings to mind the analogy presented by Boris Groys, “A digital image is a visible copy of an invisible image file, invisible data. Therefore, the digital image takes on the role of a Byzantine icon, a visible copy of an invisible god. ”



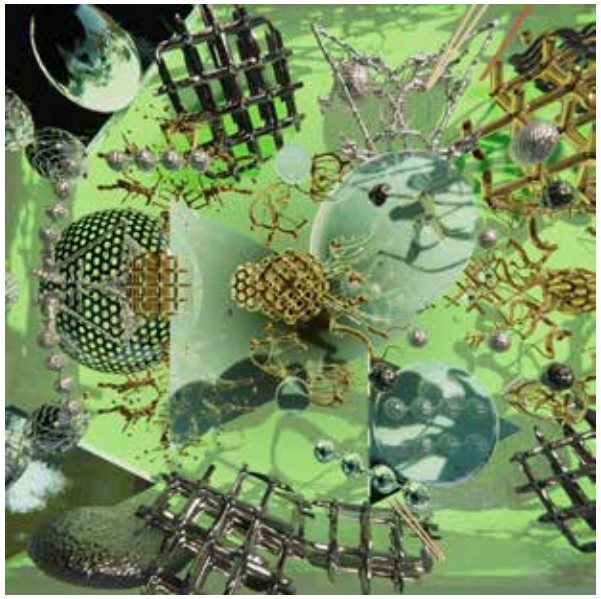
Julián Bonequi (MX) - Codex Holophernicus

Vmesnik prihodnjih sanj za nevidno glasbo

Kako identificirati mistično povezavo med nevidno glasbo, ki nas obdaja v naravi, s fizičnostjo virtuanosti v resničnem življenju, če ne moremo delovati skozi idejo nevidnega kot podaljška realnosti? Holofrenija se pokloni originalni tehnologiji imerzivnosti: sanjam. Sam termin holofrenije je besedna igra z besedama holografija (hólos - celota) in shizofrenija (razdeliti, fragmentirali oz. RAZKOSATI razumevanje, razum in/ali um).

Future Dreams Interface for Invisible Music

How to identify the mystical relationship between the invisible music that surrounds us in nature with the physicality of virtuality in real life if we can't perform with the idea of the invisible as an extension of reality? Holofrenia is a nod to the original immersive technology: Dreams; and the Holophrenic term is a game derived from the word holography (hólos; »whole«) and schizophrenia (to split, fragment, or to HACK the understanding, the reason and/or the mind).



Matevž Kolenc (SI), Michael Saup (DE) - Prah / Dust

Ljudje že dolgo vemo, da je prah lahko škodljiv, zato se mu ne izpostavljamo po nepotrebnem. Do nedavnega sta bili definicija in spremljanje stopnje škodljivosti večinoma odvisni od vlad in institucij ter njihove pristranskosti pri ocenjevanju stroškov in koristi.
Zanimivo je, da zdaj podatki ljudem omogočajo, da naredijo lastno analizo stroškov in koristi: posamezniki lahko zasebno izvajajo okoljske teste z nizkocenovnimi senzorji, razultate pa delijo na internetu ter tako vzpostavljajo kulturo »državljanske znanosti«. Projekt DUST (Prah) gledalcem omogoča, da se virtualno izpostavijo mikroskopskim delcem, ki lebdijo v ozračju.
Zunanje plošče triptiha prikazujejo zemljevid z meritvami okoljskih podatkov v realnem času, kot so onesnaženost zraka, gostota prometa in stopnje radioaktivnosti. VR naglavni prikazovalnik omogoča gledalcem, da obiščejo različne kraje.
Velike količine podatkov niso razumljive, saj večina ljudi ne ve, kako jih razumeti in uporabiti, in za kaj takega nimajo ne časa ne volje. Prav zato si prizadevamo zgraditi odprto platformo za spremljanje, doživljanje in sporočanje okoljskih podatkov kot pomembnih informacij. Mnogi od nas bomo v bližnji prihodnosti proizvajali, urejali in uporabljali takšne podatke, s čimer bomo spodbujali demokratične dobrine, kot so izobrazba, transparentnost in civilna iniciativa.

People have long understood dust may be harmful and have sought to avoid undue exposure. But until recently, the definition and monitoring of the threat level depended on governments and institutions and the biases they bring to their assessment of costs and benefits.
Curiously, data now empowers people to do their own cost-benefit analysis: individuals can carry out environmental tests privately with low cost sensors and distribute the results on the internet, bringing about a culture of "citizen science". Our work DUST enables viewers to experience virtual exposure to microscopic matter suspended in the atmosphere.
The outer panels of the triptych display a map with realtime environmental data metrics such as air pollution, traffic density and radioactivity levels. A virtual reality head mounted display allows the viewer to visit the sites.
Vast amounts of data are not comprehensive as the majority of people don't know how to apply such data and either wouldn't have the time or inclination to use it. Therefore, we aim to establish an open platform for monitoring, experiencing and communicating environmental data as meaningful information. Many of us will produce, curate and consume such data in the very near future, promoting democratic benefits such as education, transparency and civic engagement.

Marco Barotti (IT) - Žolne / Woodpeckers

Objekt, 2017 - 2018
Elektromagnetna sevanja so sestavni del okolja, v katerem živi človeštvo že od samih začetkov obstoja. Poleg elektromagnetnih polj naravnega izvora, kot so zemeljsko magnetno polje, vidna svetloba, UV žarki, kozmično sevanje iz vesolja, sevanje radioaktivnih elementov v zemlji itd., pa smo z začetkom razvoja elektrifikacije začeli proizvajati tudi elektromagnetna polja tehničnega izvora.

Žolne predstavljajo rezultat umetnikovega raziskovanja možnosti robota, ki bi zaznaval in reagiral na elektromagnetno sevanje (EMS). Zvočni objekti so programirani in konfigurirani za branje različnih spektrov EMS, valove pa interpretirajo z gibalnim vzorcem, ki simulira tresljaje teh primarnih duplarjev med trkanjem in tesanjem drevesa. Roboti posledično pretvarjajo nevidno sevanje, ki ga povzroča brezžična tehnologija (kot so na primer mobilni telefoni), v slišno in vidno obliko. Na ulične znake, svetilke ali druge kovinske dele urbane pokrajine so pritrjeni z magneti, s svojim delovanjem pa ustvarjajo nenehno spremenljiv kontrapunkt obstoječemu zvoku mestnega vrveža.

OBJECT, 2017 - 2018
Electromagnetic radiation is an integral part of the environment which humanity has lived in since its inception. In addition to electromagnetic fields of natural origin, such as the earth's magnetic field, visible spectrum of light, UV rays, cosmic radiation, radiation of radioactive elements in earth's crust and others, humanity began producing electromagnetic fields of technical origin with the beginning of the process of electrification.

Woodpeckers represent the results of the artist's exploration into the possibility of a robot which would detect and react to electromagnetic radiation (EMR). Sound objects are programmed and configured to read various EMR spectrums. They interpret the waves with a pattern of movement, simulating the movement of these birds during their knocking on and shaping of the wood. The robots convert invisible radiation, caused by wireless technologies such as mobile phones, into vocal and visible form. They are attached to street signs, lamplights or any other metal parts of the urban landscape with the help of magnets. Their actions cause an ever changing counterpoint to the existing sounds of the city bustle.

Peter William Holden (UK) - Socentričnost / Concentricity

Poznate tisti občutek, ko vzamete LSD? Ko se zagledate v nek običajen predmet in vas kar naenkrat strese? Opazite neverjetno bogastvo podrobnosti! Nekaj, za kar ste mislili, da je povsem običajno, je v resnici čudovito, polno tekstur in površin, o katerih niste še nikoli razmišljali. Bolj kot gledate, več odkrijete, medtem ko vas vleče v koncentrično vesolje, kjer se vidno raztegne v navidezno neskončnost, podobno kot če bi gledate dve ogledali, postavljeni drugo nasproti drugemu. Takšne izkušnje ostanejo z vami, kot opomnik, da ne smete nikoli pozabiti lepote znotraj vsega, kot priklic otroštva, ko je bilo je vse čudovito.

Nekega poletja me je ujela huda nevihta in sem vedril pod avtocestnim nadvozom. Užival sem, ko sem gledal vodne kaplje, ki so padale v naključno razpršene luže. Razmišljal sem o čudovitih koncentričnih krogih in njihovem plesu po lužah v mojem vidnem polju ter pomislil, da bi lahko ustvaril skulpturo, ki bi koreografirala vodne kaplje in iz krogov, ki jih rišejo, ustvarjala animacije. Concentricity je moje poigravanje s to zamislijo. Umetniško delo sestavlja osem enakih posod z vodo, postavljenih v krožnem vzorcu na tleh. Nekaj metrov nad njimi se nahaja naprava, povezana z računalnikom, ki koreografira ustvarjanje vodnih kapljic. Koncentrični krogi, ki nastanejo ob padcu kapljic na vodno gladino, so osvetljeni s fokusiranimi žarki svetlobe. Odsev projicira valove površine vode na bližnjo steno in tako naredi animacijo vidno opazovalcu.

Skulptura tehnologijo humanizira tako, da ji pripiše drugo mesto, medtem ko v ospredje postavi vizualno poezijo, ki jo tehnologija ustvarja.

