

Alexander Nolte

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Research interest

My research focuses on understanding and promoting collaboration. I employ a mixed-method approach combining qualitative and quantitative methods to analyze and support collaborative settings. My work is grounded in socio-technical systems theory and takes place at the intersection between human computer interaction, software engineering and information systems. It is situated in the following contexts:

Organizational settings: I focus on supporting process analysts, workers and managers to analyze work processes, identify issues and develop means for improvement. I developed technologies that allow organizational workshop participants to interact with graphical process models, foster creativity, provided automated feedback about the current state of collaboration and a web-based system which allows stakeholders to discuss processes between workshops. In addition to designing means to support process analysis in and around workshops, I co-developed RuM (<https://rulemining.org/>), an open-source toolkit for declarative process mining. RuM supports analysts to utilize AI driven process analytics and to visualize existing (business) processes based on event logs in order to identify issues and to develop means for improvement.

Hackathons: My aim is to foster the impact of hackathons beyond the confines of singular events in specific contexts. Hackathons are organized in various domains including (IT) entrepreneurship, corporations, communities, higher education, civic engagement and others with the aim to develop (technical) innovation, tackle civic, environmental and public health issues, spread knowledge, allow citizen participation and create new or expand existing communities. In order to foster and sustain these outcomes and to create the desired impact, I have conducted studies to identify individual and team related aspects that are associated with outcome sustainability. Furthermore, I employed analytics, to identify factors that can indicate project continuation. Based on this work, I proposed a multi-level methodological framework to help hackathon planners navigate the numerous design and planning decisions to make their event a success (<https://hackathon-planning-kit.org/>).

Volunteer groups and open-source communities: I focus on the sustainability of collaboration in this context. I have conducted studies of small volunteer groups to identify suitable means for supporting the sustainability of collaboration, designed heuristics that allow volunteers to quickly assess their current state of collaboration and analyzed the social networks of contributors on GitHub revealing that individuals that participate in projects with high potential for building social capital are less likely to disengage, that higher team diversity is associated with a decreased risk of disengagement and that women are more likely to disengage than men.

Teaching method

In my courses, my aim is to support students in acquiring much-needed skills for the 21st century learner, such as critical thinking, problem solving and data literacy skills. At the same time, I encourage students to learn from and with each other in a social arena. To that end, I follow a project-based learning approach where students form teams and apply methods they learned during their respective course to a project of their choice. For each step students received feedback from the teaching staff. In addition, students present their current project stages to their peers at multiple workshops during the semester where they also receive feedback from their peers. For teaching, I combine formal lectures for transferring information and hands-on workshops to foster communication and knowledge building on common ground. During the pandemic, I applied an online first approach which focuses on short instruction videos about the different topics and methods covered in each course combined with additional self-study material and online workshops during which students can ask questions and engage in discussion about the topic of the lecture and their current project progress.

Education

2009 – 2014	University of Duisburg-Essen Dr. rer. nat. (PhD in Information Systems) Thesis: Flexibilisierung kollaborativer Prozessmodellierung durch den Einsatz webbasierter Modellierungswerkzeuge (German) The thesis is about a socio-technical approach to allow stakeholders to continuously participate in business process analysis and design. The approach intertwines co-located workshops with asynchronous annotation phases.
1999 – 2008	TU Dortmund University Dipl.-Inform. (MSc equivalent in Computer Science) Thesis: Konzept und Prototyp eines Usability orientierten webbasierten Editors für semi-strukturierte Modellierung (German) The thesis is about the development and evaluation of one of the first, purely web-based process modeling editors. The evaluation focused on usability aspects of transferring desktop-into web applications.

