

CAS AI and Software Development Information Event

7 November 2023
ETH Zurich



Information Event Agenda

Presentation

- Programme concept and goals
- Target audience
- CAS structure
- Module descriptions
- Key facts
- Programme schedule
- Admission requirements
- Application process
- Contacts for more information

Question and Answer

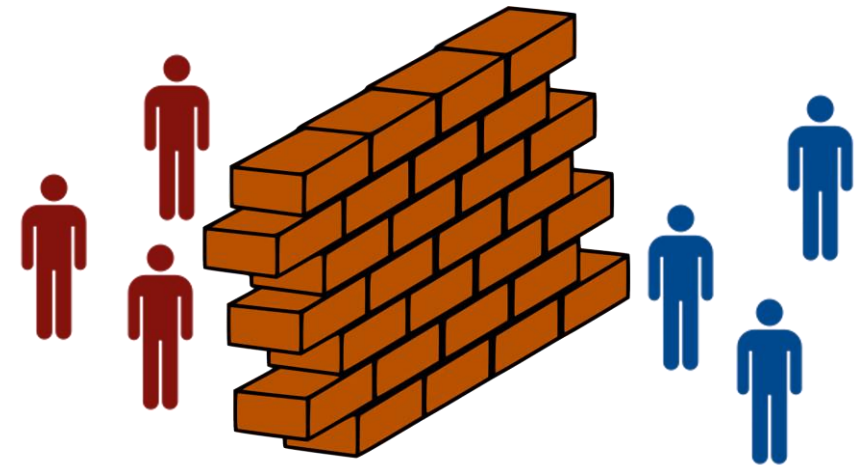
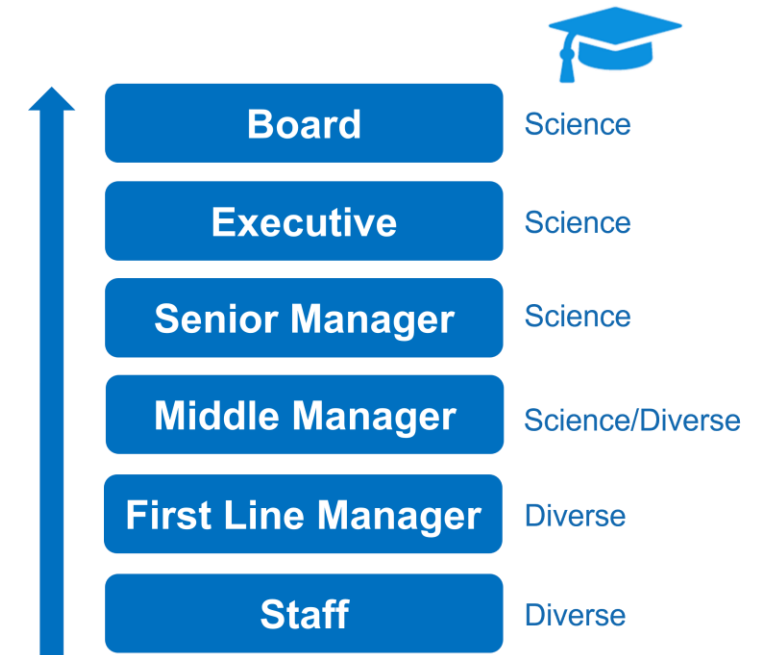
Programme Concept – Based on Industry Needs

Career advancement:

- Difficult for companies to find qualified candidates for senior management who have diverse backgrounds and a sufficient understanding of science and technology.
- Careers often slow down or stop for non-technical managers.

Collaboration:

- Nowadays, every company is a technology company and technology-based complexity is increasing.
- The barriers to effective communication and collaboration are growing rather than shrinking, especially between technical and non-technical personnel.



Programme Goals

Enable graduates to:

- Understand and describe typical software and AI related processes, capabilities and outcomes.
- Use technical language more precisely to improve their communication with technical staff and groups, particularly with software development teams.
- Make better decisions and provide leadership for company investments in software development, particularly for machine learning and artificial intelligence applications.