Do you know that feeling when you've taken LSD and you're looking at some non-descript object, and suddenly a jolt hits you? You notice an incredible wealth of details! Something you thought was mundane is actually incredibly beautiful with textures and surfaces that you've never contemplated before. The more you look, the more you discover, as you're sucked into a concentric universe where the visible stretches out to what seems like infinity, in a way similar to when two mirrors are placed before each other. Experiences like this stay with you, a reminder never to forget the intrinsic beauty within everything, a refresh to a childlike state where everything is wondrous.

One summer, while caught in a violent storm and sheltering under a motorway flyover, I began to take great pleasure in watching raindrops fall in randomly scattered puddles, contemplating the beautiful concentric circles and the way they seemingly dance across the puddles in my field of vision. I came to the realization I could create a sculpture to choreograph water droplets and thus make animations from the concentric circles that formed. Concentricity is my exploration of that idea. The artwork consists of eight identical water-filled dishes arranged in a circle pattern on the floor. A few meters above these dishes is the sculpture apparatus, merged with a computer that choreographs the creation of water droplets. The subsequent concentric circles which form as water droplets hit the surface of the water pools below are lit with a focused beam of light. The reflection projects the ripples within these water pools onto an adjacent wall, and in so doing so makes the animation visible to the observer.

The work Humanizes technology by simply making the technology take second place, to the visual poetry created via the technology.

Bogdan Šteh, Andrej Uduč, TNM - Birokratov Pasion / The Passion of the Bureaucrat

Od prvih civilizacij dalje je obstajal uradniški aparat, ki je skrbel za nemoteno delovanje skupnosti. Z začetki moderne države v zgodnje novem veku se je ta aparat še okrepil in postal neločljiv del vsakdanjega življenja. Sprva namenjen delu za dobrobit vladarja in vladajočih je skozi družbene procese postal aparat, ki naj bi z nepristranskim odločanjem po jasno določenih kriterijih deloval v dobrobit celotne skupnosti. Zakaj potemtakem besedi birokrat in birokracija že nekaj časa veljata za slabšalna izraza in sinonim za prelaganje končne odločitve v nedogled? Se je morda ves sistem do danes izrodil in je postopek (pot) prevladal nad željo po uspešnem zaključku (cilju)? So današnji uradniki sposobni predpise le brati, ne pa tudi razumeti in smiselno uporabljati?
Instalacija Birokratov pasijon si je za idejno izhodišče zastavila prav ta vprašanja, ki jih skuša vizualizirati navidezno ironično in celo rahlo satirično, pa vendar k vprašanju odnosa med posameznikom in birokratskim aparatom pristopa skrajno resno. Zvok generiranega govora, srhljivo podobnega človekovemu, simbolično predstavlja razčlovečenega in vsakršne empatije oropanega uradnika, katerega glavni cilj ni razreševati zadeve v dobro posameznika in skupnosti. Pomembnejši od tega mu je občutek varnosti ustaljenega postopka, tudi če le-ta nima nobenega praktičnega smisla in povzroča osebi na drugi strani trpljenje in krivico. Izvrstno artikuliran govor, ki ga izdajo le občasne, z nerazumevanjem besedila povzročene napake, prekinjajo le trenutki tišine, ki jo povzroči nov sveženj papirja, vstavljen v nenasitna usta uradniškega aparata (v tem primeru rezalnik), da ga predela. Predah pa je kratek, saj so vsi argumenti hitro scefrani na koščke. Ujetnik birokratskih zapletov lahko svoje muke res začne primerjati s Kristusovimi.

Since the times of the early civilizations there has always been a bureaucratic apparatus, which made sure the community worked unimpeded. With the emergence of the modern state in the early new era this apparatus grew stronger and became an inseparable part of everyday life in human society. Firstly, working for the benefit of the ruler and the ruling class, it eventually, through the social processes, became an apparatus which was to work for the good of the entire community with its unbiased and clear criteria-defined decision-making. Why is it then, that the words bureaucrat and bureaucracy have been seen as pejorative for quite some time, and are a synonym for endless postponement of the final decision. Has the entire system degenerated and has procedure taken precedence over the final goal? Are the bureaucrats of today only able to the rules rather than understand and commonsensically apply them?
The Passion of the Bureaucrat installation took these questions as its starting point and is trying to visualize them in seemingly ironic (slightly satiric) ways; however, it is taking a serious stride to the question of the relationship between the individual and the bureaucratic apparatus. Eerily human-like sound of generated speech symbolically represents a disembodied official, devoid of all empathy, whose main purpose is to avoid solving things for the benefit of the individual and the community. Rather than that, he takes shelter of the established procedure, even though it has no practical sense and causes suffering and brings injustice to the clients. Perfectly articulated speech, betrayed only by occasional errors caused by the inability to understand the text, is interrupted by moments of silence, brought about by a new stack of paper fed into the insatiable mouth of the official apparatus (i.e. the paper shredder) in order to be processed. But it is only a brief respite as all arguments are shredded to bits and pieces. The victiom of the bureaucratic trap is only left to compare his torment to that of Jesus Christ.

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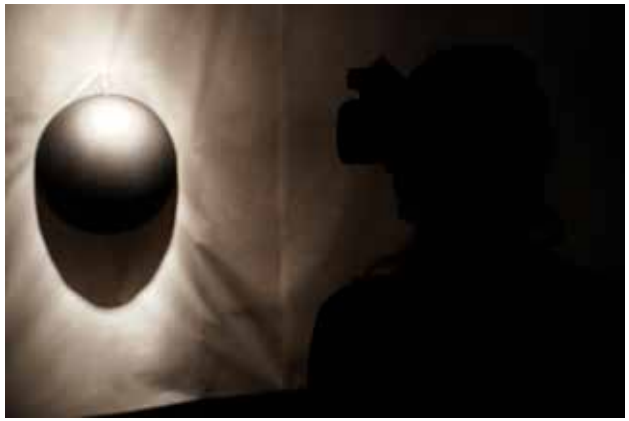
Made in Trbovlje

RUK - MREŽA CENTROV RAZISKOVALNIH UMETNOSTI IN KULTURE
NETWORK OF ART AND CULTURAL RESEARCH CENTERS

RUK je mreža centrov raziskovalnih umetnosti in kulture na presečišču sodobnih tehnologij, znanosti in gospodarstva. V tem interdisciplinarnem vozlišču se razvijajo inovativni produkti in storitve za mehko in humano tehnologijo prihodnosti. Naložbo sofinancirata Republika Slovenija in Evropska unija iz Evropskega sklada za regionalni razvoj. V operaciji sodelujejo trije konzorcijski partnerji: DDT, KIBLA (Maribor) in PiNA (Koper) s partnerji.

RUK is a Network of Research Art and Culture Centers at the intersection of contemporary technologies, science and economy. In this interdisciplinary hub, innovative products and services for the soft and humane technology of the future are being developed. The project is co-financed by the Republic of Slovenia and the European Union from the European Regional Development Fund. The operation is run by the consortium of Delavski dom Trbovlje, KIBLA (Maribor) and PiNA (Koper) and their partners.



EVROPSKA UNIJA
EVROPSKI SKLAD ZA REGIONALNI RAZVOJ

REPUBLIKA SLOVENIJA
MINISTRSTVO ZA KULTURO

RUK MREŽA CENTROV RAZISKOVALNIH UMETNOSTI IN KULTURE
NETWORK OF ART RESEARCH AND CULTURE CENTERS

DDT DELAVSKI DOM TRBOVLJE

KIBLA

piNa

DDTLab Made in Trbovlje

DDTLab / RUK, Žan Rajšek – Evin performans / Meet Eve

Prihodnost industrije in družbe bo močno povezana z roboti, zato smo se v našem DDT laboratoriju odločili, da obiskovalcem ne predstavljamo zgolj industrijskih robotov, temveč tudi takšne, ki bodo človeku še precej bližje. Eva, ki jo boste spoznali danes, je humanoidni družabni robot. Humanoidni roboti predstavljajo novo vsebino in dodatno vrednost znotraj polja robotike, ki jo imenujemo humanizacija tehnologije. Eva je v našem DDT laboratoriju prava atrakcija, ki rada odpira ključna vprašanja o tehnološki družbi skupaj z otroki kot tudi z znanstveniki, umetniki in podjetniki.

As we can suspect that robots will play an even more important role in the future of industry and society, the DDT Lab decided to present to the visitors not only our industrial robots, but also those who will presumably come much closer to humans.
Meet Eve, a humanoid social robot. Humanoid robots introduce new content to the field of robotics and bring added value also known as humanization of technology. As one of the main attractions of our laboratory, Eve, together with children as well as with scientists, artists and enterpreneurs, likes to raise questions about the future of the technological society.

