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Zürcher Hochschule der Künste  
Zurich University of the Arts

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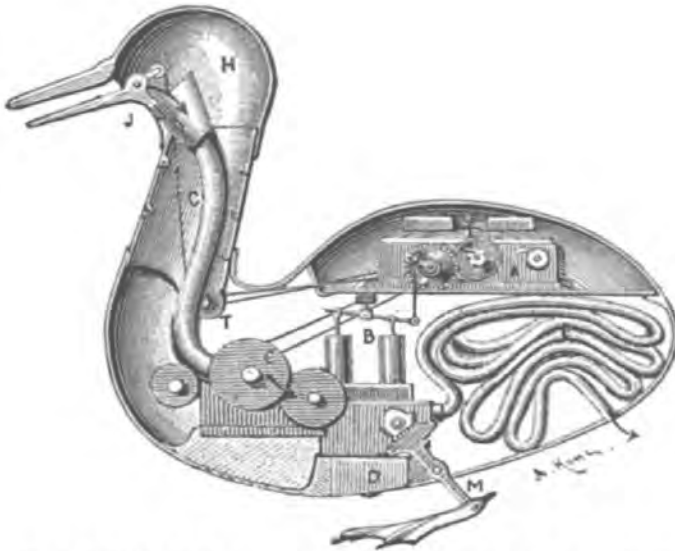
**b**  
**UNIVERSITÄT**  
**BERN**