Target Audience

Experienced managers

- At least 5 years work experience with some management
- Work in companies where computer science and software are a significant source of competitive advantage.
- Do not have extensive formal education in computer science and programming.
 - Typical degrees include business, management, economics, finance, marketing, etc.

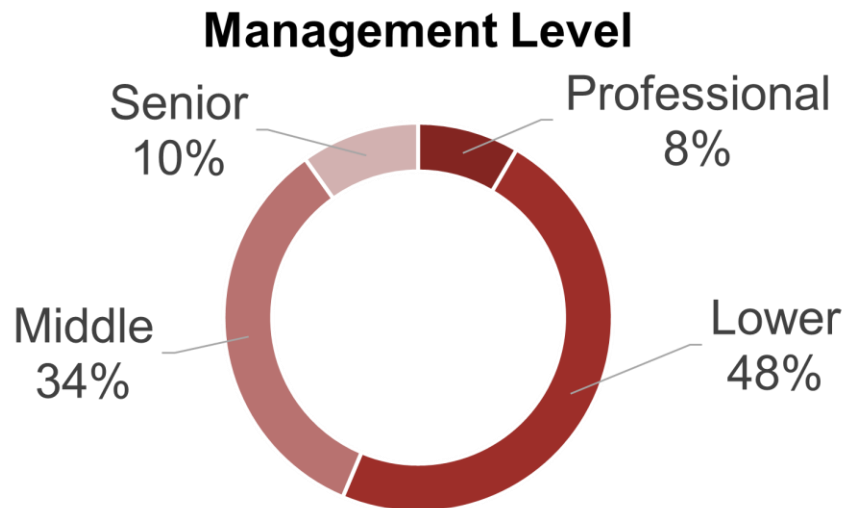


Management Experience Definition

“Management” is defined broadly for admissions purposes

- Anyone with authority or significant influence over company decision making and allocation of resources
- Not restricted to line management

Example participants from similar programs



Work Experience

Average: 11 years
Range: 5 – 30 years

Example Job Titles

Director
Vice President
Head
Program Manager
Product Manager
Project Manager
Lead
Controller
Consultant
Analyst

CAS AIS Structure

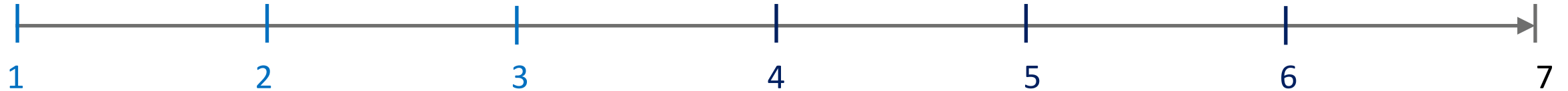
Block Courses

Building ML/AI Applications
Dr. Carlos Cotrini Jimenez, Dr. Andreas Streich

Software Engineering Fundamentals
Dr. Malte Schwerhoff, Dr. Hermann Lehner

Exams/
Presentations

Weekends



Online Module

Programming with Python
Dr. Lukas Fässler, Dr. Markus Dahinden

- Classes are all day Friday (8 – 17 typical) and half day Saturday (8 - 12 typical)
- Coffee breaks and Friday lunch provided

Module 1: Building ML/AI Applications (Weekends 1-3)

Goal: Gain hands on exposure to and understanding of machine learning as the foundation for artificial intelligence applications. Participants will be able to recognize and explain fundamental technical concepts routinely used in industry.

Topics:

- Introduction to Machine Learning: Understand the essentials of ML and its core tools like decision trees, neural networks, and cross-validation.
- Deep Learning: Discover the transformative role of neural networks, with an emphasis on natural language processing. We study applications like machine translation and chatGPT.
- Applications: Learn how ML is revolutionizing sectors like finance, insurance, retail, and services.
- Challenges & Considerations: Recognize the potential pitfalls, threats, and ethical considerations in deploying ML.
- The Future of AI: Engage in discussions on the societal impacts and future prospects of AI.