Made in Trbovlje

DDTLab / RUK, Yaskawa, Primož Ocepek, dr. Uroš Ocepek, Žan Rajšek - NeuroYaski

Industrijska robotika

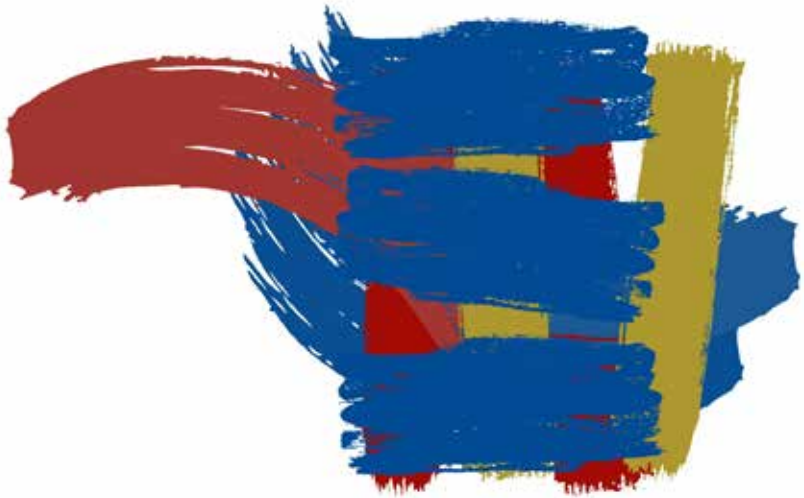
V sklopu projekta Mreže centrov raziskovalnih umetnosti in kulture McRUK, raziskovalni laboratorij DDT-RUK v sodelovanju s podjetjem Yaskawa predstavlja projekt NeuroYaski. Pri projektu gre za unikaten prenos tehnologije z industrijskega na družbeno področje, ki repetitivni robotski roki vnese vrlino humanosti. Uporabnik Yaskawino robotsko roko MotoMini upravlja preko vmesnika BCI (Brain Computer Interface), ki možgane poveže z ražunalnikom. Možgansko-računalniški vmesnik je zmogljiv računalniški sistem, ki omogoča neposredno komunikacijo med možgani in napravo, ki jo želimo z možgani krmiliti in upravljati. V primeru NeuroYaski gre za možnost krmiljenja robotske roke multinacionalnega japonskega podjetje Yaskawa, ki deluje na področju robotike, pogonske tehnologije, sistemskega inženiringa in industrijske avtomatike. V Sloveniji ima podjetja sedeža v Kočevju in Ribnici. Njihovi roboti so med drugim namenjeni barvanju, varjenju in paletiranju. Na sedežu v Kočevju že poteka tudi lastna proizvodnja robotskih rok.

Within the frame of the Network of Research Art and Culture Centers MCRUK project, and in cooperation with The Yaskawa Company, the DDT-RUK Research Laboratory presents The NeuroYaski.
The project focuses on a unique transfer of technology from the industrial to the social field, which endows a repetitive robotic arm with a virtue of humanity. The user controls Yaskawa's MotoMini robotic arm via the BCI (Brain Computer Interface), which connects the brain to the computer. The brain-computer interface is a powerful computer system that enables direct communication between the brain and the device we want to control and manage with our brain.
The NeuroYaski project offers the experience of controlling the MotoMini robotic arm of the multinational Japanese company Yaskawa, which offers mechatronics and robotics solutions in the fields of robotics, drive technology, systems engineering and industrial automation. Yaskawa's robots are intended for painting, welding and palletizing. The company's Slovenian headquaters are based in Ribnica and Kočevje, with the latter being the first location in Europe for the production of robotic arms.

DDTLab / RUK, STPŠ TRBOVLJE – BCI slikar / BCI Painter

Upravljanje naprav z mislimi ni več znanstvena fantastika, ampak je del sedanjosti, saj to področje pokriva razvoj naprav, ki temelji na tehnologiji BCI (Brain Computer Interface). Področje BCI je namenjeno tako analizi delovanja človeških možganov, kot tudi uporabe tovrstne tehnologije za opolnomočenje govorno in gibalno oviranih. Dosedanje rešitve BCI so časovno potratne, saj mora posameznik vsako potezo potrjevati in natančno definirati. Instalacija BCI slikar temelji na virtualni tipkovnici, s katero uporabnik z mislimi preko BCI-vmesnika izbira možnosti – kretnje čopiča, ki spominjajo na potege čopiče zasavskega akademskega slikarja Janeza Kneza.
Do sedaj je lahko BCI-instalacijo videlo/preizkusilo preko 400 posameznikov (osnovnošolci, srednješolci, študentje, raziskovalci, delavci v gospodarstvu, umetniki in starostniki). Naša ciljna skupina pa so tudi gibalno ovirani posamezniki in posamezniki, ki imajo primanjkljaje na govornem/sporočevalnem področju. Namen inovacije ni samo premostiti težave pri gibalno in govorno oviranih, ampak tudi predstaviti in približati sodobno tehnologijo večji množici, ki sicer nima priložnosti spoznati in preizkusiti tovrstne tehnologije. V prihodnje bomo instalacijo preoblikovali še za druge domene, saj naša rešitev ni omejena samo na slikanje z mislimi, ampak lahko izbiranje kombinacij predrugačimo za druga področja.

Controling devices throught tought is no longer science fiction, but has become a part of our reality, rendered possible by the development of devices based on BCI or Brain Computer Interface technology. The aim of BCI related technology is to analyse the functioning of the human brain, as well as to support and empower people with speech and mobility impairments. The existant BCI solutions are time consuming, as the user must define and confirm every single move.
The BCI painter installation is based on a virtual keyboard connected to a thought-operated BCI interface that enables the user to selects different brush strokes, reminiscent of those of a well-known Zasavje academic painter, Janez Knez.
While the installation has so far been tested by more than 400 individuals, ranging form pupils, students and researchers to workers, artists and retired people; physically disabled individuals and individuals with speech and communication deficits remain one of our main target groups.
The purpose of this innovation streches beyond overcoming the challenge of speech and movement impairment; we are striving to present modern technology to larger groups of people who usually do not have the opportunity to get to know or experience such technologies.
In the future, the installation will be redesigned to serve a few different purposes and to apply the choice of combinations to other specific areas.



Made in Trbovlje

DDTLab, Dunking Devils, HSE, Branko Repovž, Arctur - Vrtoglavi ptič 2020 / Vertigo Bird 2020

Povzpnite se na najvišjo točko naše preteklosti, da bi videli prihodnost!

"Ko smo v okviru dane teme festivala razmišljali, kako predstaviti Trbovlje, smo želeli našo preteklost povezati s prihodnostjo. Za Trbovlje, ki skušajo preseči preteklost in zrasti v prihodnost, je monumentalni dimnik, najvišji v Evropi, v povezavi z umetnostjo, znanostjo in tehnologijo, s čimer se ukvarjamo v DDT, zagotovo odskočna deska. Vzpnemo se na najvišjo točko preteklosti, da pogledamo v prihodnost, kar sproži malo strahu, vznemirjenja in tudi predvidevanja.

Vsebinsko projekt črpa navdih iz istoimenskega plesnega projekta plesalca in koreografa Iztoka Kovača, ki je leta 1996 zaplesal na vrhu 360 m visokega dimnika, kar lahko vidimo v prekrasnem filmskem prizoru v istoimenskem filmu Vrtoglavi ptič. Za projekt smo iskali ekipo, s katero bi sodelovali, in Dunking Devils so bili resnično edini dovolj nori in usposobljeni, da so se tega lotili. Nastal je izjemen projekt. "

Climb to the highest point of our past to see the future!

"When we were thinking about how to present Trbovlje within the given theme of the festival, we wanted to connect our past with the future. In its attempt to transcend its history and start creating something new, Trbovlje really could not overlook its monumental chimney, the tallest in Europe. Connecting it to art, science and technology, which is one of the essential topics within the DDT framework, we climbed to the highest point of the past to look into the future, triggering a little fear, some excitement and a thread of anticipation. Will we step off and embrace the future that is Made in Trbovlje?
The current video draws inspiration from a 1996 dance project by a dancer and choreographer Iztok Kovač, whose dance on top of the same 360 m giant resulted in a beautiful scene in a short film of the same name Vertigo Bird.
In preparing the 2020 edition, we were looking for a team to cooperate with, and the Dunking Devils were really the only ones capable and crazy enough to do it. The results are outstanding!«

Made in Trbovlje

DDTLab / RUK, AformX, dr. Uroš Ocepek - Neurofly

NeuroFly simulator je pilotni projekt Raziskovalnega laboratorija DDT-RUK in letalskega podjetja AFormX v sklopu projekta Mreža Centrov Raziskovalnih Umetnosti in Kulture MCRUK. Cilj projekta je združitev VR letalskega simulatorja z možganskim računalniškim vmesnikom, ki uporabniku omogoča neposredno komunikacijo med možgani in simulatorjem, s tem pa tudi neposredno usmerjanje letalnika v simulaciji.
Uporabnik upravlja NeuroFly letalnik preko možgansko-računalniškega vmesnika (ang. BCI - Brain Computer Interface), zmogljivega računalniškega sistema, ki omogoča neposredno komunikacijo med možgani in napravo, ki jo želimo s pomočjo možganov krmiliti in upravljati. Cilj BCI sistema je uporabnikom omogočiti, da napravo nadzirajo zgolj z možgansko aktivnostjo. Delovanje naprav BCI temelji na interakciji med dvema adaptivnima upravljalcema: uporabnikom, ki mora znati namerno izzvati pravilne možganske signale, ki bodo sprožili ukaz, in sistemom BCI, ki mora te signale prevesti v ukaze in jih izvesti. Operiranje z možganskimi vmesniki je zato sposobnost, ki se je morata s sprotnim medsebojnim prilagajanjem naučiti tako uporabnik kot sistem.

The NeuroFly simulator is a pilot project of the DDT-RUK Research Laboratory and the AFormX Airplane Company within the MCRUK project (Network of Research Art and Culture Centers - MCRUK). Its purpose is to merge a VR flight simulator with the Brain Computer Interface, which enables a direct communication between the brain of the user and the simulator and, thereby, direct control of the flier in the simulation.
The user controls the NeuroFly flier through a brain computer inteface. The brain computer interface (BCI) is a capable computer system which enables direct communication between the brain and the device which we wish to steer and operate. The purpose of a BCI sistem is to enable the user to operate the device using nothing but brain activity. BCI devices work on the basis of interaction between two adaptive controllers: the user, who needs to know how to correctly trigger brain signals which trigger the order; and the BCI system, which needs to be capable of converting these signals into orders and executing them. Operating brain interfaces is therefore an ability, which needs to be learned by both the user and the system through a process of mutual adjustments.