CAS

# AI for Creative Practices

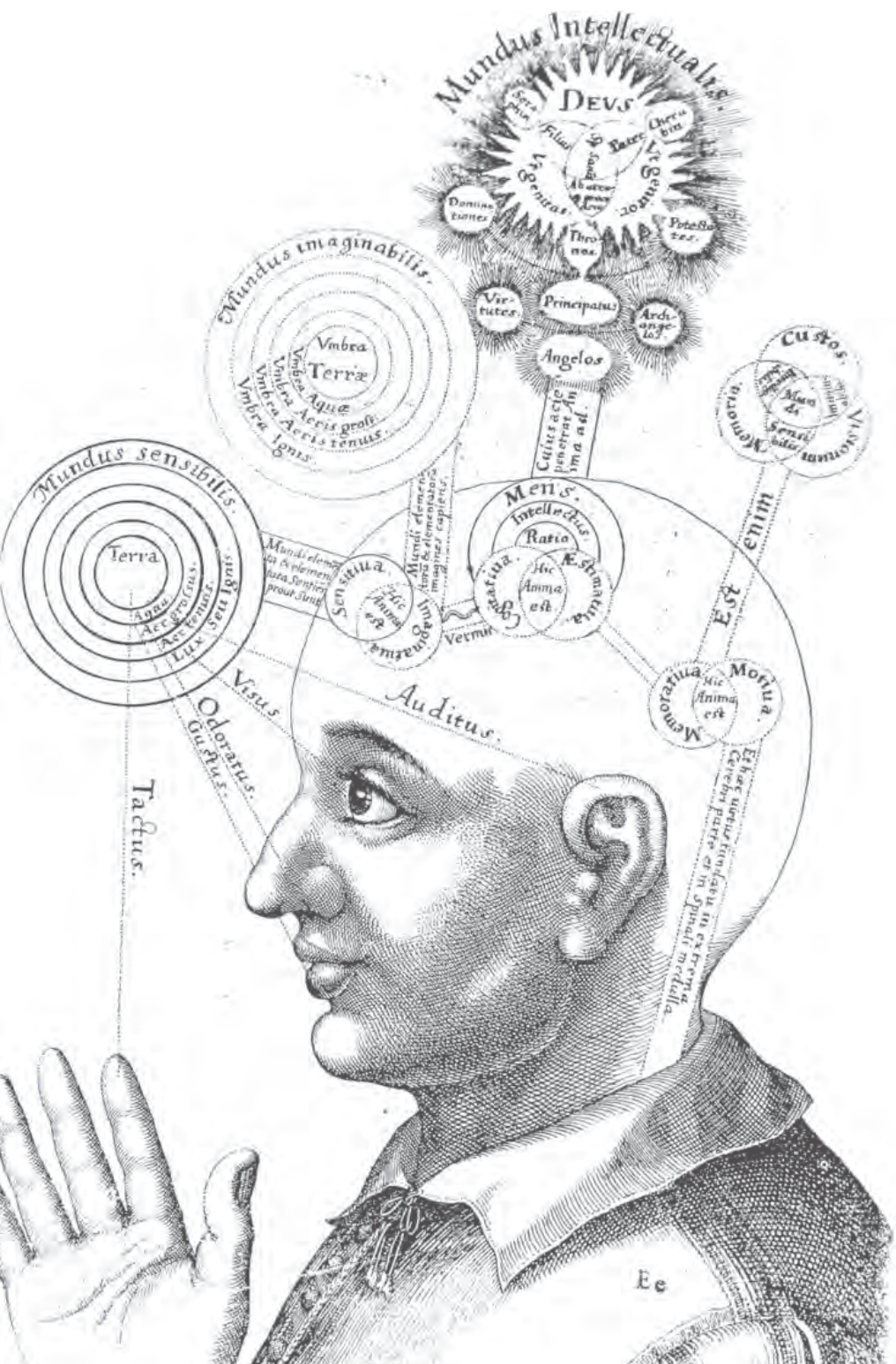


Continuing Education in Extended Intelligence  
2024/2025



**INTERIOR OF VAUCANSON'S AUTOMATIC DUCK.**

*A*, clockwork; *B*, pump; *C*, mill for grinding grain; *F*, intestinal tube;  
*J*, bill; *H*, head; *M*, feet.



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## Introduction

With the advent of ChatGPT and the explosion of AI-driven apps and websites, anyone can create AI-generated content. So-called artificial intelligence, which is becoming increasingly ubiquitous, is also infiltrating art and other creative practices. Trained with examples, computer models can learn to reproduce masters' signature or generate new works. For artists and creative professionals to be able to adapt AI techniques to their specific interests and needs, it is crucial to gain an understanding for the concepts, functional principles, and programming tools that underlie these techniques. AI techniques are new tools that include programming, algorithm development and machine learning models. Artists and creative professionals who want to work with AI need to learn how to use these tools. This CAS provides the technical and conceptual skills to understand AI algorithms and to design and train them for creative applications in the domains of language, images, sound, and movement, along with key cultural, philosophical, and aesthetic questions, and ethical debates around AI.

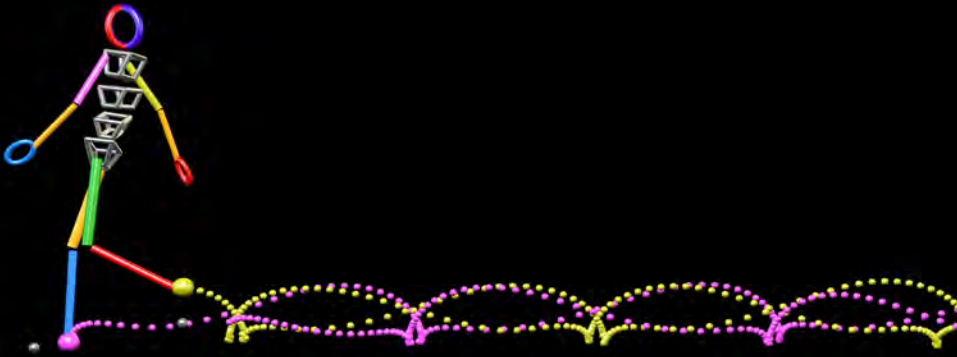
The CAS AICP is divided into six modules and runs over 20 course days from August to January. It is aimed at artists, technical professionals working for artists, designers, people active in the creative industries, and art institutions. Designed to align with the participants' main professional and study activities, the teaching and learning approaches are oriented towards teamwork and discussion, and aimed at developing practical competency. The final block concludes with an exhibition of the works created during the CAS.