Work experience

2020 – present	Associate Professor	University of Tartu, Estonia
2020 – present	Adjunct Associate Professor	Carnegie Mellon University, Pittsburgh, USA
2018 – 2020	Lecturer (Assistant Professor)	University of Tartu, Estonia
2018 – 2020	Adjunct Assistant Professor	Carnegie Mellon University, Pittsburgh, USA
2017 – 2018	Research Associate	Carnegie Mellon University, Pittsburgh, USA
2017 – 2018	Postdoctoral Fellow	University of Pittsburgh, USA
2017	Adjunct Faculty	University of Pittsburgh, USA
2016 – 2017	Visiting Research Fellow	University of Pittsburgh, USA
2016 – 2017	Temporary Research Programmer	Carnegie Mellon University, Pittsburgh, USA
2016 – 2017	Online Tutor	EURO-FH University of Applied Sciences, Hamburg, Germany
2014 – 2016	Postdoctoral Research Fellow	Ruhr-University Bochum, Germany
2009 – 2014	Researcher	Ruhr-University Bochum, Germany
2013	Visiting Research Fellow	Queensland University of Technology, Brisbane, Australia
2011 – 2018	Process Management Consultant and Coach	
2008 – 2009	Co-founder and Front-end Developer	fromatob.com

Selected publications

Journals

- Nolte, A.**, Chounta, I. - A. & Herbsleb, J. D. (2020). What Happens to All These Hackathon Projects? - Identifying Factors to Promote Hackathon Project Continuation. *Proc. ACM Hum.-Comput. Interact.* 4, CSCW2, Article 145 (October 2020), 26 pages.
- Nolte, A.**, Hayden, L. B. & Herbsleb, J. D. (2020). How to Support Newcomers in Scientific Hackathons - An Action Research Study on Expert Mentoring. *Proc. ACM Hum.-Comput. Interact.* 4, CSCW1, Article 25 (May 2020), 23 pages.
- Jahnke, I., Meinke-Kroll, M., Todd, M., & **Nolte, A.** (2020). Exploring Artifact-Generated Learning with Digital Technologies: Advancing Active Learning with Co-design in Higher Education Across Disciplines. *Technology, Knowledge and Learning*.
- Pe-Than, E. P. P., **Nolte, A.**, Filippova, A., Bird, C., Scallen, S. & Herbsleb, J. D. (2020). Corporate Hackathons, How and Why? A multiple case study of motivation, project proposal and selection, goal setting, coordination, and project continuation. *Human-Computer Interaction*.
- Pe-Than, E. P. P., **Nolte, A.**, Filippova, A., Bird, C., Scallen, S. & Herbsleb, J. D. (2019). Designing Corporate Hackathons With a Purpose. *IEEE Software* 36. 1, 15–22. (**Runner-up for 2019 Best Paper Award**).
- Nolte, A.**, Pe-Than, E. P. P., Filippova, A., Bird, C., Scallen, S. & Herbsleb, J. D. (2018). You Hacked and Now What? - Exploring Outcomes of a Corporate Hackathon. *Proc. ACM Hum.-Comput. Interact.* 2, CSCW, 129:1-129:23.
- Chounta, I. A., **Nolte, A.**, Hecking, T., Farzan, R., & Herrmann, T. (2017). When to Say "Enough is Enough!": A Study on the Evolution of Collaboratively Created Process Models. *Proc. ACM Hum.-Comput. Interact* 1, CSCW, 33:1-33:21.
- Nolte, A.**, Bernhard, E., Recker, J., Pittke, F., & Mendling, J. (2016). Repeated Use of Process Models: The Impact of Artifact, Technological and Individual Factors. *Decision Support Systems*, 88, 98–111.