AFormX je dinamično visokotehnološko letalsko podjetje iz Trbovelj. Obsega prototipno delavnico, ki prvenstveno izdeluje in sestavlja ultralahka letala in kompozitne dele za letalsko industrijo, in razvojni oddelek, v katerem med drugim poteka razvoj simulatorjev letenja, ki uporabljajo očala za virtualno resničnost, in spletnih portalov za oddaljeno učenje. Njihovi najboljši projekti nastajajo na presečišču znanj interdisciplinarne ekipe, ki se ne boji izzivov. AFormX je prejel številna priznanja, med katerimi sta najvidnejši leta 2018 prejeto Zlato priznanje za inovacijo, ki ga podeljuje Gospodarska zbornica Slovenije, in zmaga na natečaju za najhitrejši električni dirkalnik, ki ga je leta 2019 razpisala Royal Aeronautical Society.

AFormX is a dynamic high-tech airplane company from Trbovlje. It encompasses a prototype workshop where they primarily create and assemble ultralight airplanes and composite parts for the airline industry, alonside a development department where, amongst other things, they develop flight simulators that use VR goggles, and online portals for remote learning. Their best projects rest on the shoulders of a diverse interdisciplinary team that is always up for a challenge.
AFormX received numerous awards, amongst which are the prominent Gold Award for Innovation awarded by the Chamber of Commerce and Industry of Slovenia in 2018, and 1st place at the fastest electrical racer tender by the Royal Aeronautical Society in 2019.

Made in Trbovlje

PiNAlab / RUK, Brad Downey - Nebesna ura/Bodi zdaj tu / Heavenly Hour / Be Here Now

Umetnost in znanost se pogosto srečujeta in rezultati ne razočarajo. Ameriški umetnik Brad Downey, ki je širši javnosti poznan po lesenem kipu ameriške prve dame Melanie Trump, si je tokrat zamislil podobo vesolja na zrnu peska. »Želel sem klesati na najmanjšo enoto, ki je še primerna za obdelavo,« pojasni Downey.
Z Markom Vivodo iz društva Pina sta se obrnila na Center odličnosti nanoznanosti in nanotehnologije, kjer imajo za takšno umetniško delo pravo napravo. Kot je pojasnil sodelavec Nanocentra Bojan Ambrožič, so majhno risbo na zrno peska narisali s fokusiranim ionskim snopom. To je posebna vrsta elektronskega mikroskopa, ki poleg analitike in slikanja pri zelo visokih povečavah omogoča zelo precizno jedkanje vzorcev.

Zrno peska, ki je v Slovenijo pripotovalo iz Santa Barbare, je bilo vendarle nekoliko večje. Nanj so zjedkali podobo s sumerske kamnite table, ki naj bi po nekaterih razlagah prikazovala osončje s planeti in lunami, eden izmed narisanih planetov pa naj bi bil skrivnostni planet X. Čeprav gre Sumercem priznati za tisti čas izjemno poznavanje različnih ved, je sicer le malo verjetno, da so poznali vse planete in je razlaga vzorca verjetno povsem drugačna.

Art and science often cross paths and the results do not disappoint. This time the US artist, Brad Downey, known to the general public for his wooden statue of the First Lady of the United States, Melania Trump, envisioned an image on a grain of sand. "I wanted to carve on the smallest unit still fit to be worked on," explains Downey.

Together with Marko Vivod of the Pina Association he sought help at the Center of Excellence in Nanoscience and Nanotechnology where they have just the device to create such an artwork. As explained by Bojan Ambrožič from the Nanocenter, the miniature drawing was carved onto the grain of sand with a focused ion beam, a special type of electron microscope, which, in addition to analyzing and photographing at very high magnifications, also allows very precise etching of samples.

Still, the grain of sand brought to Slovenia from Santa Barbara was slightly larger.

KIBLA2LAB / RUK, Valeria Wolfgang - Ljubezenski stroj / The Love Machine

Projekt Ljubezenski stroj prepleta med seboj dve področji in išče načine, kako fizično občutenje ljubezni prevesti iz psihološkega momenta v snovni svet. Ko se zaljubimo, se v naših možganih zvrsti niz procesov, ki neposredno vplivajo na fizične odzive telesa: občutek napetosti v prsih, "metuljčki" v trebuhu, vročina, potenje, povišan krvni tlak, itd. V znanstveni študiji iz leta 2013 so strokovnjaki pod pokroviteljstvom Univerze AAlto, Univerze Turku in Univerze v Tamperah raziskovali fiziološke spremembe, ki jih sprožijo različna čustva. Ugotovili so, da vsako od čustev vpliva na določene organe in da ljubezen aktivira večino telesa. Znanstveniki so prišli do podobnih zaključkov tudi v mnogih drugih študijah.
Tisto, o čemer pa se ne morejo zediniti, je vprašanje, kaj v resnici vzbudi ljubezen v osebi in zakaj mnogi ljudje čutijo ljubezen zelo fizično. Vse to se kaže v odzivih organov in občutjih, ki jih težko nadziramo in reproduciramo.

The Love Machine project strives to connect two seperate areas and seeks ways to translate the physical feeling of love from a psychological moment into the physical world. When we fall in love, a series of processes takes place in our brain which directly affect the physical processes in our body: a feeling of tension in the chest, 'butterflies in the stomach,' fever, sweating, high blood pressure, and so on.
In a 2013 scientific study, experts under the auspices of AAlto University, Turku University and the University of Tampere investigated the physiological changes that occur when we feel different emotions. They found that each of the emotions affects certain organs, while the feeling of love activates most of the body. Scientists have come to similar conclusions in many other studies.
What they can't agree on, though, is the question of what actually arouses love in a person and why many people experience the sensation of love in a very physical way. All of this is reflected in organ responses and sensations that are difficult to control and reproduce.

Robertina Šebjančič in Alenka Trebušak - (Po)vratek empatije / Empathy (re)loading

Gostujoči kuratorki: Robertina Šebjanič in Alenka Trebušak

Umetniki: Marco Barotti, Sanela Jahić, Maša Jazbec, Luce Moreau, Nonument Group (Neja Tomšič, Miloš Kosec In Martin Bricelj Baraga), Constanza Piña Pardo, Anaïs Tondeur, Vivian Xu

Poglavitno vprašanje, ki se nam poraja v letu polnem pretresov, negotovosti in strahu, je, kako si zamišljati prihodnost, ki bi bila boljša, lepša in pravičnejša za vse entitete živega. Naše življenje namreč od nekdaj omogočajo in vzdržujejo ne samo drugi ljudje, temveč tudi druge oblike živega in neživega, ki nas obkrožajo. Izbrani umetniki, ki jih v prvi vrsti zanima povezava tehnologije z naravoslovnimi in humanističnimi znanostmi, nas vabijo k razmisleku o posledicah vpliva tehnologije in priložnostih, ki jih le-ta omogoča, ne samo kot orodje za preseganje naših naravnih omejitev, temveč tudi kot glavni akter, ki ne spreminja samo nas, ampak tudi naše okolje in vse, kar je v njem živega.
Svoja dela, ki se napajajo v prepletu organskega in sintetičnega sveta, gradijo na osnovi solidarnosti z Drugim. Ponujajo številne perspektive in vključujejo različne situacije, bodisi s stališča preteklosti, sociološkihali arhitekturnih utopij in spomina (saj človeško življenje kulturno, biološko in tehnološko zaznamuje zgodovina tistih, ki so živeli pred nami), bodisi z vidika družbene realnosti, katere trenutne okoliščine odpirajo vrata v sfero fantazij, iluzij in stanj, ki jih sprožajo druge čutne zaznave. Kljub razlikam jih vsebinsko povezuje usmerjenost k raziskovanju razmerja človek-žival-rastlina-tehnologija, pri čemer nekatera ohranjajo razločevanje med entitetami, druga pa vidijo prihodnost v popolnem spajanju. Naj gre za prvo ali drugo različico, umetniška dela, ki na privilegirano mesto ne postavljajo človeka, ampak prepoznavajo vrednost in pravice ne-človeških vrst v svetu, v katerem je ostalo le malo zares naravnega, gledalca napeljujejo k razmisleku o tem, kdo smo in kam gremo.

Guest curators: Robertina Šebjanič in Alenka Trebušak

Artists: Marco Barotti, Sanela Jahić, Maša Jazbec, Luce Moreau, Nonument Group (Neja Tomšič, Miloš Kosec In Martin Bricelj Baraga), Constanza Piña Pardo, Anaïs Tondeur, Vivian Xu

The main question which arises in a year full of upheaval, uncertainties and fear is how to imagine a better, nicer and more just future for all entities of the living. Our lives have always been made possible and maintained not only by other people, but also other animate and inanimate forms that surround us. The selected artists, whose focus of interest is technology in relation to natural and human sciences, make us consider the consequences of the influence of technology and opportunities which they enable; not only as a tool of exceeding our natural limitations, but alsoas something that presistantly influences the natural environment and all that lives within. Their works, fueled by an intermingling of the organic and synthetic worlds, are built on the basis of solidarity with The Other.
They offer numerous perspectives and include various situations; from the viewpoint of the past, sociological and architectural utopias or memories – (as our human lives are culturally, biologically and technologically influenced by the history of those who came before us) - or those of a social reality where temporary circumstances open a door into the sphere of fantasies, illusions and conditions fuelled by other sensory stimuli. Despite their differences they offer a common content, focused on an exploration of the human-animal-plant-technology relations. While some keep the distinction between entities intact, others see future as a complete fusion. Whether the former or the latter; the works of art which do not place the human first, but leave him in a world where little is left natural, recognize the value and rights of non-human species and lead the observer to consider who we are and where we are going.

