

# RETHINKING CREATIVITY

ETH Meets You in Davos  
During the World Economic Forum's Annual Meeting  
21 – 24 January 2020

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PATHOS, WYSS ZURICH (ETH Zurich + University of Zurich)

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PATHOS (Poetic Animatronics Through Hands-On Systems) is a project that was born out of the technical difficulties encountered by Indo-Danish art duo Pors & Rao when working on artworks involving nuanced motion and response. They were missing an accessible, intuitive interface that would allow non-engineers like themselves to use robotics as a tool for personal expression. This project is nested at Wyss Zurich (ETH Zurich + University of Zurich). The aim is to develop a performative animatronics framework consisting of mechatronic modules and browser-based interfaces for crafting nuanced physical animation. The project specifically explores how life-like movement can suggest complex inner states in inanimate objects.

The tongue-in-cheek motto of the lab is: *Erase the Technology, Erase the Engineer*. It is reflective of the attempt to transform robotics into a medium of subjective expression. Currently, it is quite hostile to personalisation, requiring several fields of engineering expertise. The project also addresses unique challenges like silence, speed, robustness and spatial constraints that are important when working in the spectrum of motion that expresses a language of sentience and living presence.

More Information is available here:

01. [PATHOS Lab](#) (Since 2017)
02. [NZZ Article](#) (2018)
03. [SRF Short Feature](#) (2018)
04. [TED Talk](#) (2013)
05. [TED Talk](#) (2011)
06. [Pors & Rao](#) (Since 2004)

These PATHOS tools are demonstrated through 4 projects presented at the ETH Pavilion at Davos in late January 2020. The projects are a collaboration primarily between PATHOS project, Pors & Rao Studio (India) and a number of labs and students in Switzerland. Information about the projects follow:

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## WALKING CANVAS



### Project Description

Several blank canvases are walking around on the floor with various caricatured walking styles that reflect different characters. The walking appears silly, theatrical, slapstick. They don't interact with people except to stop and alter their course when encountering obstacles. They seem to be busy -like they are going somewhere- and uninterested in humans.

### Concept & Project Direction

Pors & Rao

### Mechanical Concept

Masters Thesis Project, Robotic System Lab (RSL) ETH Zurich Student: Simon Wieser

Supervisors: Prof. Marco Hutter (RSL, ETZ) & Dr. Philipp Resist (Pathos, Wyss Zurich)

### Mechanical Detailed Design

Pors & Rao Studio

### Control System, Controls & Interface

PATHOS, Wyss Zurich

Lucie Houel, Student Intern, Pors & Rao Studio

### Physical Design & Production

Pors & Rao Studio

LightWeight Body Structure Design & Production

Prof. Gion Barandun and Lorenz Schüssler, IWK, HSR, Rapperswil

Project Supporters

Maxon Motors AG, Wyss Zurich (ETHZ + UZH), Gebert Rüt Stiftung, ETH Global, 3DS Labs, Ramesh Gopalakrishnan & Swissnex India.

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## **CEILING BEINGS**

Project Description

About 12 'beings' shaped like silhouettes of black circular heads on long 'necks' are hiding along the ceiling only to come out if no movement is detected nearby. There are different sizes as if some are older than others. The Ceiling Beings live upside down like bats and become a lifelike presence in the corner of one's eye.

Concept & Project Direction

Pors & Rao

Mechanical Concept & Design

Pors & Rao Studio

Tobias Elmiger, ETH Student Intern, Pors & Rao Studio

Control System, Controls & Interface

PATHOS, Wyss Zurich

Physical Design & Production

Pors & Rao Studio

Project Supporters

Maxon Motors AG, Wyss Zurich (ETHZ + UZH), Gebert Rüt Stiftung, Ramesh Gopalakrishnan, Friedrich Miescher Institute for Biomedical Research (FMI).

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## **ISLANDER**

Project Description

A lone tiny 'being' is hiding behind this little white panel only to appear when the space is silent. It slowly creeps out as if nervous but also curious, only to quickly retract if it hears a sound. It comes out various places around the panel seemingly without logic.

Concept & Project Direction

Pors & Rao

Electro Mechanical Concept & Design

PATHOS, Wyss Zurich

Control System, Controls & Interface

PATHOS, Wyss Zurich

Physical Design & Production  
Pors & Rao Studio

Project Supporters  
Faulhaber Minimotor SPA, Wyss Zurich (ETHZ + UZH) & Gebert Rüt Stiftung.

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## **PATHOS POSTER**

Project Description

This form, its movement and response are inspired by a fragile sea-like creature. It responds by flattening itself and freezing when encountered at close range. The project is part of an investigation into how architectural environments can be imbued with lifelike qualities.

Project Concept & Direction  
Claire + Léa

Electro Mechanical Concept & Design

Pors & Rao Studio

Jan Zbinden, ETH Zurich Student Intern, Pors & Rao Studio Yves Schar, ETH Zurich Student Intern,  
Pors & Rao Studio

Tobias Elmiger, ETH Zurich Student Intern, Pors & Rao Studio Browser Motion Design Interface

PATHOS, Wyss Zurich

Control System, Controls & Interface  
PATHOS, Wyss Zurich

Physical Design & Production  
Pors & Rao Studio

Project Supporters  
Faulhaber Minimotor SPA, Wyss Zurich (ETH Zurich + University of Zurich), Gebert Rüt Stiftung,  
Ramesh Gopalakrishnan, Swissnex India.

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