Conferences

- van der Aa, H., Balder, K. J., Maggi, F. M., & **Nolte, A.** (2020). Say It in Your Own Words: Defining Declarative Process Models Using Speech Recognition. In: *Business Process Management Forum. BPM 2020* (pp. 51-67). Springer.
- Alman, A., Di Ciccio, C., Haas, D., Maggi, F. M., & **Nolte, A.** (2020) Rule Mining with RuM. In: *2nd International Conference on Process Mining* (pp. 114-121). Springer.
- Medina Angarita, M. A., & **Nolte, A.** (2020). What do we know about hackathon outcomes and how to support them? – A systematic literature review. In: *Collaboration Technologies and Social Computing* (pp. 50-64). Springer.
- Affia, A. O., **Nolte, A.**, & Matulevičius, R. (2020). Developing and Evaluating a Hackathon Approach to Foster Security Learning. In: *Collaboration Technologies and Social Computing* (pp. 3-19). Springer.
- Qiu, H. S., **Nolte, A.**, Brown, A., Serebrenik, A., & Vasilescu, B. (2019). Going Farther Together: The Impact of Social Capital on Sustained Participation in Open Source. In: *International Conference on Software Engineering*. IEEE (**ACM SIGSOFT Distinguished Paper Award**).
- Sirmets, M., Milani, F., **Nolte, A.**, & Pungas, T. (2018). Designing Process Diagrams – A Framework for Making Design Choices When Visualizing Process Mining Outputs. In: *Proceedings of the 26th International Conference on Cooperative Information Systems*. Springer.
- Herrmann, T., **Nolte, A.**, & Prilla, M. (2016). Socio-technical Process Design—The Case of Coordinated Service Delivery for Elderly People. In: *Blurring the Boundaries Through Digital Innovation* (pp. 217-229). Springer (**Special award Sandro D'Atri**).

Workshops and reports

- Nolte, A.**, Pe-Than, E. P. P., Affia, A. O., Chaihirunkarn, C., Filippova, A., Kalyanasundaram, A., Medina Angarita, M. A., Trainer, E., & Herbsleb, J. D. (2020). How to organize a hackathon - A planning kit. *arXiv preprint arXiv:2008.08025*.
- Nolte, A.** (2019). Touched by the Hackathon: A Study on the Connection between Hackathon Participants and Start-Up Founders. In: *International Workshop on Software-intensive Business 2019: Start-ups, Ecosystems and Platforms* (pp. 31-36). ACM.

Teaching experience (from 2015)

Lecturer:

2019 – 2020	Human Computer Interaction (undergraduate)	University of Tartu
2018 – 2020	Human Computer Interaction (graduate)	University of Tartu
2018 – 2020	Digital Product Management Industry Project (graduate)	University of Tartu
2018 – 2020	Digital Product Design Introductory Project (graduate)	University of Tartu
2017	Implementation of information systems (undergraduate)	University of Pittsburgh
2014 – 2016	Process management and innovation (graduate)	Ruhr-Universität Bochum

Co-lecturer:

2014 – 2015	Project management (undergraduate)	Ruhr- Universität Bochum
2015	Software engineering (undergraduate)	Ruhr- Universität Bochum
2015	Groupware and knowledge management (graduate)	Ruhr- Universität Bochum

Seminars and individual lectures:

2019	"Qualitative Research – The Interview" for the course "Research in Educational Technology" (graduate)	University of Tartu
2013 – 2014	"Subject-Driven Role-Guided Externalization of Organizational Models" for the SURGEOM ERASMUS summer school	JKU Linz

Online tutor:

2016	Information management (graduate)	EURO-FH University of Applied Sciences
2016	Business engineering (graduate)	EURO-FH University of Applied Sciences

Student supervision (PhD and master level, from 2015)

2019	Anne Jääger – PhD student (ongoing), University of Tartu, Estonia
2019	Maria Angelica Medina Angarita – PhD student (ongoing), University of Tartu, Estonia
2019	Abasi-Amefon Obot Affia – PhD student (ongoing), University of Tartu, Estonia
2020	Kadri Fink (Master, ongoing, University of Tartu, Estonia), Tähe-Kai Tillo (Master, ongoing, University of Tartu, Estonia), Ahmed Samir Imam Mahmoud (Master, ongoing, University of Tartu, Estonia), Andrew Bennett (Master, ongoing, University of Tartu, Estonia), Abdul Wahab (Master, ongoing, University of Tartu, Estonia)
2019	Alar Leemet (Master, University of Tartu, Estonia), Timo Soiunen (Master, University of Tartu, Estonia), Sofiya Demchuk (Master, University of Tartu, Estonia), Karl-Martin Uiga (Master, University of Tartu, Estonia)
2016	Isabella Rüsing (Master, Ruhr- Universität Bochum, Germany), Malte Brokkötter (Master, Ruhr-Universität Bochum, Germany)
2015	Darius Wolodzko (Master, Ruhr- Universität Bochum, Germany)