Anaïs Tondeur (FR) - Černobilski herbarij / Chernobyl Herbarium

Serija fotografij v nastajanju

Serija prikazuje rastline iz černobilske izključitvene cone in nastaja v sodelovanju s skupino biogenetika Martina Hajducha, analitika posledic radiacije, ki jo je 26. aprila 1986 sprožila eksplozija jedrskega reaktorja, in njenega vpliva na floro. Serija je narejena v tehniki fotograma z neposrednim odtisom primerka iz radioaktivnega herbarija na fotosenzitivno podlago, sestavlja pa jo 34 del, pri čemer vsako leto od nesreče naprej nastane eno.
Zbirka fotografij neločljivo povezuje predmetnost motiva in ponazarjanje vzdušja, saj se umetnica ne ustavlja samo pri fizični pojavnosti rastlin, ki so (kot je za urejene zbirke tovrstnih organizmov značilno) naslovljene s strokovnimi imeni, lokacijo odvzetega vzorca in podatkom o nivoju radiacije (prejete iz izotopov cezija-137 in stroncija-90, pomešanih z zemljo z izključitvenega območja), temveč tudi pri motivu samem, ki ga zaznamuje dinamična igra svetlobe in sence, da že na prvi pogled izdaja svoj evokativni naboj. Gledalčev pogled se namreč na eni strani ujame v svetlobno past, nekakšno žarenje, ki zrcali efekt izpostavljenosti ekstremni svetlobi, na drugi naleti pa postopno izginjanje in potopitev delov rastline v melanholično rjavino ozadja, ki namiguje na krhkost njihovega obstoja.
Fotograme spremljajo fragmenti besedil filozofa Michaela Marderja.

A series of photos in the making

The series represents plants from the Chernobyl exclusion zone. It is being created with the help of Martin Hajduch's group. He studies the consequences of radiation, that was caused by the nuclear reactor blast on 26th of April 1986, and its influence on the local flora. The series is currently composed of 34 works, as one has been made each year since the accident. They are made with the photogram technique, by directly pressing a sample of the radioactive herbarium on a photosensitive surface.
The objectivity of the motif and the illustration of mood are inextricably linked in the series, as the artist doesn't stop at the physical emergence of the plants that are (as is typical for organised collections of such samples) annotated with proper names, locations of the taken samples and the level of radiation data (received from the isotopes of cesium-137 and strontium-90 mixed with soil from the exclusion zone), but also plays with the motif, marked by the dynamic play of light and shadow, betrayed with its own evocative charge at the first glance. The gaze of the viewer is captured in a light trap, a glow of sorts, which mirrors the effect of exposure to extreme light, while, simultaneously, it faces the slow disappearance and drowning of parts of the plant into a melancholic brownness of the background, alluding the fragility of its existence.

Maša Jazbec (SI) - Mikkel

Navkljub znanstvenofantastičnim svarilom o zlonamernih humanoidih, se je umetna inteligenca ustoličila v naša življenja, čeprav večinoma še v breztelesnih oblikah. Mikkel pa v sebi združuje simbolno in fizično telo, saj se prvo manifestira v snovno obliko v postavitvah na razstavah. Vsakokratna sublimacija tako predstavlja premik hibrida iz fikcije v realni svet. Projekt izhaja iz umetničinega razmisleka o vplivu tehnologije na posameznika in družbo ter vprašanju, kako nas tehnologija spreminja, nenazadnje tudi s tem, ker nam omogoča mnoštvo identitet na številnih družabnih omrežjih. Ljudje uporabljamo svoja telesa za prikaz takojšnjih in neprekinjenih informacij o svoji navzočnosti, dejavnosti, pozornosti, razpoloženju, stanju, lokaciji, identiteti, zmožnostih ... Čeprav jih imamo za najbolj uspešne »mehanizme« na Zemlji, so naše želje usmerjene v izpopolnjevanje njihovih zmožnosti, pri čemer uporabljamo nove tehnologije, da bi presegli naravne omejitve. In prav to uresničuje Mikkel, rezultat umetničinega raziskovanja androidne znanosti in povezovanja le-te z virtualnim svetom, ki ga nima le za medij kot predstavnik uma ali ekstenzijo fizičnega telesa, temveč za hibrid kot popolnoma novo entiteto.

Despite science-fiction warnings about malicious humanoids, artificial intelligence became a part of our lives, although mostly in incorporeal form. Mikkel, on the contrary, combines the symbolic and the physical body within itself, as it is manifested in corporeal form in exhibition setting. Each time, the sublimation thus represents the hybrid shifting from fiction into the real world. The idea for the project is based on the artist's contemplation on the influence of technology on the individual and society at large and the question of how it changes us by enabling us to experience a multitude of identities through various social networks. People use their bodies to offer an immediate and uninterrupted information about their presence, activities, attention, mood, condition, location, identity, abilities, etc. Despite being considered some of the most successful "mechanisms" on Earth, we wish to exceed our bodies' capabilities by employing new technologies and exceeding our natural limitations. That is exactly what Mikkel embodies; the result of the artists exploration of android science and its connectivity to and with the virtual world. She does not only consider it a representative medium of the mind or an extension of the physical body, but rather sees the hybrid as a completely new entity.

Made in Trbovlje

Nonument Group (SI): Od nikoder do nikamor, pionirska proga / From Nowhere to No Place, The Pioneer Track

video, 20'54''

Projekt se osredotoča na danes skorajda pozabljeno Pionirsko progo, štiri kilometre dolgo ozkotirno železniško progo, ki je v 1948 – 1954 tekla med občinama Vič in Podutik v Ljubljani. V zgolj nekaj mesecih so jo v udarniški akciji zgradili pionirji in mladinske delovne brigade. Njeno načrtovanje in tehnične izvedba sta bila sicer pomanjkljiva, kar se je kazalo v iztirjanju vagonov zaradi neutrjenosti terena. Proga tudi ni imela povezave z obstoječo infrastrukturo – začela se je pol ure hoje od zadnje tramvajske postaje in se končala sredi polja. Pa vendar je bila zelo priljubljena in potovanje samo je predstavljalo svojevrstno doživetje. Po opuščenih načrtih za revitalizacijo okoliškega območja so jo leta 1954 razpustili, v šestdesetih letih prejšnjega stoletja pa spremenili v kolesarsko stezo in leta 2013 na pobudo nekdanjih graditeljev nanjo postavili pet spominskih obeležij.
V video eseju, ki prepleta arhivsko dokumentacijo iz obdobja gradnje ter delovanja proge s posnetki performativne zvočne hoje na lokaciji nekdanje proge, izvedene v noči 25. maja 2019, Nomonument Group ob povezavi različnih časovnosti ponuja v razmislek možno prihodnost.

Produkcija: MoTA – Muzej tranzitornih umetnosti

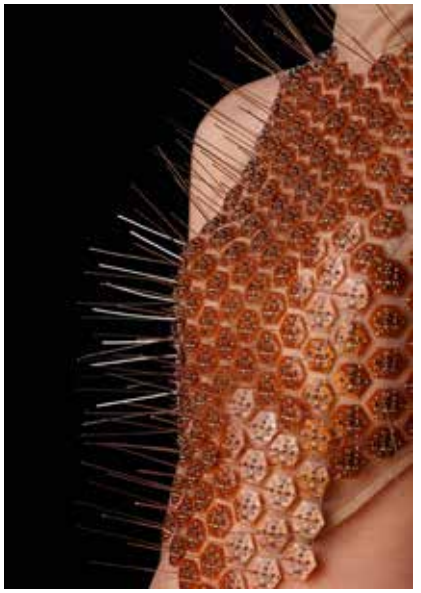
video, 20'54''

The project focuses on the almost forgotten Pioneer track, a four kilometer long narrow-gauge railroad track which, between 1948 - 1954, was connecting the municipalities of Vič and Podutik in Ljubljana. It was built by pioneers and youth worker brigades in just a few months. Unfortunatelly, its planning and technical implementation were somehow deficient, which resulted in several derailments that were mostly due to the lack of fortification of the terrain. The track had no connection to the existing infrastructure; it started some half hour on foot away from the nearest tram station and ended in the middle of a field, but was nevertheless very popular as the journey itself represented a unique experience. It was abandoned in 1954, when the plans for revitalisation of the surrounding area were cancelled. During the 60's, it was changed into a bike track and, later, some of the builders set an initiative to have 5 memorial plaques set along the track, which was done in 2013.
The video essay is a combination of old archive videos from a period when the railtrack was being build and later oparated, and shots of a performative sound walks on the same location, recorded in the night of May 25, 2019, by the Nomonument group. Such interlinking of different temporalities also offers into consideration a possible future .

Production: MoTA - museum of transitory art

Vivian Xu (CN) - Serija Kože / Skin Series

Serijo Kože sestavljajo izsledki umetniške in eksperimentalne raziskave, v katerih umetnica obravnava področje razvijajoče se nosljive tehnologije. Njeno zanimanje se osredotoča na povrhnjico kože, največji organ človeškega telesa, ki predstavlja mejo med notranjim in zunanjim, med subjektom in Drugim. Ob enem tudi raziskuje, kako lahko nove tehnologije omenjeno ločnico zameglijo, z njo manipulirajo in jo na novo izumljajo.