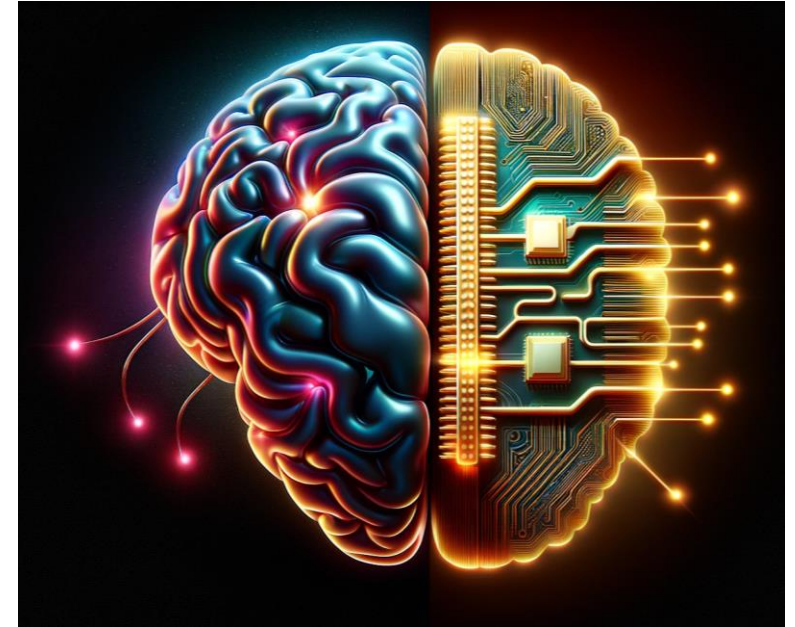


Image generated by DALL-E

Module 2: Software Engineering Fundamentals (Weekends 4-6)

Goal: Equip managers with knowledge and practical experience that will help them to improve communication with software development teams, ultimately leading to higher project success rates.

Provides a comprehensive overview of the development process and management techniques, including direct exposure to typical challenges.

- **Topics** include:
 - Requirements elicitation
 - Modelling and design patterns,
 - Implementation decisions and trade-offs,
 - Testing and refactoring, and
 - Maintenance and enhancement of software products.
- **Team project** – hands on software project:
 - Learn by doing
 - Define requirements, integrate change requests and manage an evolving code base

Online Module: Programming with Python (runs throughout entire CAS)

Goal: participants will be able to understand and run programs that, for example, automatically perform data analysis, and generate meaningful information that can be displayed visually.

This Python course introduces and extends basic programming concepts as typically covered in introductory courses, and presents some advanced topics:

- Classes, objects, and a selection of important Python libraries, such as NumPy for matrix calculations as well as Pandas and Requests for data science and data visualization.

Based on their programming experience, participants will be able to choose between a more basic and a more advanced level of instruction. Participants without prior programming experience should be prepared to invest more time in the beginning of the module.

Course Format:

- Online instruction with interactive programming exercises in the form of small projects on the Code Expert platform (available at least two weeks before the course starts).
- Regular (roughly every two weeks) one-on-one TA feedback sessions are pre-scheduled in advance with a wide variety of times available to fit everyone's schedule.
- TA support also available in between via Code Expert/email/Zoom.

CAS AIS - Key Facts

- Application deadline: November 30, 2023
- Next Start February 2024
- Program Duration: 4 months, Part-Time
- Format In presence & online
2-day blocks (Friday full day/Saturday morning)
- Language 100% English
- Time Commitment ~250 hours including classroom time
- Tuition Fee 8,500 CHF

CAS AIS Programme Schedule - Spring 2024

Course Name	Lecturers	Course Type / Location	Dates (Friday-Saturday)	Credits
Building ML/AI Applications	Dr. Carlos Cotrini Jimenez & Dr. Andreas Streich	In presence ETH Zentrum	February 16-17 March 1-2 March 15-16	4 ECTS
Software Engineering Fundamentals	Dr. Malte Schwerhoff & Dr. Hermann Lehner	In presence ETH Zentrum	April 19-20 May 3-4 May 24-25	3 ECTS
Programming with Python	Dr. Lukas Fässler & Dr. Markus Dahinden	Online with one-on-one support.	Meetings with TAs scheduled individually	3 ECTS
Performance assessments and end-of-program activities	All	In presence ETH Zentrum	June 7-8	

