Alexander Nolte

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Research interest

My research interest is in the field of **human computer interaction** with a particular focus on **understanding and supporting the collaboration of individuals** in various contexts. To that end I specialize in the analysis, design and evaluation of **complex socio-technical systems** that support the collaboration of individuals over time in collocated, distributed and hybrid settings through the combination of scaffolding mechanisms, meta-design, heuristics, re-use scenarios and analytics.

During my PhD I focused on developing and evaluating approaches for stakeholders to collaborate on **models of processes** they are involved in [8,9,10,11]. Part of this effort was to identify aspects that enable the re-use of process models [4] and the development of a data-driven analytical approach to support decision-making for facilitators of process modeling workshops [3]. My current research focuses on the following two main interconnected areas:

Sustainability of hackathon outcomes: My main contribution in this area is to identify means to support the sustainability of hackathon outcomes such as projects, learning gains, individual career advancements and networking. To do so, I study collegiate, corporate [1,2], entrepreneurial [12] and scientific hackathons [13] and develop methodological and analytical approaches to support organizers and participants to sustain outcomes after an event has ended. My future aim is to develop socio-technical means of integrating aspects of hackathons into existing practices related to (corporate) innovation, software development, entrepreneurship and the establishment and sustainability of communities.

Socio-technical collaboration support: In this area I have contributed to studies focusing on the effects of relationships between open source contributors and sustained participation [5], on collaboration in volunteer groups [6] and I have developed a set of socio-technical heuristics which allow volunteers to quickly assess their current state of collaboration with the aim to identify and solve the most critical issues [7]. These heuristics have subsequently been expanded to other organizational contexts. My future aim is to develop socio-technical means for individuals, teams, organizations and communities to quickly assess their current state of collaboration, identify issues and potentials for improvement and enact suitable change.

(references to publications are provided in the section on "Selected Publications" on p. 4)

Teaching philosophy

I perceive learning as a process during which individuals construct knowledge through their experiences and their interaction with other learners within social contexts. Teaching thus needs to be treated as a facilitation process that should create learning opportunities. In my courses, I do not solely focus on teaching facts. I rather actively engage students into discussions to foster critical thinking and creativity. If possible, I try to conduct courses in a project-oriented way where students learn to apply techniques that they are taught hands on in a practical context. In the end, the goal is not for the students to be able to replicate facts. It is rather to be able to understand and apply techniques in a real-world setting.

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	Technical University Dortmund **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

2018 – present	Lecturer (Assistant professor)	University of Tartu, Estonia
	• Developing and teaching courses on Human Computer Interaction for both undergraduate and graduate students • Studies on sustainability of hackathons outcomes and socio-technical collaboration support	
2018 – present	Adjunct assistant professor	Carnegie Mellon University, Pittsburgh, USA
	• Adjunct researcher in a project funded by the Alfred P. Sloan Foundation on understanding and sustaining Hackathon outcomes in various contexts	
2017 – 2018	Research associate	Carnegie Mellon University, Pittsburgh, USA
	• Researcher in a project funded by the Alfred P. Sloan Foundation on understanding and supporting Hackathons in various contexts	
2017 – 2018	Postdoctoral fellow	University of Pittsburgh, USA
	• Development and evaluation of approaches to support sustained collaboration over time in mixed collocated and distributed settings (supported by a funding grant DFG (German federal funding agency))	
2017	Adjunct faculty	University of Pittsburgh, USA
	• Teaching a course on Information Systems Development (Advanced JAVA course)	
2016 – 2017	Visiting research fellow	University of Pittsburgh, USA
	• Development and evaluation of approaches to support sustained collaboration over time in mixed collocated and distributed settings • Co-authoring research proposals for DFG (German federal funding agency) and local funding bodies in Pittsburgh. **Successful proposals:** • *Supporting sustained collaboration over time in hybrid collocated and online settings* (Research fellowship, DFG, 103.249,80 €) • *We are strong! Leveraging Information Technology to Empower Marginalized Communities* (Joint research project, University of Pittsburgh, 28.000,00 $)	
2016 – 2017	Temporary research programmer	Carnegie Mellon University, Pittsburgh, USA
	• Front-end development for the LASAD project (Java EE and GWT)	
2016 – 2017	Online tutor	EURO-FH University of Applied Sciences, Hamburg, Germany
	• Tutor for "Information Management" and "Business Engineering"	