Professional services

Committees (from 2015):

2021	18 th International Conference on Mining Software Repositories (hackathon track co-chair)
2021	26 th International Conference on Collaboration Technologies and Social Computing (conference co-chair)
2020	25 th International Conference on Collaboration Technologies and Social Computing (program co-chair)
2020	28 th European Conference on Information Systems (program committee)
2020	15 th International Conference on Global Software Engineering (program committee)
2020	6 th Workshop on Socio-Technical Perspective in IS development @ CAiSE (program chair)
2020	12 th International Conference on Subject-Oriented Business Process Management (program committee)
2020	Special Issue on Selected Topics on Socio-technical Perspective in Information Systems @ CSIMQ (guest editor)
2019	27 th European Conference on Information Systems (program committee)
2019	27 th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (registration chair)
2019	25 th International Conference on Collaboration Technologies and Social Computing (program committee)
2019	14 th International Conference on Global Software Engineering (program committee)
2019	20 th Conference on Business Process Modeling, Development and Support (program committee)
2019	11 th International Conference on Subject-Oriented Business Process Management (program committee)
2019	5 th Workshop on Socio-Technical Perspective in IS development @ ECIS (program committee)
2018	International Workshop on Software-intensive Business 2019: Start-ups, Platforms and Ecosystems @ ESEC/FSE (program committee)
2018	ACM Conference on Supporting Groupwork (program committee)
2018	26 th European Conference on Information Systems (program committee)
2018	30 th International Conference on Advanced Information Systems Engineering (webmaster and social media chair)
2018	13 th International Conference on Global Software Engineering (program committee)
2018	10 th International Conference on Subject-Oriented Business Process Management (program committee)
2018	2 nd Workshop on Hacking and Making at Time-Bounded Events: Current Trends and Next Steps in Research and Event Design @ CHI (organizer)
2018	4 th Workshop on Socio-Technical Perspective in IS development @ CAiSE (program committee)
2017	Track on A sociotechnical approach for 21st century problems @ ECIS (associate editor)
2017	12 th International Conference on Global Software Engineering (program committee)
2017	3 rd Workshop on Socio-Technical Perspective in IS development @ CAiSE (program committee)
2016	11 th International Conference on Global Software Engineering (publicity chair and program committee)
2015	Workshop on Collaboration Meets Interaction Surfaces @ ITS (program committee)

Reviews:

Journals	Business Information Systems Engineering (BISE), IEEE Software, Group Decision and Negotiation, Journal of Systems and Software, Software and Systems Modeling, Complex Systems Informatics and Modeling Quarterly, Information Systems Frontiers
Conferences	ACM Conference on Human Factors in Computing Systems (CHI), ACM Conference on Computer-Supported Cooperative Work (CSCW), ACM International Conference on Supporting Group Work (Group), IEEE International Conference on Global Software Engineering (ICGSE), International Conference on Information Systems (ICIS), European Conference on Information Systems (ECIS), International Conference on Subject-Oriented Business Process Management (S-BPM-ONE), International Symposium on End-User Development (IS-EUD)

Invited talks

2020	Social aspects of computing: Supporting sustainable collaboration in hybrid settings (venia legendi) University of Tartu, Tartu, Estonia (27.01.)
2019	Hackathons – Current practice and missed opportunities University of Tennessee, Knoxville, TN, USA (15.11.)
2019	Hackathon outcomes and event design Oak Ridge National Laboratory (ORNL), Oak Ridge, TN, USA (14.11.)
2019	Hackathons – Current practice and missed opportunities IEEE Estonia Section Summer Seminar 2019, Roosta, Estonia (22.08.)
2019	Hackathons – Current practice and missed opportunities Johannes Kepler University Linz, Linz, Austria (23.05.)
2018	Designing hackathons with a purpose IEEE Estonia Section Summer Seminar 2018, Jämeda, Estonia (20.08.)
2016	Supporting sustained collaboration over time – A socio-technical approach University of Missouri, Columbia, MO, USA (28.10.)
2015	Collaboration on and interaction with models of socio-technical processes Middlesex University, London, UK (03.11.)

