Universität Zürich[UZH]

Department of Informatics



Master's Project Market · Fall 2026

Nathan Labhart, Academic Coordinator

Projects and presentations by: Yasemin Gunal, Eva Bittner, Julika Krüger, Patricia Kahr, Gus Umbelino, Oana Inel, Noah Mamie, Hadi Gheitasi, Daniel G. Krakowczyk, Anna Bondar, Sheng-Nan Li, Tao Yan, Cyrille Kone, Antoine Bergerault, Till Freihaut, Madeleine Soukup, and Kilian Sprenkamp.

Picture generated with Copilot

Important to know: The Master's Project…

… is a **group project** of 2 to 5 members.
If you are a group of two and one person has to cancel, the whole project has to be canceled.

… must be done **with an IfI professor**.
You may be required to have passed certain modules. External co-supervision may be possible.

… is carried out with **scientific methods**, requires **final report**.
And usually a presentation or demonstration of the solution.

… yields 15 ECTS Credits.

… is ideally carried out during the summer break; **max. 1 year** to complete.
Usually 6 months (part-time), 3 months (full-time). Start date depends on context and supervisors.

Read the Fact Sheets:
ifi.uzh.ch/studies > MSc: While studying

Master's Project: Procedure

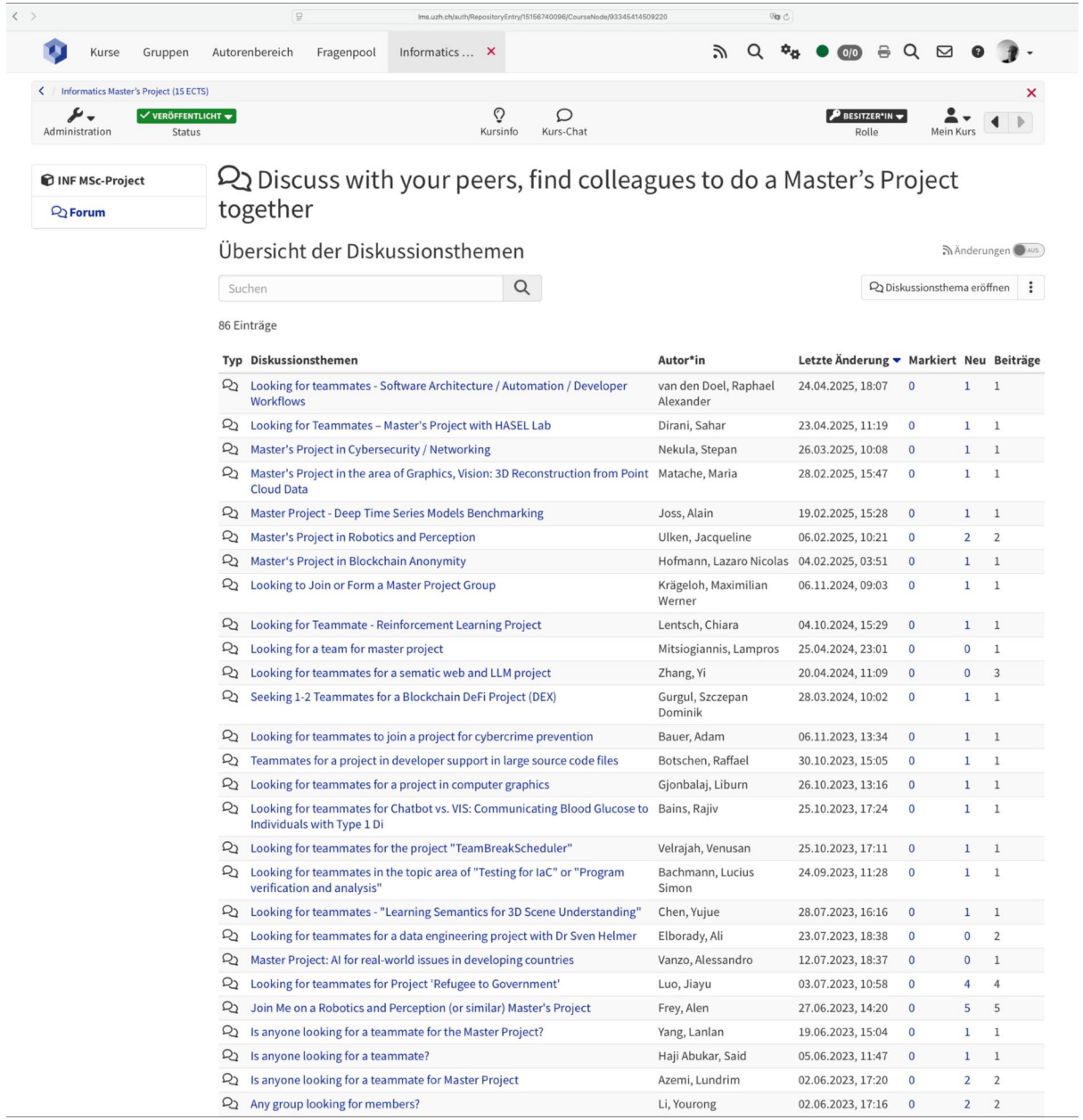
1. Find a project: Here at the Master's Project Market, on the individual group pages at IfI, or in OLAT http://t.uzh.ch/yi