Admission Requirements

- ETH-recognised university degree at Master level or equivalent educational background
 - Evaluated by the School for Continuing Education (SCE)
 - If concerned, SCE can answer questions about your degrees before you apply
- 5 years of work experience after university degree
- Demonstrated managerial experience
- Good knowledge of English (B2 recommended)



Application Procedure

ETH School for Continuing Education (SCE) provides valuable information about the application procedure on their “How To Apply?” webpage: <https://sce.ethz.ch/en/apply-and-study/how-to-apply.html>

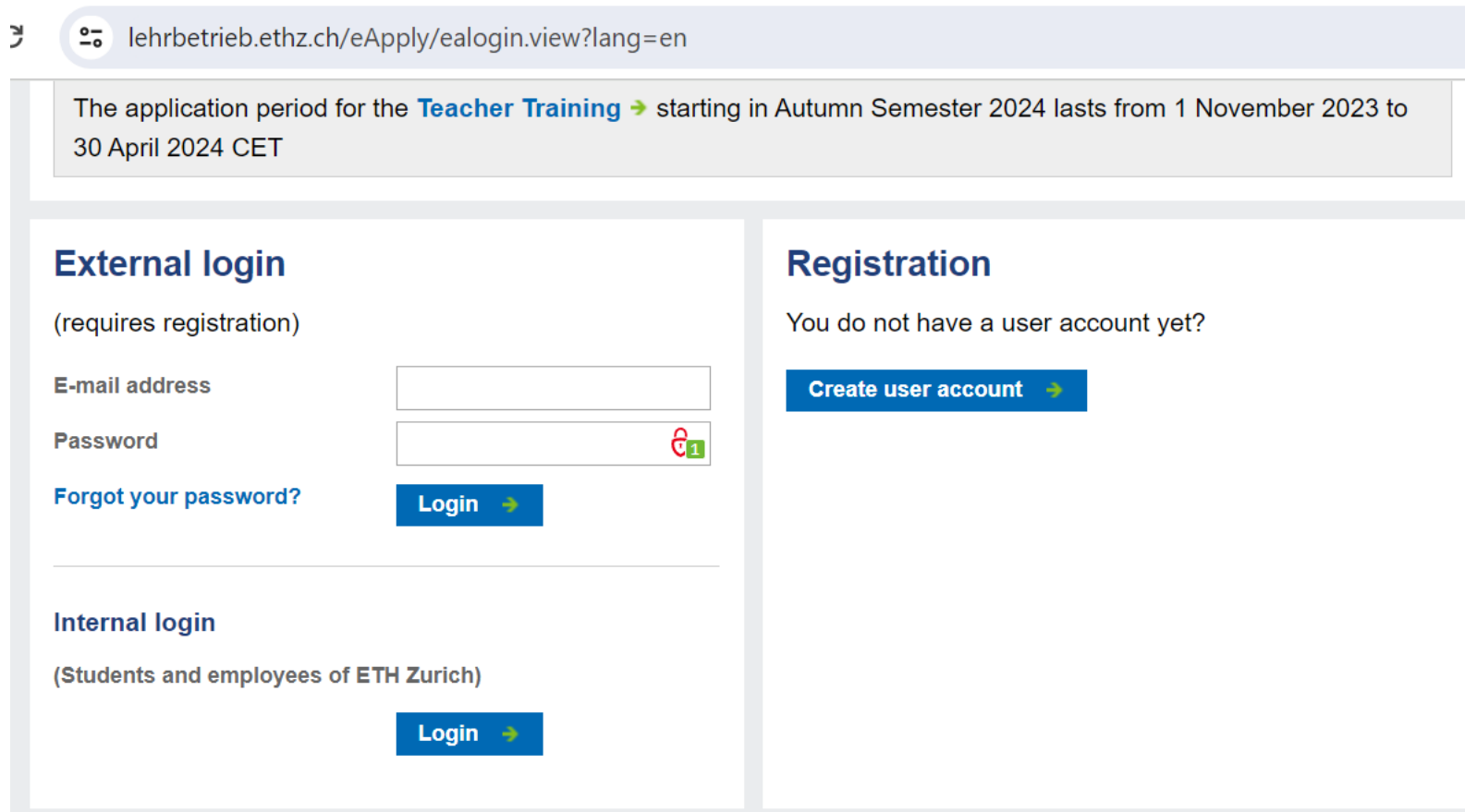
- Apply using ETH’s eApply portal: <https://www.lehrbetrieb.ethz.ch/eApply/ealoglein.view?lang=en>
- Applications are completely online.
 - Be sure to upload all your supporting documentation.
 - Describe your motivation – either in the application or in a separate letter
 - Include a copy of your CV
 - If available, include grades for Bachelor/Master degrees
- Deadline: 30 November

