

Summary of Theme #1 applications
Kristian Sandahl et al.

Project #6 Test environments easy to use

Larger and more complex systems, challenge the usability of test environments.

- Find a general definition of “test environments easy-to-use” (e.g. providing information and user friendliness).
- Describe what test environments easy-to-use means for different types of testing.
- The most recent study is on alignment testing tools and ways of working with six companies is now submitted for publication

Project #6 Resources

- Torvald Mårtensson PhD, Linköping University and Saab Aeronautics
- Daniel Ståhl PhD, Linköping University and Ericsson
- Kristian Sandahl PhD, Linköping University
- Requested funding from Software Center 0 SEK

Project #18 Visualization of Continuous Integration

- Discontinued due to change of the use-case and lack of resources.
- Kristian Sandahl and Dániel Varró meet with the Eiffel Community a couple of times per year.

Project #60 Towards a sustainable future

Activity in CoDig

- Driving the Vinnova competence center pilot on reporting sustainability
- Sustainability workshops
- Compliance to regulations and standards

Project #60 Towards a sustainable future

Resources:

- Birgit Penzenstadler, Chalmers, Associate Professor, 10%
- Barbara Gallina, MdU, Associate Professor, 10%
- Kristian Sandahl, LiU, part of his role as theme leader for Software Center and CoDig

- Travel costs 40 000 SEK

Project #61 Continuous quality assurance of AI/ML Software 1(2)

A cooperation with WASP and Linköping University

- P1-1 Continuous static quality assurance for ML programs. Yiran Wang
- P1-2 Continuous testing of ML components. Xin Sun
- P1-3 Quality assurance of generative ML techniques for multi-disciplinary simulations. Masoud Sadrnezhaad.

Project #61 Continuous quality assurance of AI/ML Software 2(2)

Associated projects:

- Continuous quality assurance methods for engineering ML software Willem Meijer. (WASP)
- Data leakage in LLM. José Antonio Hernández López (WASP and VR)

Project #61 Continuous quality assurance of AI/ML Software

Resources:

- Yiran Wang, PhD student LiU (80%) (Co-financed by LiU via WASP)
- Xin Sun, PhD student LiU (80%) (Financed by Software Center)
- Masoud Sadrnezhaad PhD student LiU (80%) (Financed by CoDig)
- Kristian Sandahl, professor LiU (20%)
- Daniel Varro, professor LiU (20%)
- Willem Meijer, PhD student LiU (associated)
- José Antonio Hernández López Post-doc LiU (associated)
- Travel costs: SEK 60 000
- Co-financing: WASP and Linköping University

Project #62 AI-Enabled Test Automation, Generation, and Optimization

- Evaluating a PoC of test case selection using AI/ML
- Unit test generation using Generative AI
- Automating test maintenance with Generative AI
- Generating human-like test cases with AI/ML
- Generation of static analysis checks using Generative AI

Project #62 AI-Enabled Test Automation, Generation, and Optimization

Resources:

- Gregory Gay (GU, associate prof.), 10%
- Jean Malm (MDU, adjunkt), 20%
- Azeem Ahmad (LiU), 20%
- Estimated travel costs: 75 000 SEK

Project #63 Trustworthy and Human-Centered Test Automation

- Investigation of cognitive and human factors to improve test automation.
- Human-centered automated test generation, selection and prioritization techniques and tools with explainability and interactivity at their core.
- Human-centered test results visualization and analysis techniques
- Investigating ethical challenges in test automation
- Identifying synergies between human and automated test creation
- Exploring effective automated integration of mutation testing into the testing process

Project #63 Trustworthy and Human-Centered Test Automation

Resources:

- Gregory Gay (GU, associate prof.), 10%
- Eduard Paul Enoiu (MDU, associate prof.), 30%
- Björn Lisper (MDU, prof.), 10%
- Jean Malm (MDU, adjunkt), 20%
- Estimated travel costs: 75 000 SEK

Have a merry Christmas!