2. Build groups (find peers here, in OLAT, …)

3. Meet with supervisor and submit the registration form.

4. Start.

Read the Fact Sheets:
ifi.uzh.ch/studies > MSc: While studying



Typ	Diskussionsthemen	Autor*in	Letzte Änderung	Markiert	Neu	Beiträge
	Looking for teammates - Software Architecture / Automation / Developer Workflows	van den Doel, Raphael Alexander	24.04.2025, 18:07	0	1	1
	Looking for Teammates – Master's Project with HASEL Lab	Dirani, Sahar	23.04.2025, 11:19	0	1	1
	Master's Project in Cybersecurity / Networking	Nekula, Stepan	26.03.2025, 10:08	0	1	1
	Master's Project in the area of Graphics, Vision: 3D Reconstruction from Point Cloud Data	Matache, Maria	28.02.2025, 15:47	0	1	1
	Master Project - Deep Time Series Models Benchmarking	Joss, Alain	19.02.2025, 15:28	0	1	1
	Master's Project in Robotics and Perception	Ulken, Jacqueline	06.02.2025, 10:21	0	2	2
	Master's Project in Blockchain Anonymity	Hofmann, Lazaro Nicolas	04.02.2025, 03:51	0	1	1
	Looking to Join or Form a Master Project Group	Krägeloh, Maximilian Werner	06.11.2024, 09:03	0	1	1
	Looking for Teammate - Reinforcement Learning Project	Lentsch, Chiara	04.10.2024, 15:29	0	1	1
	Looking for a team for master project	Mitsiogiannis, Lampros	25.04.2024, 23:01	0	0	1
	Looking for teammates for a sematic web and LLM project	Zhang, Yi	20.04.2024, 11:09	0	0	3
	Seeking 1-2 Teammates for a Blockchain DeFi Project (DEX)	Gurgul, Szczepan Dominik	28.03.2024, 10:02	0	1	1
	Looking for teammates to join a project for cybercrime prevention	Bauer, Adam	06.11.2023, 13:34	0	1	1
	Teammates for a project in developer support in large source code files	Botschen, Raffael	30.10.2023, 15:05	0	1	1
	Looking for teammates for a project in computer graphics	Gjonbalaj, Liburn	26.10.2023, 13:16	0	1	1
	Looking for teammates for Chatbot vs. VIS: Communicating Blood Glucose to Individuals with Type 1 Di	Bains, Rajiv	25.10.2023, 17:24	0	1	1
	Looking for teammates for the project "TeamBreakScheduler"	Velrajah, Venusan	25.10.2023, 17:11	0	1	1
	Looking for teammates in the topic area of "Testing for IaC" or "Program verification and analysis"	Bachmann, Lucius Simon	24.09.2023, 11:28	0	1	1
	Looking for teammates - "Learning Semantics for 3D Scene Understanding"	Chen, Yujue	28.07.2023, 16:16	0	1	1
	Looking for teammates for a data engineering project with Dr Sven Helmer	Elborady, Ali	23.07.2023, 18:38	0	0	2
	Master Project: AI for real-world issues in developing countries	Vanzo, Alessandro	12.07.2023, 18:37	0	0	1
	Looking for teammates for Project 'Refugee to Government'	Luo, Jiayu	03.07.2023, 10:58	0	4	4
	Join Me on a Robotics and Perception (or similar) Master's Project	Frey, Alen	27.06.2023, 14:20	0	5	5
	Is anyone looking for a teammate for the Master Project?	Yang, Lanlan	19.06.2023, 15:04	0	1	1
	Is anyone looking for a teammate?	Haji Abukar, Said	05.06.2023, 11:47	0	1	1
	Is anyone looking for a teammate for Master Project	Azemi, Lundrim	02.06.2023, 17:20	0	2	2
	Any group looking for members?	Li, Yourong	02.06.2023, 17:16	0	2	2

Master’s Project presentations
1 minute each, 15 seconds in-between

The slides will be uploaded later this afternoon.

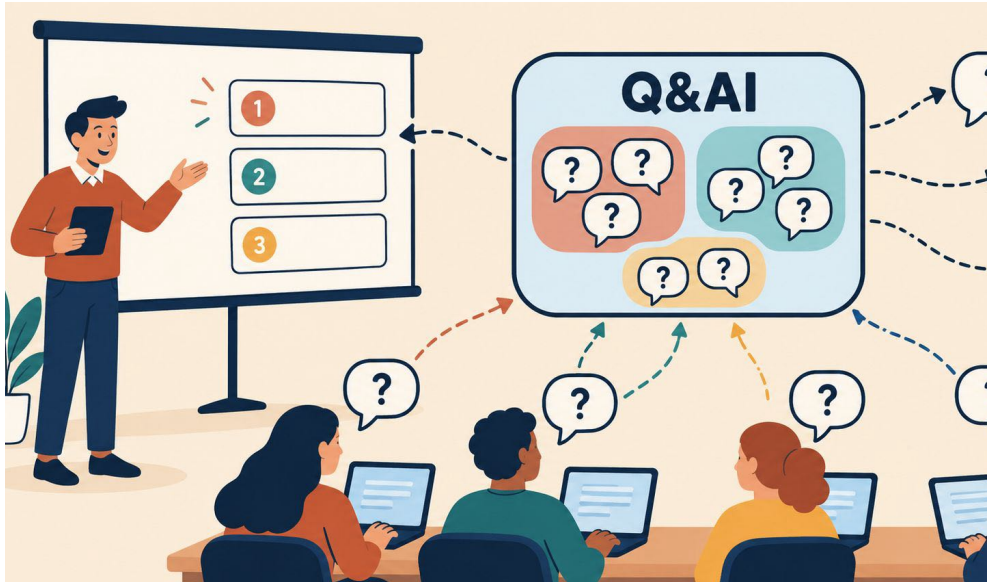
http://t.uzh.ch/yi

Ready… set…

Yasemin Gunal for Juliana Souza:
Q&AI: AI-Assisted Question Management for Lectures and Meetings

Q&AI: AI-Assisted Question Management for Lectures and Meetings

In lectures, participants often hesitate to interrupt, people may share questions, and speakers can struggle to spot which questions matter most. Join us in building Q&AI, a chat-based system where participants submit questions while an AI agent follows the ongoing session. Q&AI answers questions that were already covered and forwards the rest to the speaker as a curated queue.



