

Katja Tuma

Curriculum Vitae

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Nationality: Slovenian

Appointment and Education

2021–present **Assistant Professor**, *Vrije Universiteit Amsterdam, Faculty of Science, Computer Systems, Foundational Security research group.*

Areas of work Threat Intelligence and Risk Analysis, Reverse Engineering, Experimental Security

Duties 40% research, 40% teaching, 20% management

2021 **Degree of Doctor of Philosophy in Computer Science and Engineering**, *University of Gothenburg and Chalmers University of Technology.*

Title *Efficiency and Automation in Threat Analysis of Software Systems*

Public Maritta Heisel (opponent), Mathias Ekstedt (committee member), Jacques Klein
Defense (committee member), Mehdi Mirakhorli (committee member).

Advisor Riccardo Scandariato

2016–2021 **Doctoral candidate**, *University of Gothenburg and Chalmers University of Technology.*

Interests Security-by-design, Software Architecture, Security Compliance

Duties 80% research, 20% teaching

2018 **Degree of Licentiate of Philosophy in Computer Science and Engineering**, *University of Gothenburg and Chalmers University of Technology.*

Title *Towards Efficiency and Quality Assurance in Threat Analysis of Software Systems*

Advisor Riccardo Scandariato

Opponent Ketil Stølen

2014–2016 **M.Sc in Computer Science and Engineering**, *University of Ljubljana.*

2014–2015 **Erasmus program**, *Reykjavik University & Malmö University.*

Two semesters abroad to work on M.Sc research project

2010–2014 **B.Sc in Computer Science and Engineering**, *University of Ljubljana.*

Teaching

2016–2021 **Course coordinator and developer**, *University of Gothenburg.*

Drove the development of Mathematical Foundations for Software Engineering course (DIT022, B.Cs level) using the flipped classroom approach with cca 100 students,
[Course home page](#)

- 2018–Present **Thesis supervisor**, *University of Gothenburg*.
Supervised two M.Sc. and one B.Sc. thesis in the topic of secure software design.
- 2017 **Teaching assistant**, *University of Gothenburg*.
Assisting the course Empirical Software Engineering (DIT278, M.Cs), [Course home page](#)
and Software Analysis and Design (DIT184, B.Cs) [Course home page](#)

Service

- 2021 **Reviewer**, for the *Information and Software Technology journal, IST* (2019 Impact factor: 2.726), the *Journal of Systems and Software, JSS* (2019 Impact factor: 2.450), the *International Journal on Software and Systems Modeling, SoSyM* (2019 Impact factor: 1.915).
- 2021 **Shadow PC member**, for the 2021 Mining Software Repositories Conference (MSR 2021) collocated with the 43rd International Conference on Software Engineering (ICSE 2021).
- 2020 **PC member**, for the 7th International Workshop on Graphical Models for Security (GraMSec 2020) collocated with 33rd IEEE Computer Security Foundations Symposium (CSF 2020).
- 2020 **PC member**, for the 2nd International Workshop on Security for and by Model-Driven Engineering (SecureMDE 2020) collocated with 23rd International Conference on Model Driven Engineering Languages and Systems (MODELS 2020).

Experience and Projects

- 2019–Present **Industrial project**, *AssureMOSS: Assurance and certification in secure Multi-party Open Software and Services*.
Principal partners SAP SE, EY ADVISORY SPA, TU Delft, University of Trento, [About project](#)
- 2020 **Research visit**, *Institute for Software Technology (IST) at the University of Koblenz-Landau, Germany*.
Research group for Software Engineering, chaired by [Prof. Dr. Jan Jürjens](#)
- 2019–2021 **Industrial project**, *CyReV: Cyber Resilience for Vehicles - Cybersecurity for Automotive Systems in a Changing Environment*.
Principal partners Volvo AB, Volvo GTT, [About project](#)
- 2016–2019 **Industrial project**, *HoliSec: Holistic Approach to Improve Data Security*.
Developed and evaluated the eSTRIDE threat analysis technique with partners of project (Volvo AB), [Project results](#)

Languages

Slovenian	Mother tongue	
English	Advanced	<i>Professionally fluent</i>
French	Intermediate	<i>Con conversationally fluent</i>
German	Intermediate	<i>Con conversationally fluent</i>
Croatian	Intermediate	<i>Con conversationally fluent</i>
Swedish	Basic	<i>Basic words and phrases only</i>

References

Riccardo Scandariato	PhD advisor	riccardo.scandariato@cse.gu.se
Musard Balliu	Paper coauthor	musard@kth.se
Mathias Widman	Industrial advisor, paper coauthor	mathias.widman@volvo.com

Publications

Journal articles

1. "Finding Security Threats That Matter: Two Industrial Case Studies", **K. Tuma**, C. Sandberg, U. Thorsson, M. Widman, T. Herpel, and R. Scandariato, **In submission** to the Journal of Systems and Software (JSS), 2020
2. "Checking Security Compliance between Models and Code", K. Tuma, S. Peldszus, R. Scandariato, Daniel Strüber and J. Jürjens, **In submission** to the Journal on Software and Systems Modeling (SoSyM), 2020
3. "Threat Analysis of Software Systems: A Systematic Literature Review", **K. Tuma**, G. Calikli, R. Scandariato, Journal of Systems and Software (JSS), 2018, Impact factor 2.559

Conference & Workshop papers

1. "Automating the Early Detection of Security Design Flaws", **K. Tuma**, L. Sion, R. Scandariato, and K. Yskout, International Conference on Model Driven Engineering Languages and Systems (MODELS), 2020, Acceptance rate 26%
2. "Security Compliance Checks between Models and Code based on Automated Mappings", S. Peldszus, **K. Tuma**, D. Strüber, J. Jürjens, and R. Scandariato, International Conference on Model Driven Engineering Languages and Systems (MODELS), 2019, Acceptance rate 19%
3. "Towards Automated Security Design Flaw Detection", L. Sion, **K. Tuma**, R. Scandariato, K. Yskout, and W. Joosen, International Conference on Automated Software Engineering Workshop (ASEW), 2019
4. "Inspection Guidelines to Identify Security Design Flaws", **K. Tuma**, D. Hosseini, K. Malamas, and R. Scandariato, International Workshop on Designing and Measuring CyberSecurity in Software Architecture (DeMeSSA), 2019
5. "Flaws in flows: Unveiling design flaws via information flow analysis", **K. Tuma**, M. Balliu, R. Scandariato, International Conference on Software Architecture (ICSA), 2019, Acceptance rate 22%
6. "Two Architectural Threat Analysis Techniques Compared", **K. Tuma**, R. Scandariato, European Conference on Software Architecture (ECSA), 2018
7. "Back to the Drawing Board", S. Jasser, **K. Tuma**, R. Scandariato, and M. Riebisch, International Conference on Information Systems Security and Privacy (ICISSP), 2018
8. "Towards security threats that matter", **K. Tuma**, R. Scandariato, M. Widman, C. Sandberg, Workshop On The Security Of Industrial Control Systems & Of Cyber-Physical Systems (Cyber-ICPS), 2017

Dissertation

1. "Efficiency and Automation in Threat Analysis of Software Systems", **K. Tuma**, Department of Computer Science and Engineering (GU),
2. "Towards Efficiency and Quality Assurance in Threat Analysis of Software Systems". **K. Tuma**, Department of Computer Science and Engineering (GU).