



ANNUAL REPORT 2025

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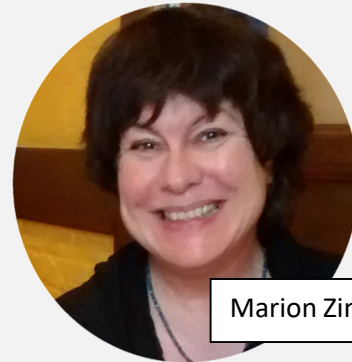
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SWC TEAM



Horst Lichter



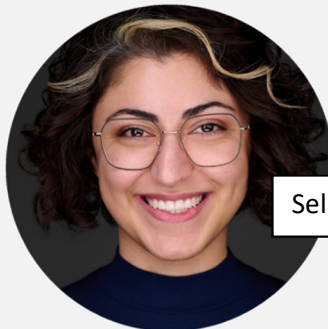
Marion Zinner



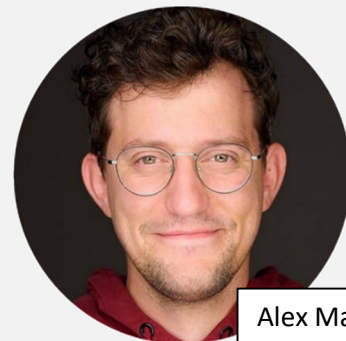
Christian Plewnia



Ada Slupczynski



Selin Coban



Alex Mattikat



Nils Wild



Peter Alexander

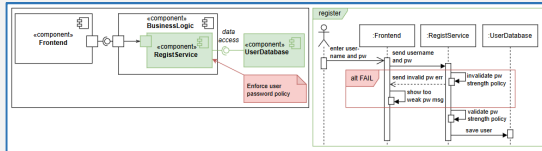


Andreas Steffens

RESEARCH PROJECTS

SCAM - Security-Centric Architecture Modelling

Alex Mattukat



SE4ML - Processes, People and Tools

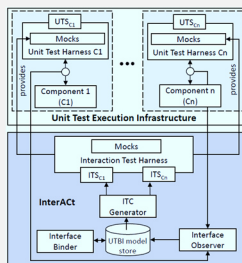
Selin Coban

```
[1]: y = home_data.SalePrice
     y

[2]: features = ["Fireplaces", "PoolArea",
               "X"]
     X = home_data[features]
     X.head()

[3]: Fireplaces  PoolArea  BedroomAbvGr
     0         0         0           3
     1         1         0           3
     2         1         0           3
     3         1         0           3
     4         1         0           4

[4]: from sklearn.model_selection import train_test_split
     # split data into training and validation
     # The split is based on a random number
     # the random_state argument guarantees
```



Vertical Reuse of Unit Test Cases to Automate Integration Testing

Nils Wild

Modernization Approaches for Legacy Systems

Ada Slupczynski



HIGHLIGHTS

MARCH: SWC Research Retreat

This year, we held our annual research retreat at **the Nell-Breuning-Haus** in Herzogenrath.

It was our first time at this conference location. We had plenty of time to discuss our research projects and coordinate internal SWC decisions.



Since we forgot to take photos, an AI did it for us :-)



HIGHLIGHTS

APRIL: Best Paper Award at ISCA 2025, Odense

Alex R. Mattukat received the ICSA 2025 Best Poster Award for his poster:

SecuRe - An Approach to Recommending Security Design Patterns



HIGHLIGHTS

SEPTEMBER: The last SWC Cooperation Project has been completed

The last SWC cooperation project was carried out together with **Generali Informatik Services GmbH, Aachen**.

This project mainly examined non-technical factors influencing the **modernization of legacy systems**.

Ada carried out this two-year project and has now completed it very successfully.

We would like to express our sincere thanks to our partners at Generali for their open and constructive cooperation.



HIGHLIGHTS

OCTOBER: OODACH Meeting at Workplace Solutions GmbH in Hamburg

The so-called OODACH meeting has been taking place for many years. It is an invitational meeting in which scientists and practitioners from Germany, Austria, and Switzerland (DACH) discuss innovative and exciting topics in software engineering.

This year, the OODACH workshop was hosted by **WPS Hamburg**. As always, there were exciting presentations and plenty of time for discussion and networking.

Selin presented some results of her PhD research projects!



HIGHLIGHTS

NOVEMBER: Doctoral Defense of Nils Wild

Nils successfully completed his doctoral project with a presentation and defense. He earned his doctorate with a thesis on

Interaction-based Integration Testing of Component-based Software Systems.

Thanks to all members of the examination committee, especially to Prof. Ian Gorton from Northeastern University.

Congratulations, Dr. Wild!



WHAT ELSE HAPPENED ...

KONRAD FÖGEN APPOINTED AS PROFESSOR IN SOFTWARE ENGINEERING AT FH AACHEN - UNIVERSITY OF APPLIED SCIENCES

In February, Konrad started his new position as Professor in Software Engineering at **FH Aachen - University of Applied Sciences**.

Konrad was a member of SWC from 2015-2020.

Congratulations Konrad!



MORE WOMEN IN SCIENCE

RWTH Aachen University is committed to increasing the **number of women in science**.

Selin has been very involved in this project (and still is today).



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PUBLICATIONS

Simon Hacks, Ada Slupczynski (2025)

[Advancing Enterprise Architecture Debt: Insights from Work System Theory](#). In Rébecca Deneckère, Marite Kirikova, Janis Grabis (eds.) Perspectives in Business Informatics Research - 24th International Conference on Business Informatics Research, BIR 2025, Riga, Latvia, September 17-19, 2025, Proceedings, Springer Nature Switzerland, Cham, Lecture Notes in Business Information Processing, Vol. 562, ISBN 978-3-032-04375-7, 107-123.

Alex Sabau, Dominik Lammers, Horst Lichter (2025)

[SecuRe - An Approach to Recommending Security Design Patterns](#). In CoRR, Vol. abs/2501.14973.

Alex Mattukat, Timo Langstrof, Horst Lichter (2025)

[Challenges in Developing Secure Software -- Results of an Interview Study in the German Software Industry](#). In CoRR, Vol. abs/2512.07368.

Alex Sabau, Dominik Lammers, Horst Lichter (2025)

[SecuRe - An Approach to Recommending Security Design Patterns](#). In 2025 IEEE 22st International Conference on Software Architecture Companion (ICSA-C), Odense, Denmark, Mar 31 - Apr 4, IEEE, ISBN 979-8-3315-2090-8, 186-189.

Ada Slupczynski, Horst Lichter (2025)

[Challenges and Impact Factors on Modernization Projects - Results of an Industry Study](#). In Softwaretechnik-Trends, GI, Bonn, Vol. 45, No. 2, ISSN 0720-8928, 12-13.

Aleksandra Pazova (2025)

[Factors involved in Modernization Decision Making](#). In Softwaretechnik-Trends, GI, Bonn, Vol. 45, No. 2, ISSN 0720-8928, 31-32.

Alex Mattukat, Timo Langstrof, Horst Lichter (2025)

[Herausforderungen bei der Entwicklung sicherer Software: Ergebnisse einer Interviewstudie in der deutschen Softwareindustrie](#). In Softwaretechnik-Trends, GI, Bonn, Vol. 45, No. 4, ISSN 0720-8928, 2-7.