Project Goals

- Develop Q&AI, a chat-based system for collecting and managing questions during lectures, presentations, or meetings.
- Use the live session context to decide which questions can be answered automatically and which should go to the speaker.
- Explore strategies for grouping similar questions and prioritizing them, e.g., by frequency and relevance to the current topic.

Requirements

- Experience with software development.
- Interest in human-AI interaction and how AI can support communication in group settings.

HASEL
Human Aspects of Software Engineering Lab

Contact: Juliana Souza jsouza@ifi.uzh.ch

Yasemin Gunal:
Meeting Buddy: An AI Companion for Meetings

Meeting Buddy: An AI Companion for Meetings

Join us in designing and building Meeting Buddy: an AI agent that sits on the table during meetings. Through buttons presses or haptics, users can mark important timestamps, flag questions to revisit, or tag action items, without opening a laptop or breaking the flow of conversation. This can be used to later revisit moments in the transcript and ask questions about what was discussed. Meeting Buddy can also be integrated with your calendar and help you leave meetings gracefully or manage back-to-back meetings.



Project Goals

- Design and build a companion (e.g., buttons, lights, haptics) that captures meetings and supports in-the-moment interactions.
- Develop AI-supported features that help users before, during, and after meetings, such as interacting with transcripts, with the freedom to focus on the aspects you find most exciting.

Requirements

- Experience with software development.
- Interest in physical prototyping.
- Familiarity with speech-to-text and LLM/AI APIs.

HASEL
Human Aspects of Software Engineering Lab

Contact: Yasemin Gunal gunal@ifi.uzh.ch

Yasemin Gunal for Juliana Souza:
Context Snapshots for Developer Collaboration

Context Snapshots for Developer Collaboration

Join us in developing a tool that captures a developer's current environment (e.g., open files, windows, and tools) and packages it into a shareable snapshot. This snapshot can then be sent to a colleague when asking for help, attached to an issue for future reference, or shared across different stages of the development pipeline (development, testing, and review).

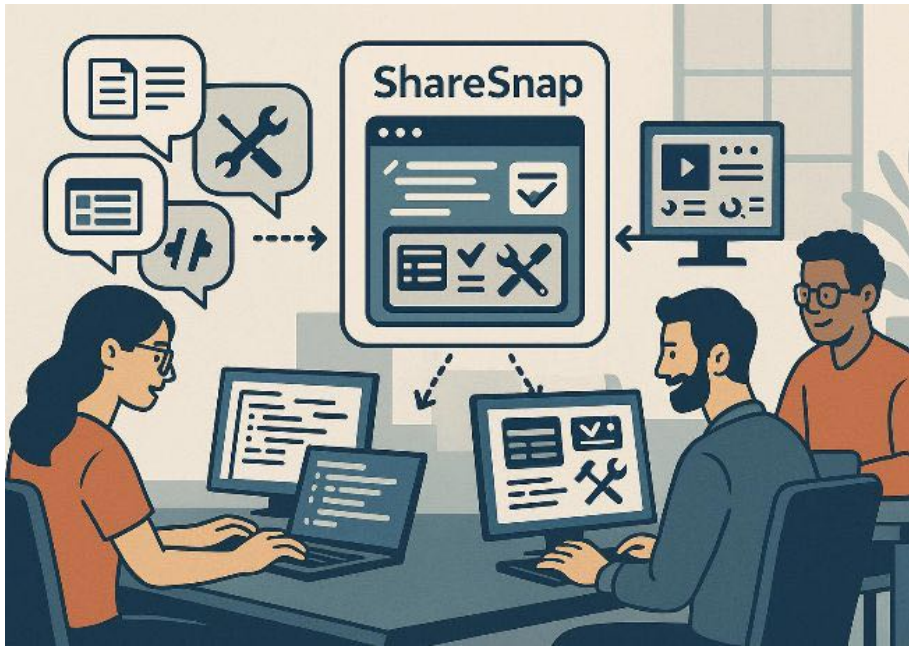
By allowing teammates to instantly reconstruct the same workspace, this project aims to save time, make collaboration more efficient, reduce misunderstandings, and ensure that context isn't lost between transitions.

Project Goals

- Extend an existing system of local task snapshots to support shareable snapshots between developers.
- Investigate the challenges of reconstructing a working context in a different development environment and propose solutions.
- Evaluate the tool in a small user study.

Requirements

- Experience with software development.
- Interest in improving developers' collaboration and productivity.



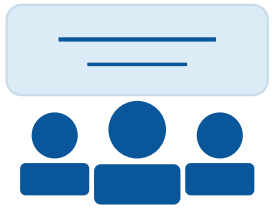
HASEL
Human Aspects of Software Engineering Lab

Contact: Juliana Souza jsouza@ifi.uzh.ch

Lucas Memmert:
Can AI Help Teams Build Shared Understanding?

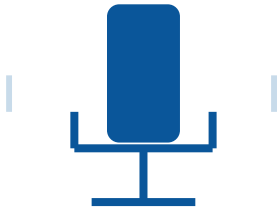
Can AI Help Teams Build Shared Understanding?