*«Research is a kind of future, that is not known in advance.»*

**PROF. DR. CHRIS SALTER**  
Immersive Space Lab, Zurich University of the Arts





## Target Groups

Aimed at students and professionals from the public/private sector that hold a degree from a university, university of applied sciences, or university of arts (e.g. BSc, BA, MSc, MA, PhD).

### **SUITABLE AND INTENDED FOR CREATIVE PRACTITIONERS AND RESEARCHERS:**

Gain an overview of AI in the creative sector with a focus on current developments (deep learning models) and hands-on learning. The content covers a wide range of applications in the arts: from movement and the use of sensors, to images and sound generation and natural language applications. The modules also consider historical, cultural, aesthetical, and technical points of views. Participants will learn how to apply current machine learning models using the Python programming language.

Standard data sets are provided, but participants are encouraged to bring or acquire their own. If you have any questions about whether this program is right for you, please do not hesitate to contact us.



## Objectives

The course competence is developed throughout six modules and a CAS project work. Upon completion, the graduates will

**Be familiar with key cultural, philosophical, and aesthetic questions, and ethical debates around AI**

**Have a basic understanding of common neural network architectures and be able to train and assess these neural networks for artistic and creative applications**

**Be able to perform basic image processing and know the most important applications**

**Be able to process sounds with deep neural networks and know the most important applications**

**Be able to process movement data with deep neural networks and know the most important applications**

**Be able to perform basic Natural Language Processing with deep learning models and know the most important applications**

# CAS AI for Creative Practices

## Summary

### CAS AI for Creative Practices

#### Degree

Certificate of Advanced Studies in AI for Creative Practices  
University of Bern  
Zurich University of the Arts  
(CAS AICP Unibe-ZHdK)

#### Scope

16 ECTS

#### Duration

2024-08 - 2025-07  
(2 years is possible)

#### Start

2024-08

#### Admission

A degree from a university, university of applied sciences, or university of arts

#### Cycle

Annual

#### Language

English

#### Further information

[www.weiterbildung.unibe.ch/cas\\_aicp](http://www.weiterbildung.unibe.ch/cas_aicp)

#### Locations

The courses take place at the University of Bern within walking distance of Bern railway station and at the Zurich University of the Arts, on the Toni Areal. The exception is Module 6, which takes place in the Mürren ski resort, two hours by train from the city of Bern.

All courses are additionally held online. Remote participation is possible.

#### Teaching methods

Our teaching methods are modern and peer oriented. The modules use online platforms with multimedia materials, tutorials and assessments to support learning, along with classes for discussion, and feedback. The main programming language is Python.

#### Workload

The duration of all modules corresponds to approximately 20 classroom hours each and module work (expected workload is 30 hours), with 2 ECTS credits awarded for each module completed. The final CAS Project comprises 4 ECTS points.







# Modules

## Module 1

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### AI and ML Fundamentals

In this block module, participants approach basic AI and ML concepts from a historical, cultural, aesthetic, and technical perspective.

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## Module 2

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### Neural Networks

In this module, participants learn about neural networks and study their common applications.

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## Module 3

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### AI for Movement/Sensing: Realtime interaction

In this module, participants focus on deep learning for generating data from movement and vice versa. Considered are also real-time interactions.

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## Module 4

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### AI for Images

In this module, participants use generative art methods to create images and learn how to handle and process them.

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## Module 5

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### AI for Sound

In this module, participants learn how to collect and represent sound data, train models with them and generate new patterns using deep learning.

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## Module 6

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### AI for Natural Language

In this module, participants learn basic natural language processing techniques with deep learning, together with their common applications.

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## Final Project


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### CAS Thesis

The final CAS Project is seen as the application and consolidation of all gained knowledge. Teamwork and the use of own data are encouraged.

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**PD DR. SIGVE HAUG**  
Data Science Lab, University of Bern

*«The human mind may just be an adaptive algorithm running on a biological nerve system. It is an awkward thought that consciousness cannot exist on different hardware.»*

## Final Project

Working in teams, participants create and present an extended Intelligence Art project (4 ECTS) based on the CAS modules. Support is provided by selected mentors with different areas of expertise. The works and work-in-progress will be presented at a vernissage at the end of the CAS. The use of own data from work or research is encouraged.



