# Practical Lab
# Computer Systems Lab
https://github.com/TUM-DSE/sys-lab

Ilya Meignan--Masson
Prof. Pramod Bhatotia

# Course instructors



**Dr. David Schall**
Postdoc



**Prof. Pramod Bhatotia**
Professor

Systems Research Group
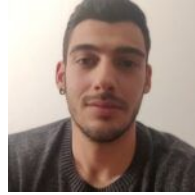https://dse.in.tum.de/team/

# Mentors



**Masanori Misono**
Postdoc

**Dimitrios Stavrakakis**
Postdoc

**Dennis Sprokholt**
Postdoc

**Anatole Lefort**
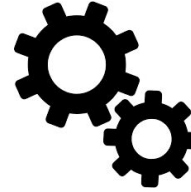Postdoc

**David Schall**
Postdoc

# Computer systems lab (aka "sys-lab")

**TUM**

**Team**
(~3-4 students per team)
**advised by a mentor**
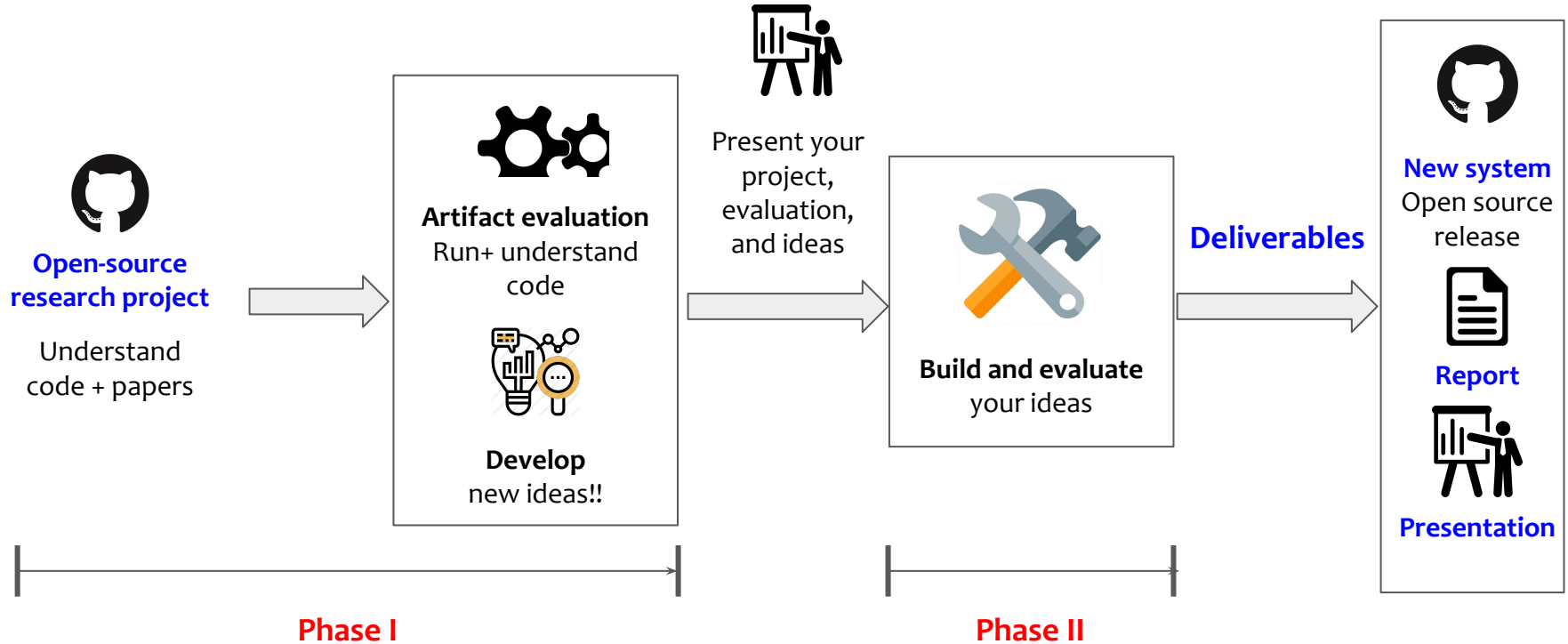
**Understand**

**Evaluate**

**Generate ideas**

**Build on your ideas**

**sys-lab**

**Open source project**
(state-of-the-art research topic)