An AI meeting assistance system for clarification, alignment and consensus building



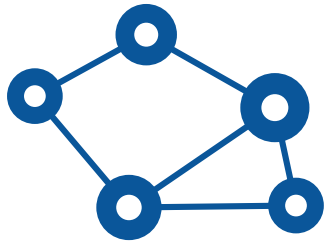
GROUP DISCUSSION

Different assumptions, goals and interpretations



AI LISTENS

Extracts concepts, links and open questions



SHARED VISUAL MODEL

Supports grounding, and clarification and agreement

EXISTING PROTOTYPE In-person · 3 participants · Tabletop microphone

~20 GROUPS STUDIED

Live visualization of shared understanding · Evaluated against without tool support

NEXT ITERATION: DEVELOP & EVALUATE

- **Additional mechanisms for building shared understanding**
- **Online meetings with flexible group sizes**
- **Interactive visualization**
- **Empirical evaluation**

Build on a working system and empirical findings

3–4 students · Apply as a team, sending an email to Dr. Lucas Memmert via hise@ifi.uzh.ch

Lucas Memmert:
Beyond Chat: Can Visual Interfaces Improve Problem Solving?

Beyond Chat: Can Visual Interfaces Improve Problem Solving?

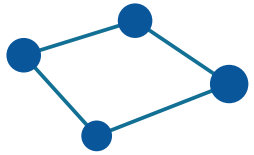
Chat and emerging AI “Artifacts” open possibilities—but which interface designs actually help?

TODAY: MOSTLY CHAT

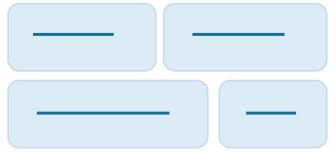
Chat · Prompt · Rewrite

TO EXPLORE: ALTERNATIVE INTERFACES

Concept map



Editable canvas



Something else?



Illustrative possibilities—not a predetermined solution

THREE QUESTIONS TO INVESTIGATE

CRITICAL ENGAGEMENT

Do users question AI suggestions?

EXPLORATION & REFINEMENT

Do users explore and improve more?

COGNITIVE LOAD

Does it reduce or increase mental effort?

PROJECT FOCUS: DESIGN · BUILD · EVALUATE

3–4 students · Apply as a team, sending an email to Dr. Lucas Memmert via hise@ifi.uzh.ch

Julika Krüger, Patricia Kahr:
When AI Does the Thinking: Measuring Reliance, Learning, and Feelings of Accomplishment in AI-Assisted News Consumption

Dynamic and Distributed Information Systems

The AI Times

MASTER PROJECT
University of Zurich

VOL. I · NO. 1 RESEARCH · NEWS · ARTIFICIAL INTELLIGENCE ZURICH EDITION

When AI Does the Thinking:

Measuring Reliance, Learning, and Feelings of Accomplishment in AI-Assisted News Consumption

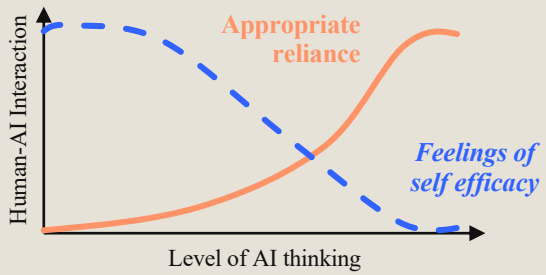
RESEARCH QUESTION

How do different mitigation strategies (presenting multiple AI outputs, counter opinions) and news framing (positive/negative framing, misinformation) shape the reader's reliance behavior, learning outcome and feelings of achievement and self efficacy?

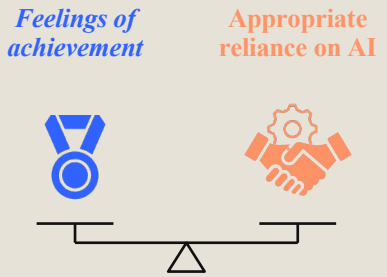
GOAL:

"Finding the balance between the reader having feelings of achievement and also being appropriately reliant on AI"

Challenge:
Inappropriate levels of human-AI interaction



Goal:
Balancing



Task:

a. Extend the Informfully news platform by using **Prompt Engineering** and **ML**: inject bias/framing into AI, add mitigations, add engine to generate questions on the consumed news

b. **Design and pilot a user study** (concept, implementation, analysis)

Requirements:

- Intermediate coding skills (frontend development, prompt engineering, structured data logging)
- Interest and motivation in empirical research (pre-knowledge welcome)

PROJECT DETAILS

Team Size:
2 – 4 students

Start Date:
Winter 2026/27

Supervision:
Julika Krüger & Dr. Patricia Kahr
krueger@ifi.uzh.ch &
patricia.kahr@uzh.ch

Gus Umbelino for Stefan Schouten:
Who Stands Where? Speakers' Politics Inside LLMs

Who Stands Where? Speakers' Politics Inside LLMs

Interpretability **NLP** **Political bias**

Context & motivation

LLMs increasingly join political conversations. Do they internally track *who* holds *which* views? This could drive tailored, sycophantic or biased answers.

Research questions

- Is each speaker's orientation decodable?
- Is it bound to the *right* speaker, and where?
- Does the model causally *use* it?

Approach

Contrast pairs of dialogues that swap *who* holds *which* view; label-free (g-)tcPCA[1] vs. supervised probes; activation patching on open-weight LLMs.

Requirements

- Understanding of transformer LLMs
- Solid linear algebra

You will learn

- Modern interpretability
- Experiments on LLMs
- Controlled dataset design

[1] Schouten & Bloem, *Probing Without Labels: Contrast-only Reproductions of Interpretability Results*, BlackboxNLP 2026.
`https://contrast.stefanfs.me`

Supervisor: Stefan Schouten | schouten@ifi.uzh.ch

Gus Umbelino for Stefan Schouten:
The Hidden Dialogue Manager: Goals & Progress in LLMs

The Hidden Dialogue Manager: Goals & Progress in LLMs

Interpretability **NLP** **Dialogue systems**

Context & motivation

Classic dialogue systems kept an explicit state of goals and progress. LLMs have no such module, yet hold goal-directed conversations. Do they track this state *internally*?

