

Arne Lange

Postdoctoral Researcher · Software Engineering & Model-Driven Engineering

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Born 16.09.1987 in Halle/Saale

RESEARCH INTERESTS

Model-Driven Engineering (MDE) · Multi-Level Modeling · Model Consistency Management · View-Based Software Development · Software Quality Metrics · Language Engineering & Domain-Specific Languages · Model-Based Systems Engineering (MBSE)

ACADEMIC POSITIONS

Karlsruhe Institute of Technology (KIT) *Aug 2024 – present*

Postdoctoral Researcher · KASTEL – Institute of Information Security and Dependability

- Leading the development and maintenance of the Vitruvius platform, the core software infrastructure of the CRC/SFB 1608 "Convide" project on consistency in view-based modeling environments
- Coordinating open-source engineering across multiple sub-projects and contributor teams
- Conducting research on model consistency management, quality metrics for view-based systems, and consistency complexity
- Supervising doctoral and master's students within the Convide consortium

University of Mannheim *Dec 2017 – Jul 2024*

Research Assistant · Chair of Software Engineering

- Pursued and completed a Ph.D. (summa cum laude) on multi-level modeling and constraint specification (Deep OCL)
- Designed and taught graduate courses on Model-Driven Development and Practical Software Engineering
- Supervised Bachelor's and Master's theses in software engineering and model-driven development
- Co-organized the MULTI workshop series at international conferences (MODELS)
- Contributing researcher to the CRC/SFB 1608 "Convide" project since its inception (Oct 2023)

EDUCATION

University of Mannheim, *Dec 2017 – Mar 2024*

Ph.D. in Software Engineering · Grade: summa cum laude

- Thesis: Multi-Level Modeling and Deep Constraint Specification (Deep OCL)

University of Mannheim, *Sep 2014 – Dec 2016*

M.Sc. in Business Informatics

- Best Master's Thesis Award of the year

Seoul National University, *Sep 2015 – Dec 2015*

Exchange Semester

Leuphana University Lüneburg *Oct 2010 – Feb 2014*

B.Sc. in Business Information Systems (Minor: Economic Science)

RESEARCH PROJECTS

CRC/SFB 1608 "Convide" – Consistency in View-Based Development *Oct 2023 – present*

Karlsruhe Institute of Technology & University of Mannheim

- Platform lead for the Vitruvius consistency management infrastructure (implementation management, architecture, open-source coordination)
- Research on quality metrics for view-based modeling systems and consistency complexity
- Supervision of doctoral students and non-research staff in the consortium

Deep OCL – Constraint Specification for Multi-Level Modeling *Dec 2017 – present*

University of Mannheim

- Developed Deep OCL, a dialect of the Object Constraint Language tailored to the multi-level modeling paradigm
- Published research on multi-level modeling foundations and Deep OCL at international venues (MODELS, SoSyM, MULTI)
- Maintained and extended the Melanee multi-level modeling tool

TEACHING

Software Evolution *WS 2025 – present*

Karlsruhe Institute of Technology

- Topics: Requirements & Change Impact Analysis, Quality Metrics, Bad Smells, Evolution of Software Systems

Advanced Software Engineering *SS 2024*

DHBW Mannheim

- Topics: Design/Architecture Patterns, Requirements & Use Cases, Testing & Test Strategies, Modeling

Model-Driven Development *WS 2018 – WS 2024*

University of Mannheim

- Topics: Modeling, Meta-Modeling, Constraints (OCL), Transformations (ATL), Multi-Level Modeling

Practical Software Engineering *SS 2021 & SS 2023*

University of Mannheim

- Topics: Agile development process, Model-Driven Development, practical group exam

ACADEMIC SERVICE & LEADERSHIP

MULTI Workshop (co-located with MODELS) *2019 – present*

Workshop Organizer / Program Committee Member

- Co-organizing the international workshop on Multi-Level Modeling; managing PC review assignments and program logistics

Ratzeburg International Rowing Regatta *2023 – present*

Head of the Organizing Committee

Senate of the University of Mannheim *2021 – 2023*

Elected Member

- Voted on fundamental academic affairs concerning research, teaching, study, and continuing education

Council of Speakers of the Doctoral Convents *2021 – 2023*

Member

- Organized a Winter School for all doctoral students of the University of Mannheim
- Organized various networking events for the PhD community

Doctoral Convents – Faculty WIM, University of Mannheim *2018 – 2023*

(Deputy) Speaker of Doctoral Candidates

- Represented doctoral candidates and reworked the PhD regulations for the faculty

INDUSTRY EXPERIENCE

IBM Client Innovation Center Germany GmbH – Magdeburg *Jan 2017 – Nov 2017*

Software Tester

- Created and executed regression and acceptance tests; analyzed customer testing requirements

AIC GROUP GmbH – Lüneburg *Feb 2013 – Aug 2014*

Software Engineer / Working Student

- Test-driven frontend development with Angular and Node.js; IT administration (Linux & Windows)

Freelancer – Montblanc Simplo GmbH, Hamburg *Mar 2011 – Feb 2013*

1st Level Support

- Windows 7 roll-outs for Hamburg and Shanghai offices; IT administration

TECHNICAL SKILLS

Languages & Frameworks:

Python, Java, JavaScript/TypeScript, Angular, Node.js, Maven, Ant

Modeling & MDE:

EMF/Ecore, OCL, ATL, Melanee, Vitruvius, Domain-Specific Language Engineering, Multi-Level Modeling, MBSE/SysML

Databases:

DB2, MySQL, Oracle