ELEKTRIČNA KOŽA (2016)
Nevidna pokrajina elektromagnetnih signalov se je z razvojem in širjenjem elektronske tehnologije spremenila. V okolju, ki nas obdaja, je navzoča bolj kot kadar koli prej in predstavlja pomemben del tvarine sodobnega življenja. Umetnica se v prvem delu serije sprašuje, ali se bomo ob spremembah, ki jih v naš življenjski prostor vnaša tehnologija, spreminjali tudi sam?
Avtorica z delom Električna koža raziskuje možnost ustvarjanja nosljivega pripomočka, ki razširja funkcionalnost kože tako, da zazna elektromagnetna polja (večinoma znotraj radijskega spektra) in te informacije prevede v občutek dotika. Nosljiv material je sestavljen iz dveh glavnih funkcionalnih delov: matrike vsesmernih anten, ki delujejo kot senzorji in sonde, in ustreznih elektrod, ki stimulirajo kožo uporabnika. Skozi »umetno kožo« ali »eksoskelet« se spreminjajo naše zaznave ter razumevanje prostora in gibanja, posledično pa tudi naše interakcije z okoljem. Umetnica s projektom sproža razmislek o sorazvoju človeka in tehnologije ter opozarja na moč vpliva okolja na telesni razvoj in vedenje.

ZVOČNA KOŽA (2018)
Zvočna koža predstavlja drugo delo v seriji »umetnih kož«, s katerimi umetnica raziskuje problematiko vpliva okolja na človeka in zamisel o sorazvoju človeka in strojev ter eksperimentira z zvokom v prostoru. Nosljivi pripomoček lahko prenaša usmerjeni zvok, potovanje zvoka pa ponazarja fizični odnos med uporabnikom in okoljem. Gre torej za nekakšno simulacijo netopirjevega ali kitovega sonarnega sistema. Tudi to delo se v iskanju možnosti širjenja človeške občutljivosti s pomočjo nosljivih pripomočkov napaja v živalski senzoriki, sistemu, ki je človeški izkušnji tuj.
Prvi prototip je omogočil UNArt Center.

Skin Series is a series of artistic and experimental exploration in the developing realm of wearable technology. The artist's interest lies in the epidermis, the largest organ on the human body - the boundary between the internal and external, self and other - and how new technologies can blur, manipulate and reinvent that boundary.

ELECTRIC SKIN (2016)
The invisible landscape of electromagnetic signals has changed with the development and proliferation of electronic technology. It is more omnipresent in our surrounding environment than ever before, and is a major part of the fabric of our contemporary lives. But for better or worse, as our habitat changes with technology, are we prone to change with it as well? This is the question that lies at the center of the first piece of this series, the Electric Skin Project.
The Electric Skin explores the possibility of creating a wearable that extends the functionality of the skin to sense electromagnetic fields (mostly within the radio spectrum) and translate that information into touch sensation. The wearable consists of two main functional parts: 1) a matrix of omnidirectional antennas that act as sensors and probes and 2) corresponding electrodes that stimulate the skin of the wearer. Through this artificial "skin" or "exoskeleton", the wearable changes our experience, perception, and understanding of space and movement, and in doing so, our interactions. The project speculates on the possible co-evolution of man and technology and draws attention to the role of environmental influence on our own bodily development and behavior.

SONIC SKIN (2018)
The Sonic Skin is the second piece in this series that explores the same issue and experiments with the medium of spatial sound. The Sonic Skin projects directional sound like a sound amour from the contours of the body, much like a bat's or a whale's sonar system, where the journey of the sound is audible to the audience and illustrates the physical relationship between the wearer and the environment.

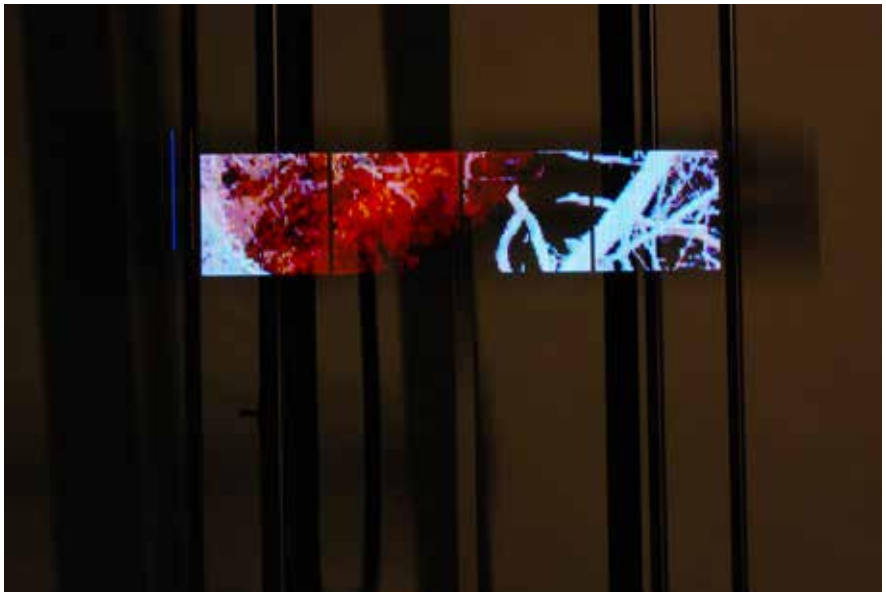
Sanela Jahić (SI) - Skener / Scanner

Objekt, 2005 – 2008

Skener je kinetični mehanski objekt, ki ob prodornem zvoku proizvaja dematerializirano sliko. Deluje na osnovi LED diod na kontrolni plošči, ki so programirane po logiki cikličnega vrtenja oziroma utripanja. Pritisk na sprožilec povzroči zdrs horizontalne premice z diodami po vertikalni osi, ki ob hitrem gibanju puščajo svetlobne sledi, ko pa se ustavijo, podoba izgine, izhlapi kot fatamorgana ali iluzija. Takšen učinek je mogoč ob programiranju diod po načelu POV (Persistence of Vision), s katerim se umetnica, kot namiguje že izraz sam, sprašuje o uveljavljenem načinu vidnega zaznavanja. Skener vsebuje štiri slike, ki predstavljajo jamo s koreninami, vsaka z rahlo drugačne perspektive, da gledalcu ponudi učinek rotacije in možnost absorpcije.
Izhodišče umetničinega razmišljanja o vlogi slike in njenem odnosu do tehnologije sta bili vprašanji, kaj se zgodi s sliko, če se vanjo vpelje gibanje in kaj, če se podobo razkriva postopoma, po delih? Vzpostavljanja Skenerja se je lotila skozi analitično humanistično perspektivo, ki se v delu kaže kot opomin na dejstvo, da človek v tehnologiziranem svetu postaja razsrediščen subjekt, ki svoje travmatične praznine zapolnjuje s fantazmami.
Projekt je nastal v sodelovanju z Andrejem Primožičem in Janezom Zupanom.

Object, 2005-2008

Skener is a kinetic mechanical object that creates a dematerialized image and a screeching sound. It works on the basis of LED diodes on a control panel; they are programmed to blink according to cyclical spin logic. Pressing the trigger causes a slide of the horizontal diode line on a vertical axis, which leaves light traces during fast movement. When it stops, the image disappears and fades out as a mirage or an illusion. This effect is made possible by programming the diodes according to the POV (Persistence of Vision) principle, with which, as the term implies, the artist is questioning the established way of visual perception. Skener contains four images that represent a cave with roots; each with a slightly different perspective in order to offer the viewer an effect of rotation and the possibility of absorption. The starting point for the artists' exploration of the role of an image and its relation to technology were the two questions: »What happens to the image if movement is introduced?« and »What happens if the content is revealed partially and gradually?« The artist tackled Skener according to an analytical humanist perspective, which reveals itself in her work as a reminder of the fact that in a technology filled world, pepole are becoming decentralized subjects who fill their traumatic voids with fantasms.
Project was created in cooperation with Andrej Primožič and Janez Zupan.