Research questions

- Are the conversation's goal and sub-goals decodable?
- Does it represent which sub-goals are already done?
- Does this state steer its next turn?

Approach

Contrast pairs from task-oriented dialogues (e.g. MultiWOZ) differing only in goal or progress; (g-)tcPCA[1] vs. probes; causal interventions.

Requirements

- Understanding of transformer LLMs
- Solid linear algebra

You will learn

- Modern interpretability
- Experiments on LLMs
- Dialogue system concepts

[1] Schouten & Bloem, *Probing Without Labels: Contrast-only Reproductions of Interpretability Results*, BlackboxNLP 2026. `https://contrast.stefanfs.me`

Supervisor: Stefan Schouten | schouten@ifi.uzh.ch

Oana Inel:
AI-Supported Detection of Inconsistencies in Data and Metadata of a Clinical Data Warehouse

AI-Supported Detection of Inconsistencies in Data and Metadata of a Clinical Data Warehouse

The University Children's Hospital Zurich maintains a Data Warehouse (DWH) for business and research data needs. The DWH contains data from various different clinical and nonclinical applications.

In this project, you will help improve the quality of the DWH. You will build an AI-supported prototype that uses a Large Language Model (LLM) to identify inconsistencies, and evaluate how reliably it works on real clinical data infrastructure.



Data

Identify outliers, contradictions and incomplete records



Metadata

Keep environments aligned, keep data products using semantically similar source data from diverging



START

February 2027



APPLY BY

30.11.2026



TEAM SIZE

2-4 students



CONTACT

oana.inel@uzh.ch

UNIVERSITÄTS-KINDERSPITAL ZÜRICH

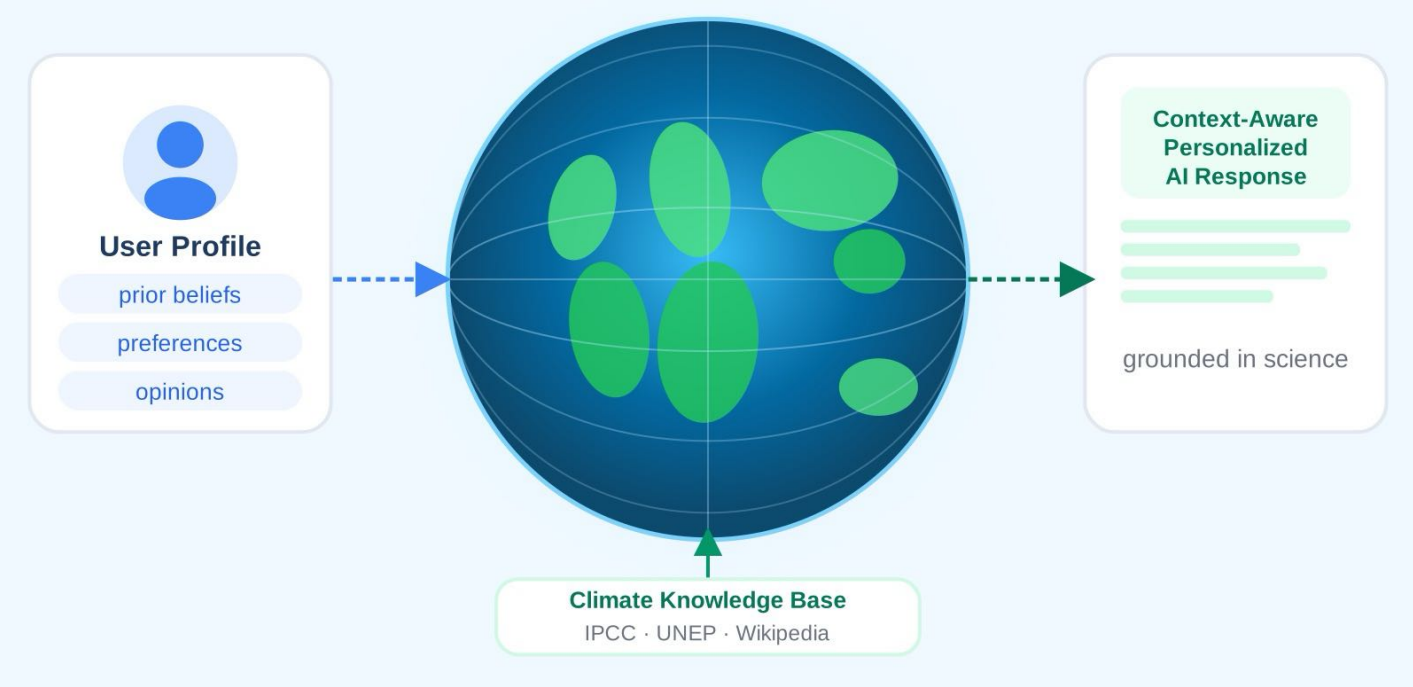
DIS Dynamic and Distributed Information Systems

Universität Zürich[UZH]

Oana Inel, Noah Mamie:
Personalized Climate Communication via AI Agents

Personalized Climate Communication via AI Agents

Design, implement, and evaluate a question-answering system that delivers climate information tailored to each user's context and framing.