Application fee (non-refundable)

- CHF 50 for persons with a Swiss university degree
- CHF 150 for persons with another university degree

Helpful hint for getting started


- Need to scroll down past all the notices to find the Login
- If you have not applied to ETH before, you will need to register and create a personal account first.



The screenshot shows a web browser window with the URL `lehrbetrieb.ethz.ch/eApply/ealogin.view?lang=en`. At the top, a notice states: "The application period for the **Teacher Training** → starting in Autumn Semester 2024 lasts from 1 November 2023 to 30 April 2024 CET". Below this, the page is divided into two main sections: "External login" and "Registration".

External login
(requires registration)

E-mail address

Password  1

[Forgot your password?](#) [Login →](#)

Internal login
(Students and employees of ETH Zurich)

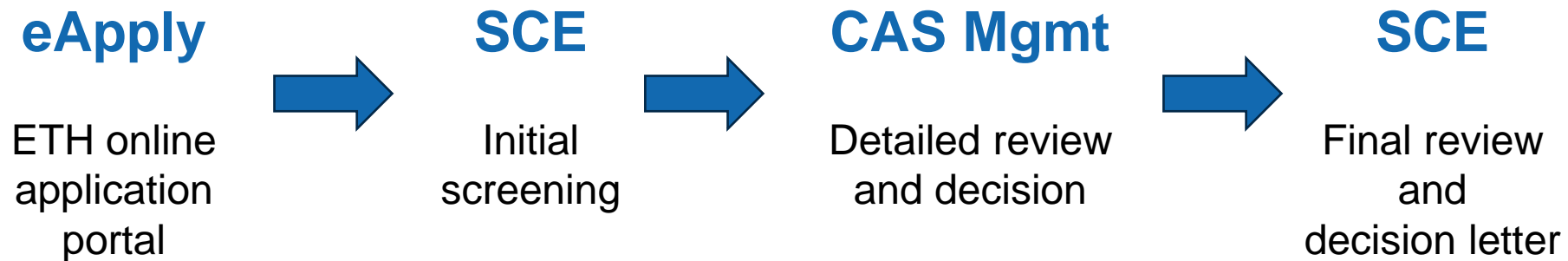
[Login →](#)

Registration
You do not have a user account yet?

[Create user account →](#)

Application Review Process

- All applications will be reviewed after the application deadline (30 November)
- Official notification of admission decision by the SCE in December
 - Applicants will be informed by email that they can view and download the decision letter in the eApply application platform.
- Applicants will have 30 days from the date of the SCE admission decision letter to withdraw from the program free of charge.



Contacts

- **CAS AIS Programme Management**

Maria Rosaria Polito

Programme Manager

politom@inf.ethz.ch

+44 41 633 23 72

Dr. Lukas Fässler

Programme Director

faessler@inf.ethz.ch

Prof. Dr. Bernd Gärtner

Programme Deputy Director

gaertner@inf.ethz.ch

- **Webpage**

www.inf.ethz.ch/continuing-education/CAS-AIS

- **LinkedIn Page**

www.linkedin.com/company/cas-eth-in-ai-and-software-development

- **School for Continuing Education**

email: info@sce.ethz.ch phone: +41 44 632 56 59