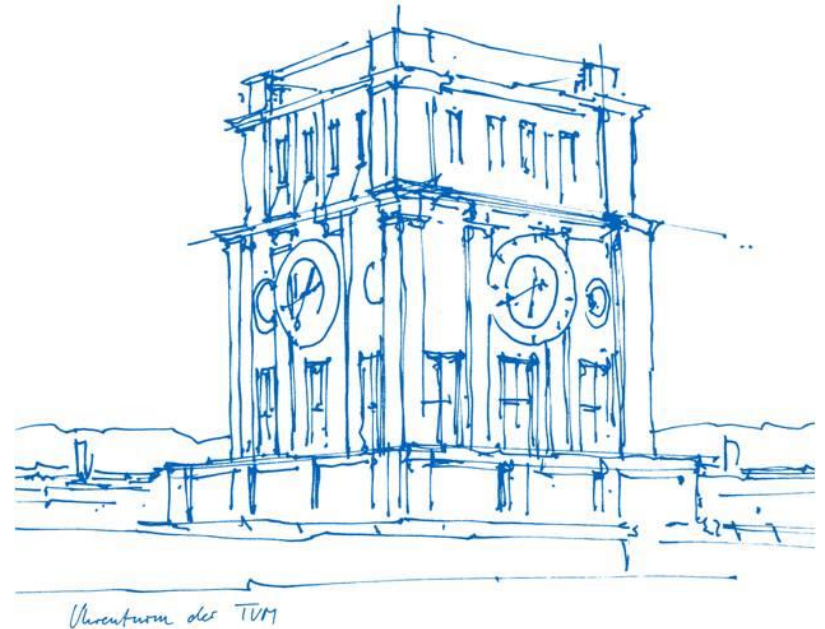# User Research Methods in Software Engineering

Date: 9 July 2025

Dr. Jieshan Chen

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Australian National AI Centre

Jieshan Chen

- 2018-2022
  - Ph.D., Australian National University
- 2022-Present
  - Research Scientist (=Assistant Professor/Lecturer), CSIRO's Data61
- Research Interest
  - SE4AI, AI4SE, Software usability, UI engineering, LLM Agent engineering
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Today's Agenda

- Motivation
- Objectives
- Seminar Syllabus
- Scoring
- Contact

Motivation

‣ You are trying to **understand** how software engineers / designers / … work and what challenges they face.

‣ You have identified some challenges (e.g., working more productively) and are looking to **inform the design** of possible solutions.

‣ You have created a new algorithm / tool / process / programming language / system / …, and are looking to **evaluate** it.

…

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How to collect data?
How to analyze it?

How to collect evidence that approach A is better than B?

How to draw conclusions? What constitutes sufficient evidence?

Objectives

‣ **Understand how to design, conduct, and report empirical studies** focused on human aspects of software engineering.

‣ Learn and compare **different user research methodologies**, including their appropriate applications, strengths, and limitations.

‣ Learn different ways for **interpreting qualitative and quantitative data** in user studies.

‣ **Design or replicate a human-centered empirical study**, perform data analysis, and effectively communicate findings through written reports and presentations.

Syllabus

- Purpose of User Research in SE and Research Question Findings
- User Research Methods
- Reading Week and Presentation
- Quantitative and Qualitative Analysis Methods
- Paper Reading & Interview Conduction
- Reporting and Presentation

Scoring

- **Research Paper Presentation (30%)**
  - You will need to read a research paper that mainly uses empirical study to survey some questions. You will need to present the paper within 15 min. May have Q&A session.
- **Project Presentation (30%) and Report (40%)**
  - You will need to select a research question, design and conduct an interview, analyze the results, present your work and write into a report.
    - **Motivation and Novelty**: Why do you want to research on this question?
    - **Methodology**: How do you design the interview? How do you select the participant?
    - **Result Analysis**: How to analyse the data? What are your findings?
    - Writing a **report** and **presentation**

Contact

- If you are interested in this course, please fill in this google form by COB 23 July 2025
  - https://docs.google.com/forms/d/e/1FAIpQLSe26yDDY8kCz3yk-CP1Pdd1Bs0CZq_1szjTQDOxTCjzUwdz5A/viewform?usp=header

- Expected Capacity: 12
- No-penalty dropout Time: 19 Oct 2025 11:59am Germany Time
- Late emails will be ignored. Please allow up to 24 hours for a response.

- **Q&A**?