1. Knowledge base creation
2. User context modeling
3. Personalized retrieval & generation
4. User study evaluation

START
February 2027

APPLY BY
30.11.2026

TEAM SIZE
2-4 students

CONTACT
oana.inel@uzh.ch
noah.mamie@uzh.ch

Hadi Gheitasi:
Understanding Trust. Building Security.

UNDERSTANDING TRUST.
BUILDING SECURITY.

A document says “written by a human.”

What would it take to prove that?

WHERE YOUR RESEARCH COULD START

Three directions. Many possible questions.



Provenance

Can we verify how content was created?



Security

Where do trust assumptions fail?



Trusted systems

How do we build stronger guarantees?

Daniel Georg Krakowczyk: pymovements

pymovements

Open-source Python package for eye-tracking data preprocessing

Eye Tracker Parsing
Support new eye trackers, improve existing readers

Data Quality Checks
Automatic quality checks for recordings

Event Detection Algorithms
Fixation, saccade and pursuit detection

Event Generation
Generate fixation and saccade events from text or image stimuli

Pupillometry
Preprocessing and measures for pupil size data

Video Stimuli
Map gaze onto video frames, export overlays

Non-Latin Reading
Reading measures for right-to-left and vertical scripts

Reading Corpus Reproduction
Reproduce published reading measures across eight datasets

Visualization
Composable plots on a shared screen canvas

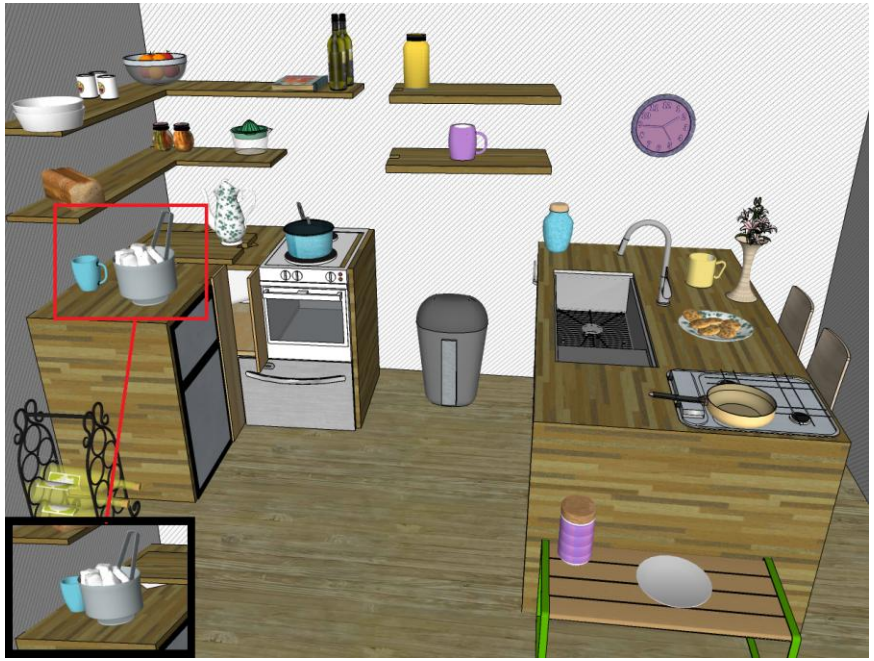
Machine Learning Interface
Export to scikit-learn, PyTorch, TensorFlow

Daniel Krakowczyk · Digital Linguistics, University of Zurich · danielgeorg.krakowczyk@uzh.ch · github.com/pymovements

Anna Bondar:
Which mug do you mean?

Which mug do you mean?

How humans and vision-language models resolve visual ambiguity



Eye4Ref: Alaçam et al. (2020).
English translations shown. Original stimuli: spoken German.

Colour first

"Bring me the **blue mug** from the counter."

Clarification later

"Bring me the mug, the **blue mug**,
from the counter."

Do models update their visual attention similar to humans as the sentence unfolds?

Your project

Test object-selection accuracy depending on the phrasing and referential complexity.
Compare VLM's attribution changes with human attribution changes.

Digital Linguistics group, Department of Computational Linguistics **Contact:** Anna Bondar, anna.bondar@uzh.ch

Sheng-Nan Li:
Benchmarking Performance across Blockchain Networks

Benchmarking Performance across Blockchain Networks

Goal: modular benchmarking kits for heterogeneous blockchains, enabling fair cross-system comparison and evidence-based design decisions

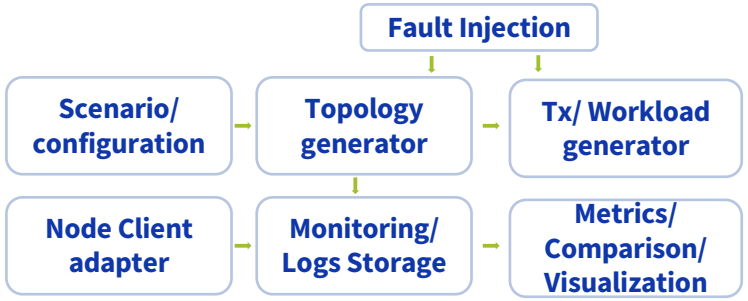
CONTACT
Dr Shengnan Li (shengnan.li@uzh.ch)
Blockchain & Distributed Ledger Technologies Group, UZH Blockchain Center

THE CHALLENGE

What makes one blockchain performs better than another and how can we measure it fairly?

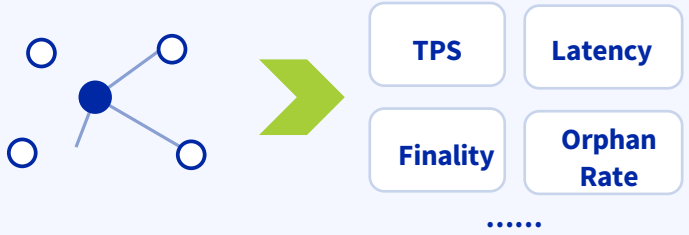
Compare network topologies and protocol conditions within a common framework.