## Cost

**Regular CAS program:** CHF 9600

**Employees and students of the University of Bern and of the Zurich University of the Arts:** CHF 5600

Inclusive of all modules, performance assessments, certificates, materials and teaching platforms, coffee breaks, full board hotel in Mürren (Module 6) and diploma apero.

Participants must bring their own laptops.

## Registration

Register via [www.weiterbildung.unibe.ch/cas\\_aicp](http://www.weiterbildung.unibe.ch/cas_aicp)

Registration opens in November and a maximum of 20 applications can be accepted each year. Applications are processed in the order of arrival. The CAS can only be offered if sufficient registrations are received by July 1<sup>st</sup>.

Registered participants will receive a confirmation of acceptance by email and will be invited to one of the next Introduction events. Attendance to one Introduction is mandatory. Participants can cancel their registrations free of charge up to the registration deadline. After the deadline, the regulations apply.

To check if registration is currently possible, visit



# Schedule

## 2024/2025

<b>Module 1</b>	<b>AI and ML Fundamentals</b>	2024-08-24 - 2024-08-26
<b>Module 2</b>	<b>Neural Networks</b>	2024-08-27 - 2024-08-30
<b>Module 3</b>	<b>AI for Movement and Sensing</b>	2024-10-14 - 2024-10-18
<b>Module 4</b>	<b>AI for Images</b>	Weekly from 2024-10-25 until 2024-12-13
<b>Module 5</b>	<b>AI for Sound</b>	Weekly from 2024-11-22 until 2024-12-13
<b>Module 6</b>	<b>AI for Natural Language</b>	2025-01-07 - 2025-01-11

### Further introductory courses:

Algorithms and programming are important tools in data-driven research. Python is a good scripting language widely used to create pipelines of tasks typical for large computations and analysis on large data sets. It suits the purpose of starting programming in it, as well.

For students who wish to refresh their Python programming knowledge or who are new to the Python programming language, we recommend attending the course

**Introduction to Programming (Python)**  
on 2024-08-12.



## CONTACT



**PD Dr. Sigve Haug**  
Director of Studies  
sigve.haug@unibe.ch



**Dr. Katja Vaghi**  
Education Manager  
CAS AICP  
katja.vaghi@unibe.ch

## Lecturers

Our lecturers are local or external experts. Currently, they include

- Prof. Dr. Chris Salter
- Dr. Daniel Bisig
- PD Dr. Sigve Haug
- Dr. Kinga Sipos
- Dr. Mykhailo Vladymyrov
- Dr. Sukanya Nath
- Dr. Guillaume Witz

## Program management

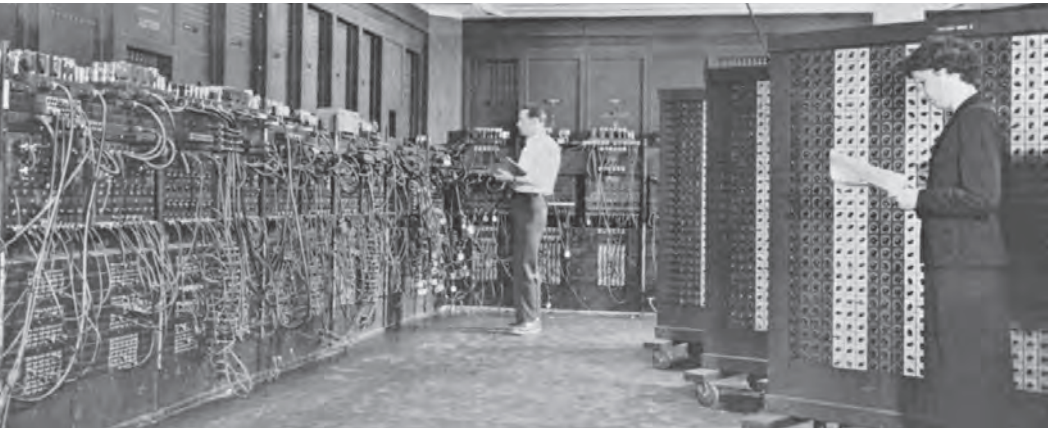
The Certificate of Advanced Studies (CAS) in AI for Creative Practices (AICP) is offered by the Mathematical Institute of the University of Bern and the Continuing Education of the Zurich University of the Arts.