# Format



**Open-source research project**

Understand code + papers

**Artifact evaluation**
Run+ understand code

**Develop** new ideas!!

Present your project, evaluation, and ideas

**Build and evaluate** your ideas

**Deliverables**

**New system**
Open source release

**Report**

**Presentation**

Phase I

Phase II

# Focus of this Lab

- State of the art open-source computer systems projects

- End-to-end system design and development
  - What is it? → Learn by understanding the system
  - How can we use it? → Learn by evaluating the system
  - What can be improved? → Learn by generating new ideas!
  - How to realise our ideas? → Learn by building the system
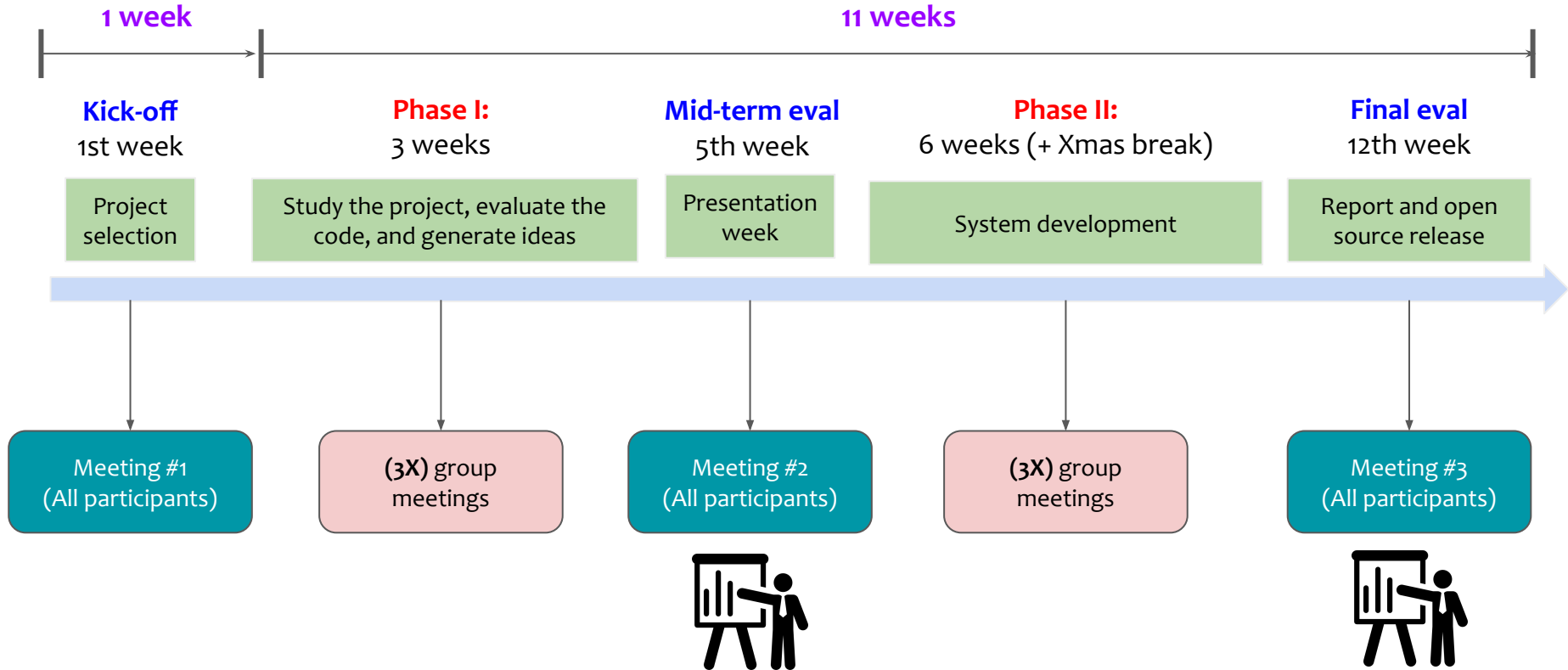
# Tentative topics (WS 24/25)