MODULAR KITS



interchangeable modules • standardised interfaces • comparable KPIs

MEASUREMENTS



throughput • consensus time • fairness • robustness

WHY IT MATTERS

- Common baseline for evaluating heterogeneous blockchains
- Isolate topology, workload & architecture effects across systems
- Evidence-based design decisions

EXPECTED OUTPUT

- Extensible benchmarking framework
- Cross-system performance comparison
- Performance evaluation + visualisations /dashboard

GOOD FIT IF YOU LIKE…

- Blockchain & distributed systems
- Network science / graph analysis
- Simulation & data visualization
- Experimental systems research

Universität Zürich[UZH] UZH Blockchain Center Blockchain & DLT Research Group

Tao Yan:
Further Improvement of the Blockchain Coffee Machine

Further Improvement of the Blockchain Coffee Machine

Motivation

Apply blockchain-based payment solutions to unattended physical devices to improve resilience and efficiency.

Research

Find weak spots via fault injection; explore optimisations and add more functions; develop a generalizable solution for unattended physical devices.

Expected output

A robust, efficient coffee machine and a general payment solution for unattended devices.

Requirements

Hardware passion and experience; blockchain and smart contracts; teams of three.





It accepts UZHBTC, UZHETH PoW and PoS, UZHOPT and UZHCardano.

Contact: Dr Tao Yan, yan@ifi.uzh.ch
Benjamin Kraner, benjamin.kraner@uzh.ch

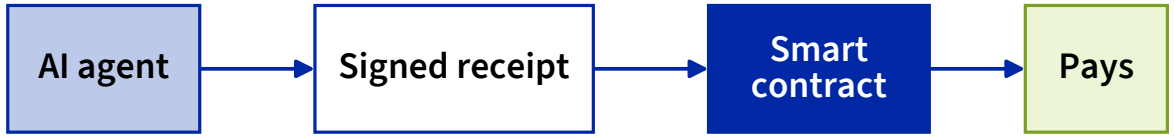
Tao Yan:
Token Metering and Settlement for AI Agents

Token Metering and Settlement for AI Agents

Today: the provider counts, nobody can check



With a blockchain: both sides verify, payment settles itself



Today only the provider counts tokens; signed receipts and on-chain settlement let both sides verify the bill.

Motivation	How tokens are spent and measured is a black hole: the provider's meter and bill cannot be checked.
Research directions	1 Apply blockchain to the settlement of AI tokens 2 Explore billing of token use in cryptocurrency and pay for each call 3 How AI agents use a blockchain for micropayments
Expected output	Rules for settling AI-token use on a blockchain, and a working demo.
Requirements	Interest in blockchain, smart contracts and AI agents; solid programming; ideally a team of three.

Contact: Dr Tao Yan, yan@ifi.uzh.ch

Cyrille Kone:
Safe to Optimize: Learning Unhackable Rewards from Demonstrations

Universität Zürich[UZH]

Department of Informatics
Autonomous Learning and Predictive Intelligence Lab

ALPI
Prof. Ramponi

Safe to Optimize

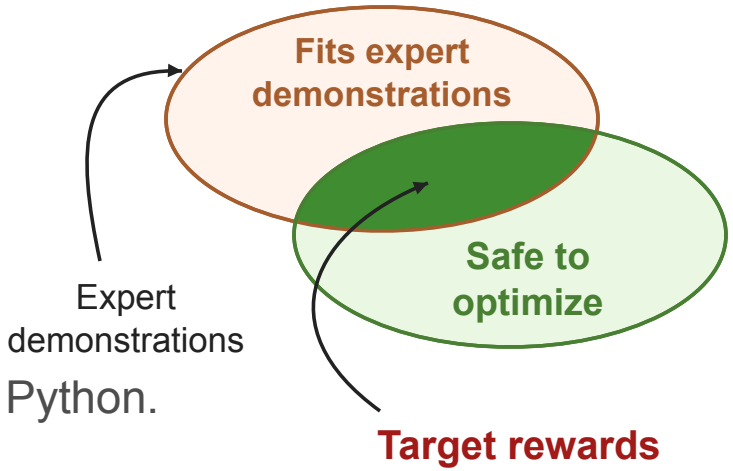
Learning Unhackable Rewards from Demonstrations

A reward can fit expert demonstrations and still favor unsafe behavior.

ALPI projects & theses

Research goal

Learn rewards for which every optimal policy behaves safely.





Good fit: probability and statistics, linear algebra and Python. RL experience is helpful.

Tasks

- Identify when demonstrations guarantee safe optimization.
- Design learning methods and prove their guarantees.
- Test the ideas in small environments using Python.

Supervisor: **Cyrille Kone**

Apply at kone@ifi.uzh.ch

Cyrille Kone:
Safe to Explore: Learning to Explore Safely from Offline Data

Universität Zürich[UZH]

Department of Informatics
Autonomous Learning and Predictive Intelligence Lab

ALPI
Prof. Ramponi

Safe to Explore

Learning to Explore Safely from Offline Data

Demonstrations and preferences provide useful guidance.
Online fine-tuning requires trying new behavior.

ALPI projects & theses

Research goal

Learn safety information from offline data to improve task performance safely online.

Safety: energy and battery limits, avoiding damage, etc.

Good fit: probability, linear algebra and Python.
RL experience is expected.