- Prof. Dr. Chris Salter
- Regula Stibi
- PD Dr. Sigve Haug (Director of Studies)
- Prof. Dr. Christiane Tretter (Chair)
- Prof. Dr. Thomas Wihler





# Further Studies: Extended Intelligence



## DAS Extended Intelligence

The CAS AI for Creative Practices (AICP) can be combined with the CAS Advanced Machine Learning (AML) into a Diploma of Advanced Studies in Extended Intelligence - the DAS XI.

The scope of the DAS XI comprises 38 ECTS:

- 16 ECTS from CAS AICP**
- 16 ECTS from CAS AML**
- 2 ECTS from DAS Module**
- 4 ECTS from DAS Thesis**

## MAS Extended Intelligence

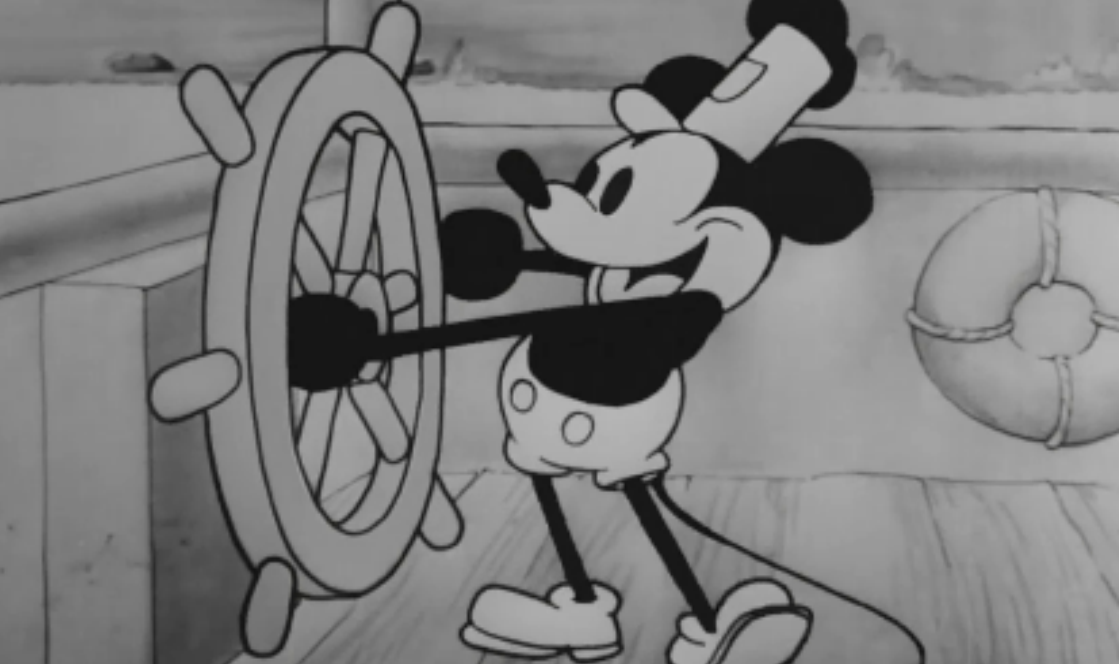
The CAS AI for Creative Practices (AICP) can be combined with the CAS Advanced Machine Learning (AML) and the CAS Applied Data Science (ADS) or the CAS Natural Language Processing (NLP) into a Master of Advanced Studies in Extended Intelligence - the MAS XI. For other options, please take contact with us

The scope of the MAS XI comprises 62 ECTS:

- 16 ECTS from CAS AICP**
- 16 ECTS from CAS AML**
- 16 ECTS from CAS NLP/ADS**
- 2 ECTS from MAS Module**
- 12 ECTS from MAS Thesis**







**University of Bern**

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Schweiz

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[www.zhdk.ch/weiterbildung](http://www.zhdk.ch/weiterbildung)



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