Open resources

2020	Hackathon Planning Kit – A web-based multi-level methodological framework to help prospective hackathon planners navigate the numerous design and planning decisions to make their event a success (https://hackathon-planning-kit.org/)
2020	RuM – An open-source desktop application that provides a comprehensive set of declarative process mining tools in a single unified package that is easy to use for process mining novices and experts (https://rulemining.org/)

Academic self-administration

2019 – present	Erasmus+ Intereuropean Student Migration Coordinator for Partnership Agreements
2019 – present	Head of the executive Master specialization module "Product Design and Management"

Non-academic activities / outreach

2020	World of Code Hackathon, online (14.11. – 05.12.) – co-organizer and facilitator
2020	SC in the City Hackathon, online (05.11. – 09.11.) – co-organizer
2020	Cybersecurity Hackathon, online (23.10. – 25.10.) – co-organizer and mentor
2020	HACK@PEARC2020 hackathon, online (27.07. – 29.07.) – co-organizer
2020	Hello Future_ hackathon, USA and Arabat, Syria (23.05. – 30.05.) – juror
2020	The Global Hack, online (09.04. – 12.04.) – mentor
2019	Cloud HPC Hackathon @ SC19, Denver, CO, USA (18.11. – 20.11.) – co-organizer
2019	World of Code Hackathon, Pittsburgh, PA, USA (01.11. – 03.11.) – co-organizer and facilitator
2019	Cybersecurity Hackathon, Tartu, Estonia (11.10. – 13.10.) – co-organizer and mentor
2019	SGCI Hackathon @ PEARC18, Chicago, IL, USA (28.07. – 31.07.) – co-organizer
2018	Cloud HPC Hackathon @ SC18, Dallas, TX, USA (12.11. – 14.11.) – co-organizer
2018	SGCI Hackathon @ PEARC18, Pittsburgh, PA, USA (26.07. – 27.07.) – co-organizer

Awards and professional recognition

2020	Runner-up for 2019 Best Paper Award for the paper "Designing Corporate Hackathons With a Purpose" published in <i>IEEE Software</i> .
2019	ACM SIGSOFT Distinguished Paper Award for the paper "Going Farther Together: The Impact of Social Capital on Sustained Participation in Open Source" presented at the <i>International Conference on Software Engineering (ICSE)</i>
2016	Special award Sandro D'Atri for the paper "Socio-technical Process Design – The Case of Coordinated Service Delivery for Elderly People" presented at the <i>Conference of the Italian Chapter of the Association for Information Systems (itAIS)</i>

Grants and scholarships

2020 – 2025	Estonian Research Council Applied research project " <i>Prescriptive Monitoring of Business Processes</i> " (Co-author and WP lead, WP4 – Usability of Prescriptive Process Monitoring, 675.000 € total funding value, ~100.000 € for WP4)
2017 – 2019	Deutsche Forschungsgemeinschaft (DFG) Research fellowship for the project <i>Supporting sustained collaboration over time in hybrid collocated and online settings</i> at the University of Pittsburgh, PA, USA (PI, 103.249,80 €)
2013	German Academic Exchange Service (DAAD) Scholarship for a short-term research visit, Queensland University of Technology, Brisbane, Australia (PI, 5.256 €)
2008	German Federal Ministry for Economic Affairs and Energy (BMWi) eXist Business Start-up Grant, RWTH Aachen University, Germany (Co-PI, 11.600 €)

Languages

- German – native language
- English – speak fluently and read/write with high proficiency (C2)