Projects are based on the research themes at the chair

1. Microarchitecture (David)
2. Trusted computing (Dimitris)
3. CXL memory systems (Anatole)
4. Verification (Dennis)
5. Confidential computing and cloud (Masa)

**IMPORTANT:**
The exact list of projects will be provided in the first week

# Timeline

**1 week**

**11 weeks**

**Kick-off**
1st week

Project selection

**Phase I:**
3 weeks

Study the project, evaluate the code, and generate ideas

**Mid-term eval**
5th week

Presentation week

**Phase II:**
6 weeks (+ Xmas break)

System development

**Final eval**
12th week

Report and open source release

Meeting #1
(All participants)

(3X) group meetings

Meeting #2
(All participants)

(3X) group meetings

Meeting #3
(All participants)

# Dates

| All participant meetings – **IN PERSON** | Dates (Thu, 13:00h) |
|---|---|
| Kick-off: Project selection | 20th October 2025 (**13:00h-14:00h**) |
| Phase I: Mid-term evaluation | 20st November 2025 (**13:00h-16:00h**) |
| Phase II : Final evaluation | 22th January 2026 (**13:00h-17:00h**) |

| **Group meetings** | **Dates** |
|---|---|
| **(3x)** phase I group meetings | Directly organized with the team mentor |
| **(3x)** Phase II group meetings | Directly organized with the team mentor |

# Grading

| Category | Details | Grade |
|---|---|---|
| **Phase I:** Artifact evaluation | Running and evaluating code by reproducing the results described by the authors | 20% |
| **Phase II:** System building | Extending the system with your own ideas | 40% |
| **(2x)** Presentations | Two presentations are due after each phase, audience participation is also graded | 20% |
| Report + Open-source release | One report covering all aspects | 20% |

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| Report + Open-source release | One report covering all aspects | 20% |

If applicable: Pull requests to the project -> Bonus points

# Organization

- **Project-based course (~4 students per team) advised by a Team Leader**
- **Meetings:**
  - **3x** all participant meetings
  - **6x** group meetings (with the team mentor)
- **Communication:**
  - Slack: course channel for announcements and group channel for the team work
- **Format:**
  - **Meeting #1: Kick-off --** project selection, team formation, and next steps
  - **Meeting #2: Intermediate presentation** covering overview, evaluation, and new ideas!
  - **Meeting #3: Final presentation** covering your final contributions (demo, code, & report)

# Learning goals

- Our goal is to have fun breaking and hacking computer systems
- Learn about cutting-edge research in computer systems
- Cultivate an environment for innovation and collaboration
  - Pushes the boundaries of the state of the art
  - Contributing to ongoing open-source research projects
- Communication: presenting your work to your peers and giving constructive feedback to improve other's work
- Reproducibility: delivering your work such that others can build on it

# Code of conduct

- University plagiarism policy
  - https://www.in.tum.de/en/current-students/administrative-matters/student-code-of-conduct/

- Decorum
  - Promote freedom of thoughts and open exchange of ideas
  - Cultivate dignity, understanding and mutual respect, and embrace diversity
  - Racism and bullying will not be tolerated

# Interested?

Matching platform

Welcome to the Matching platform matching.in.tum.de!

Dear students,

we changed the name of the course "Seminar: Recent advances in Computer Systems", for consistency reasons.
The new name are "Seminar: Hot Topics in Computer Systems", now.

Login with your TUM identifier.

**→ TUM login**

Login for exchange students
(without TUM identifier)

**→ Exchange student login**

Any questions? Visit the FAQs!

**ℹ FAQs**

Sign up on the TUM matching platform

# Contacts

- David Schall
  - david.schall@tum.de
- Prof. Pramod Bhatotia
  - pramod.bhatotia@tum.de

  - **All course information:** https://github.com/TUM-DSE/sys-lab

**Workspace:** http://ls1-courses-tum.slack.com/

**Channel:** #ws-25-sys-lab

Join us with TUM email address (@tum.de)