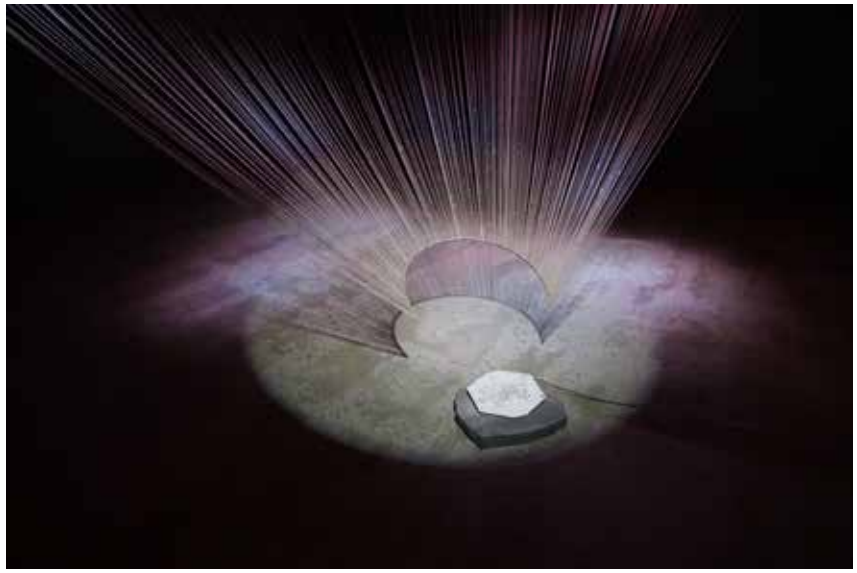


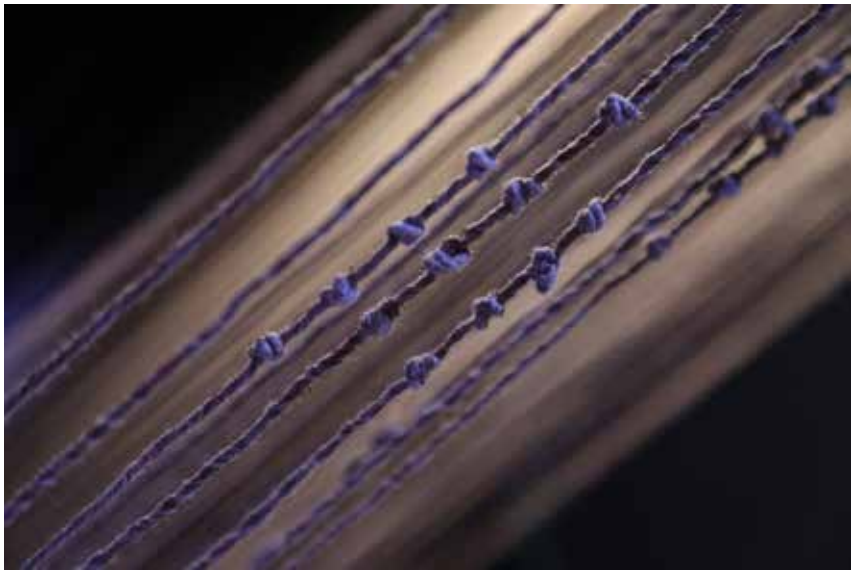
Constanza Piña Pardo (CL) - KHIPU, predkolumbovski elektrotekstilni računalnik / Khipu, Electrotextile Prehispanic Computer

Inkovski khipuji so tekstilne naprave za zbiranje in beleženje informacij (od nadziranja davčnih obveznosti do koledarja ali vojaške organizacije), ki so jih avtohtoni prebivalci južne Amerike izdelovali iz bombažnih ali lamjih vlaken in v njih shranjevali podatke, kodirane v obliki vozlov. Izdelani so bili iz organskih materialov, kot so kamni, volna, rastlinska vlakna, keramika in semena. Vloga teh »prazgodovinskih« računalnikov je predvsem v njihovem transcendentalnem in kozmičnem pomenu, hkrati pa nam prenašajo modrost prednikov.
Razstavljeno delo je tekstilni računalnik z odprto kodo, osnovan na tradicionalnem astronomskem khipuju, ki je izražal skladnost vesolja. V njem umetnica s pomočjo zvoka formalno in vsebinsko interpretira tehnologije, vedenje in zgodovino inkovskih ljudi. Deluje kot antena, sestavljen pa je iz 180 vrvi, pri čemer je vsaka vrv ročno spredena iz mešanice bakrene žice in alpaka volne. Vrvi so povezane z elektronskim vezjem, ki ojača elektromagnetne spremembe v prostoru. Khipu je delo petih žensk, narejen pa je bil z namenom preučevanja znakov tradicionalnega inkovskega khipuja ter analogij med sistemom vozlov in današnjim sistemom binarnega kodiranja. Zakodirani podatki v khipuju ustrezajo razvrstitvi zvezd v Volarju (lat. Boötes) po njihovem spektru in dogodkom, ki so vplivali na delo petih tkalk, kot tudi podatkom o nastanku samega khipuja.

The Inca khipu are textile devices for recording information, made of cotton or camelid fiber strings that store data coded as knots. They were made of organic materials such as stones, wool, vegetable fibers, ceramics and seeds. The importance of these prehispanic computers lies in the transcendental, cosmic significance and the transmitted wisdom of ancestors.

The exhibited work is an open-source textile computer based on the manufacture of an astronomical khipu. It is a sound and art interpretation of the technology, knowledge and history of Inca people designed to express how the universe is governed by harmonious numerical proportions. It is composed of 180 ropes and functions as an antenna. Each chord was hand-spun from a mixture of copper wire and alpaca wool. The ropes are connected to an electronic circuit that amplifies the electromagnetic changes at the installation site. It was done by five women in order to study the signs of the traditional Inca khipu and the analogies between this system of knots and the current binary coding system. The encoded data in it corresponds to a spectral classification of the stars in the Boötes constellation and celestal events that marked the work of the five weavers, like a lunar calendar; a solar eclipse and the position of the sun and moon at the time of its making.





Luce Moreau (FR) - Palače / Palaces

Objekt, fotografije, 2015 - 2017

V projektu Palače, ki je del širše serije, imenovane Urejena narava, umetnica v nasprotju z nespornim »naravnim redom« raziskuje vzajemni odnos med človeškimi in živalskimi družbami, prevlado ene nad drugo ter razlage živalskih sistemov in vedenj, ki jih žene boj za preživetje. Njena izhodišča obsegajo himerni moduli, teritorialnost, entomologija, mimikrija, utopična arhitektura, geometrija, politični sistem, kamuflaža in arheologija.

Projekt Palače je rezultat poskusov z družinami čebel, kjer pride do pomembnega srečanja med strukturami, ki so plod človekove domišljije in fizičnimi strukturami, ki so jih zgradile čebele. Umetnica je čebelam ponudila tri iz voščenih plošč zgrajene konstrukcije utopičnih arhitekturnih kompleksov: labirint, Falansterij (ki ga je v začetku 19.stoletja kot samo-oskrbno komuno zasnoval Charles Fourier) in prvo geostacionarno vesoljsko postajo Hermana Potočnika Noordunga (z začetka 20. stoletja). S poskusom je želela preveriti tako sposobnost čebel, da se uprejo svojemu prirojenemu ravnanju, ki so ga v boju za preživetje izmojstrile v več kot sto milijonih letih, kot tudi njihovo prilagodljivost novim okoliščinam.

Object, photographies, 2015 - 2017

The Palaces project is a part of a larger series called Urejena narava (Organized Nature). Contradicting the indisputable "natural order", the artis is exploring the reverse relationship between the human society and organised animal societies, the dominance of one over the other, and the interpretation of animal systems and behaviours which focus on survival. Chimeric modules, territoriality, entomology, mimicry, utopian architecture, geometry, political system, camouflage and archeology all represent a starting point to approaching the subject.
The project is a result of an experiment with the bee families. During the course of the project, an important enounter takes place, where the constructions inspired by human imagination meet the physical constructions created by the colonies of bees. The bees were given wax plans of utopic architectural complexes such as the Phalanstère Palace (created by Charles Fourier in the beginning of the 19th century as a self-supplying commune), the first geostationary space station by Herman Potočnik Noordung (from the beginning of the 20th century), and a labyrinth. With this experiment, the artist wanted to test the ability of the bees to divert from their instinctual activity which they had perfected in their struggle for survival in over more than a hundred million years, as well as their adaptability to new circumstances.

STPŠ Trbovlje - Dogodivščine rudarskega škrata Perkmandeljca / Adventures of Perkmandeljc the mining gnome

V Sloveniji izobraževanja na področju razvoja računalniških iger nimamo. Prav tako ne obstaja srednješolski izobraževalni program, namenjen razvoju rač. iger, kot je to praksa v tujini. Ker je tovrstni razvoj v Sloveniji še v povoju in nimamo večjih podjetjih, ki se ukvarjajo z razvojem iger (izjema je Outfit7, vendar razvojni del podjetja ni v Sloveniji), smo se odločili, da poiščemo pomoč zunaj. V Španiji nudijo prakso na omenjenem področju in so nam omogočili, da smo spoznali večje špansko podjetje V-ART. Cilj usposabljanja je bila izdelava računalniške igre na temo rudarstva v Zasavju. Udeleženci so dosegli naslednje cilje: programiranje v okolju Unity, ustvarjanje in manipulacija s programskimi objekti, razumevanje in uporaba kamer v sceni rač. igre, delo z 2D/3D grafiko, izdelava lastnik grafičnih objektov, razumevanje fizike v rač. igrah (kolizija med objekti, masa in pospešek objekta), kreiranje in uporaba lastnih animacij, delo z zvočnimi učinki in glasbo. Poleg strokovnih ciljev so cilji usposabljanja tudi delo v tujem okolju, medkolegialno sodelovanje, osebnostni razvoj in razvoj komunikacijskih veščin. Zadnji, a zelo pomemben cilj pa je širjenje zavesti o kulturni dediščini Zasavja, saj preko igrice in zvitega rudarskega škrata Perkmandeljca lahko širša publika spozna naše lokalno okolje, zasavsko in rudarsko narečje, predmete ter zasavsko kulinariko.

There is no education in the field of computer development in Slovenia. Moreover, there is no secondary school programme for computer game development. That is why, we have decided for the intership in the company V-ART in Seville, Spain, since it is one of the leading in this area. The main objective was to create a computer game based on the cultural heritage of Zasavje using programming tool Unity, creating and manipulating objects in a scene, using cameras and lights, importing and using 3D models,...Other objectives were working in unknown environment, personal development and social competences. The computer game The adventures of the mine elf Perkmandeljc will be available for wider audience and all age groups. The project has made our school more competitive in Slovenia, improved the educational process, offered the participants specific educational situations, and has certainly put Zasavje and Slovenia on the map of game development.

