Katja Tuma

Curriculum Vitae

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Home Page
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 Defense Maritta Heisel (opponent), Mathias Ekstedt (committee member), Jacques Klein (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	**Mothertongue**	
English	**Advanced**	*Professionally fluent*
French	**Intermediate**	*Conversationally fluent*
German	**Intermediate**	*Conversationally fluent*
Croatian	**Intermediate**	*Conversationally fluent*
Swedish	**Basic**	*Basic words and phrases only*

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).