Your tasks

- Identify what offline data reveal about safe exploration.
- Optimize task performance within safety limits.
- Develop and test methods in simulated & realistic robotic tasks.

Supervisors: **Cyrille Kone, Giuseppe Chindemi**

Apply at kone@ifi.uzh.ch or giuseppe.chindemi@ai.ethz.ch

Antoine Bergerault, Till Freihaut:
Learning to model opponents from offline data

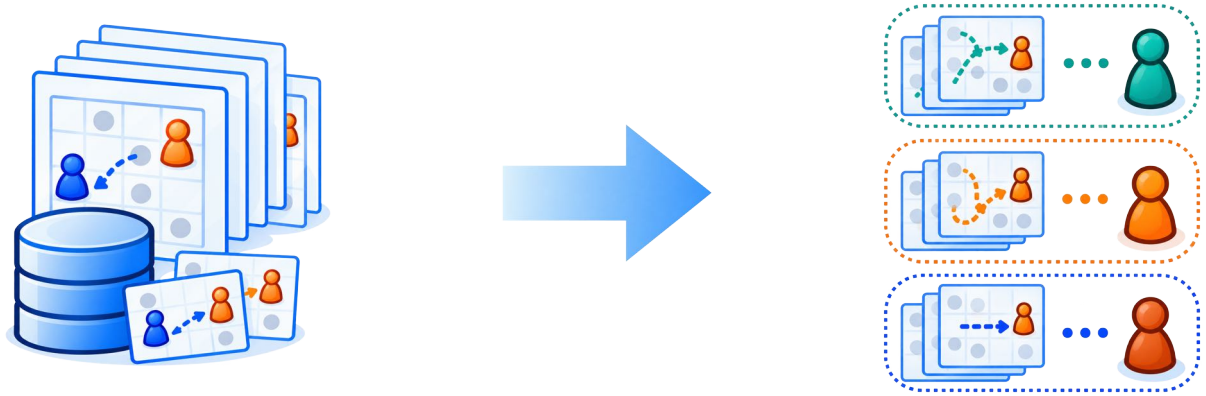
Learning to model opponents from offline data

Efficient opponent modeling for multi-agent games

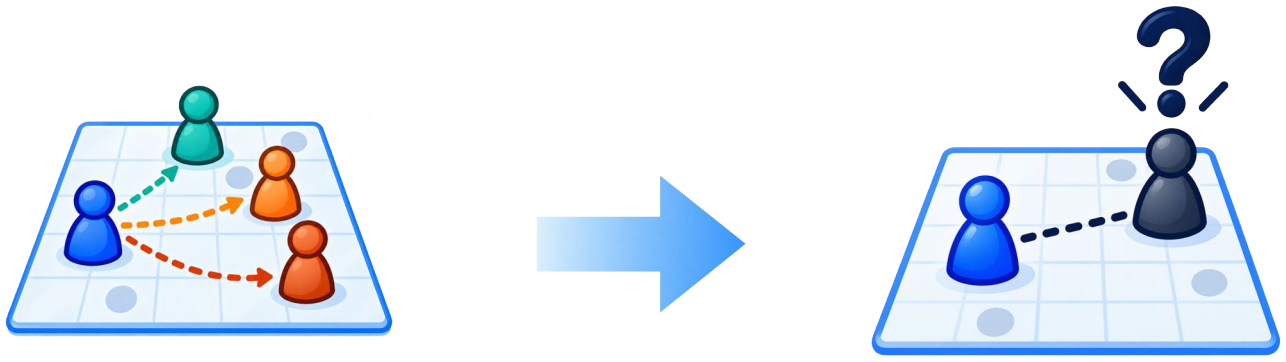
ALPI

Universität Zürich[UZH]

Master Project
(Prof. Giorgia Ramponi)



Model opponents



Optimize and infer online

1-2 people

Requirements:

- strong Python skills
- prior experience in reinforcement learning

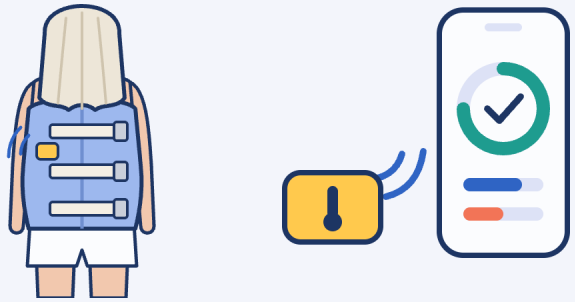
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Madeleine Soukup:
Smart brace feedback for kids with scoliosis

MASTER'S PROJECT · 3–4 STUDENTS · 15 ECTS EACH

Smart brace feedback for kids with scoliosis



The problem

Kids wear a brace (German: *Korsett*) up to 23 h a day while they grow. Sticking to it is hard, and nobody sees how it goes between check-ups.

Our solution

A temperature sensor in the brace talks to our MobileCoach app: it tracks wear time and gives kids motivating feedback.

STEP 1

Connect a thermosensor (e.g. Orthotimer) to MobileCoach

STEP 2

Detect wear time and design child-friendly feedback

CHALLENGE

Second variant: count the Upright sensor's posture alerts

WHO WE NEED

3–4 students into coding, sensors and designing for kids

ALSO OPEN: MASTER'S THESIS

Run focus groups with kids, teens and parents (German)

CONTACT

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Kilian Sprenkamp:
GeoLens – Global AI-Driven Intelligence

GeoLens – Global AI-Driven Intelligence



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End of Master’s Project presentations

Interested in a project? Talk to representatives and form groups!

The slides will be uploaded later this afternoon.

http://t.uzh.ch/yi

Good luck with your Master's Project!

For administrative questions: studies@ifi.uzh.ch



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