Srednja tehniška in poklicna šola Trbovlje

Made in Trbovlje

Regina Polc, FRI - Umetniška dela kot 3D prostori / Art works as 3d spaces

V današnjem vedno hitreje vrtečem se svetu se naše zaznavanje spreminja. Množica informacij, s katerimi smo vsakodnevno zasuti, nam dopušča, da se posvetimo le tistim, ki so nam na voljo tam in v tistem trenutku in ki najdejo način, kako izstopati od ostalih. Umetnost pa zahteva naš čas. Zahteva, da se za trenutek ustavimo in se ji posvetimo. Sodobne tehnologije nam omogočajo, da umetnost njenim opazovalcem naredimo zanimivejšo, interaktivnejšo in jih spodbudimo, da stopijo v stik z njo.

S 3D modeliranjem je bil prostor, ki so ga avtorji pretvorili v dve dimenzionali in upodobili na slikarskem platnu, vrnjen nazaj v tri dimenzije. Opazovalca potegne vase in ga postavi v svet, ki ga je videl avtor slikarskega dela. Opazovalcu je omogočen sprehod po virtualni predstavitvi slikarskega dela, ki mu omogoča ogled slikarskega dela iz različnih zornih kotov in vzbuja občutek, da se nahaja na kraju in v času, ko je slikarsko delo nastalo.

Our perception is changing in today's ever faster moving world. The multitudes of information available daily, let us only take note of those available to us there and then and which find a way to stand out. Art on the other hand requires time. It demands that we stop and focus our attention.

Modern technologies enable us to make art more interesting and more interactive to the observer, thus encouraging us to make contact with it.

The two dimensional space created by the authors on painting canvas, was transformed into three dimensions with the help of 3D modelling. It pulls the viewer into itself and places it into the world seen by the author of the painting. It enables the viewer to walk through a virtual presentation of the painting; it allows the viewing of the painting from several angles and gives the feeling of being in the space and time when the painting was created.

Indiara di Benedetto (IT), Interface Cultures - Portret generativnega spomina / Portrait of a generative memory

Ključne besede projekta: spomin, interpretacija, spomin obraza, portret, mnemonična (spominska) naprava

Kako si ljudje razlagamo in zapomnimo obraze? Kako lahko sporočamo te spomine in z njimi povezana čustva? Kot poskus pomnenja obrazov, kadar imamo opravka z velikmi količinami slik, se Portret generativnega spomina osredotoča na subjektivno interpretacijo osebnih spominov z zbiranjem informacij o elementih, ki si jih ljudje lahko zapomnimo o človeškem obrazu. Glavna tema projekta je razmerje med opazovanjem in domišljijo: opazovanje kot metoda, ki se uporablja za ponotranjanje resničnosti skozi razum, čustva in izkušnje; domišljija, kot osebna in individualna interpretacija dane izkušnje pod vplivom posameznikovih vzorcev mišljenja. Neodvisno od natančne logične razlage obdela vsebino čutne izkušnje. Elemente človeškega obraza, ki si jih človek lahko zapomni, združuje in interpretira tako, da nastane nova serija abstraktnih in neponovljivih portretov.

Project Keywords: Memory, Interpretation, Face Memory, Portrait, Mnemonic Device

How does a person interpret and remember a human face? How can these memories and related emotions be communicated? As an attempt to remember individual faces while dealing with large amounts of pictures, Portrait of a Generative Memory focuses on the subjective interpretation of personal memories by collecting information about the elements that people are able to memorize about a human face. The project is centered on the relationship between observation and imagination: observation, as the method used to internalize reality through our intellect, emotions and experience; imagination, as a personal and individual interpretation of a given experience and influenced by the thinking patterns of the individual. Independent from any precise logical elaboration, it processes the content of a sensory experience. The elements of the human face that a person can remember are combined and interpreted to generate a new series of abstract and unrepeatable portraits.

Mario Romera (ES), Interface Cultures - Dokaz Konsenza / Proof of Consensus

Ključne besede projekta: odločanje, kolaborativno, strojno učenje, družbeno, politika

POC (Proof of Consensus/Dokaz soglasja) je spletna aplikacija, ki lajša postopek sprejemanja odločitev v skupini. Ponuja prostor in čas za ponoven premislek o tem, kako delujejo mehanizmi soglasja. Znotraj tega umetniškega projekta se bodo udeleženci srečali s z najrazličnejšimi tehnologijami, kot so protokoli P2P, obdelava naravnega jezika (NLP), razpršeni računski algoritmi (Scuttlebutt, pseudo-PAXOS) združeni s tehnikami za vizualizacijo podatkov (text vectorization), dizajnersko razmišljanje (vzvratni inženiring strategij podjetij) in metodologija družbenih gibanj. Proof of Consensus je "zalezovalec" v svetu politike, tehnologije, umetnosti in družbe. Sledeč odmevom družbenih gibanj se poglablja v strojne strategije in tehnike ter tako raziskuje nove ekosisteme, v katerih se ljudje lahko naučijo razumeti drug drugega in ustvarjati konsenz.

Project Keywords: Decision-making, Collaborative, Machine Learning, Social, Politics

POC (Proof of Consensus) is a web application meant to facilitate decision making processes within groups. It offers the space and time to rethink how consensus mechanisms work. Within this art project, participants will find a combination of technologies such as Peer to Peer (P2P) protocols, Natural Language Processing (NLP) and distributed computing algorithms (Scuttlebutt, pseudo-PAXOS) joint with data visualization techniques (Text vectorization), design thinking (reverse engineering companies strategies) and methodologies from social movements. Proof of consensus is a "stalker" into the world of politics, technology, art and society. Following the echoes of social movements, it digs into machine strategies and techniques, researching new ecosystems in which humans can learn to understand each other and form consensus.

WRO Art Center (PL) - WRO na turneji / WRO on Tour

https://wrocenter.pl/en/o-wro/

Prva poljska institucija, ki deluje na presečišču sodobne umetnosti, medijev in komunikacije in se nahaja v Vroclavu, na jugovzhodu Poljske.
Izvirne razstave, izobraževalni, raziskovalni in publikacijski programi WRO Art Centra so osnovani na eksperimentalni umetnosti in organizacijskih praksah.
S svojimi poljskimi in mednarodnimi projekti v kontekstu moderne umetnosti in kulturne refleksije prikazujejo ustvarjalni potencial novih tehnologij in raziskujejo inovativne odnose med sliko, zvokom in zaznavo.
Predstavljeni programi nagovarjajo širšo publiko, ki jo zanimajo novi jeziki umetnosti. WRO Art Center, ki se večinoma financira iz javnih sredstev in skladov EU, je neodvisna institucija in organizacija za javno dobro.

O bienalu WRO
Ob 30. obletnici je vroclavski bienal WRO raziskal razvoj komunikacijskih orodij in ponudil kritični nadzor nad procesi, ki se odvijajo v kulturi, komunikaciji in družbi, ter preučil ČLOVEŠKI VIDIK v post-tehnološkem pogledu.
Več kot sto umetniških del mednarodnih umetnikov, predstavljenih med WRO 2019 od maja do decembra in razstavljenih na različnih prizoriščih, raztresenih po Vroclavu, je obravnavalo večplastno zaskrbljenost, ki je bila glavna tema 18. bienala WRO, z naslovom HUMAN ASPECT. V ospredje so postavila človeško navzočnost in delovanje v post-resničnostnem in s krizo prežetem svetu, dejavnika, ki sta zunaj globalnega zavedanja pogosto prezrta ali pretransparentna, da bi ju lahko zavestno opazili.
Piotr Krajewski, umetniški vodja bienala WRO, je med video deli, instalacijami in medijskimi predmeti predstavljenimi med lanskimi desetinami programov, predstav in razstav, izbral dvajset del, ki unikatno zajemajo in raziskujejo našo sodobno stvarnost in kljubujejo vsem predhodno predstavljenim pristopom. Nekatera od njih so v sklopu turneje WRO on Tour prispela tudi na festival novomedijske kulture Speculum Artium 2020.

Poland's first institution working at the intersection of contemporary art, media and communication, located in Wrocław, South-Western Poland.
WRO Art Center's original exhibition, educational, research and publication programs are based on experimental arts and organization practices.
Culminating in Polish and international projects, they showcase the creative potential of new technologies and explore the innovative relationships of image, sound and perception in the context of contemporary art and cultural reflection.
Presented programs reach out to a broad public interested in new languages of art. The WRO Art Center, largely financed from the public resources and EU funds, is an independent institution and a public benefit organization.

ABOUT THE WRO BIENNALE
With its 30th anniversary edition, the WRO Biennale has explored the development of communication tools, offering a critical scrutiny of processes unfolding in culture, communication and society as well as examining the HUMAN ASPECT in a post-technological perspective.
Over one hundred artworks by international artists, presented during WRO 2019 from May to December and put on display at various venues scattered across Wrocław, have been addressing the complex concern expressed in the HUMAN ASPECT theme of the 18th WRO Biennale, bringing to the foreground human presence and activity in the post-truth and crises-ridden world, a factor which tends to be relegated outside the global awareness as too transparent for us to consciously notice.
From among video works, installations, media objects, and performances presented during last year's dozens of programs, shows and exhibitions, Piotr Krajewski, Artistic Director of the WRO Biennale, has selected twenty pieces that uniquely capture and explore our contemporary realities, which defy any previously practiced interpretive approaches. A few of them are the part of WRO on Tour at Speculum Artium 2020 New Media Culture Festival.

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Spletna stran / website:
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http://www.dd-trbovlje.si
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