Work experience

2014 – 2016	Postdoctoral research fellow	Ruhr-University Bochum, Germany

- Senior researcher in the German funded project 4C4Learn on intertwining process and competence management approaches to support organizational development
- Co-authoring research proposals for the European Union, the German Federal Ministry of Education and Research (BMBF) as well as private funding bodies.
  Successful proposal:
  - *4C4Learn - Kompetenzorientiertes Unternehmenscoaching für ein nachhaltiges Kompetenzmanagement in KMU* (Joint research project, BMBF, 614.866,80 €)

2009 – 2014	Researcher	Ruhr-University Bochum, Germany

- Researcher in the European funded project MIRROR (IP-FP7). Evaluating a socio-technical approach to foster collaborative reflection at the work place.
- Researcher in the German funded project VEIN. Design and evaluation of a socio-technical concept to support continuous improvement of work practice.
- Research assistant in the German funded project service4home. Designing and evaluating service processes to support elderly people to live in their own home for as long as possible. Services were ordered using digital pens.
- Research assistant in the project ISMS. Privacy oriented analysis of work processes in a university administration.

2013	Visiting research fellow	Queensland University of Technology, Brisbane, Australia

- Theoretical model and survey study on behavioral intentions of process model re-use

2011 – present	Process management consultant and coach

- University of Missouri (School of Information Science and Learning Technologies)
- VIACTIV (health insurance provider)
- Heinrich Huhn GmbH & Co. KG (manufacturer of metal stampings and assemblies)
- Ruhr-University Bochum (construction, IT services, human resources, finances)
- Kassenärztliche Vereinigung Westfalen-Lippe (association of doctors)

2008 – 2009	Co-founder and front-end developer	fromatob.com

- Development of an online travel platform in cooperation with RWTH Aachen University

Selected publications

Journals

[1] **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.

[2] 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*.

[3] 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.

[4] **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.

[5] 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.

[6] **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

[7] 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**).

[8] **Nolte, A.**, & Farzan, R. (2019). Identifying Socio-Technical Means to Support Small Loosely Coupled Groups of Volunteers. In: *International Conference on Collaboration and Technology* (pp. 17-35). Springer.

[9] Affia, A.O., **Nolte, A.**, & Matulevičius, R. (2019). Security Risk Management in Cooperative Intelligent Transportation Systems: A Systematic Literature Review. In: *On the Move to Meaningful Internet Systems: OTM 2019 Conferences* (pp. 282-300). Springer.

[10] Medina Angarita, M.A., & **Nolte, A.** (2019). Does it matter why we hack? – Exploring the impact of goal alignment in hackathons. In: *Proceedings of 17th European Conference on Computer-Supported Cooperative Work*. EUSSET.

[11] Sirgmets, 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.

[12] 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

[13] **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.

[14] Pe-Than, E.P.P., **Nolte, A.** (2019). The 2nd Workshop on Hacking and Making at Time-Bounded Events - Technical report. In: *arXiv preprint arXiv:1901.02710*.

Teaching experience (from 2015)

Lecturer:

2019 – 2020	Human Computer Interaction (undergraduate)	University of Tartu

- Introductory course on human computer interaction: Human perception, memory and processing; input and output devices and controls; user interface basics; UI and UX design and evaluation processes and methods; design thinking and prototyping

2018 – 2020	Human Computer Interaction (graduate)	University of Tartu

- Introductory course on human computer interaction: Human perception, memory and processing; input and output devices and controls; user interface basics; UI and UX design and evaluation processes and methods; design thinking and prototyping

2018 – 2020	Digital Product Design Introductory Project (graduate)	University of Tartu

- Introductory course to allow students to get first-hand experiences of conducting a product management project, understand the complexity of such projects and to prepare them for the master specialization module "Software Product Design and Management".

2017	Implementation of information systems (undergraduate)	University of Pittsburgh

- Advanced JAVA course on GUI, event handling, exception handling, common algorithms, file I/O, database programming and web application development e.g. HTML, CSS, Javascript

2014 – 2016	Project management (undergraduate)	Ruhr-University Bochum

- Project planning, controlling and agile methods of project management

2014 – 2015	Process management and innovation (graduate)	Ruhr-University Bochum

- Methods and approaches for process analysis, modeling notations (BPMN, EPC, UML), approaches for process improvement, collaborative modeling, process innovation

Co-lecturer:

2015	Software engineering (undergraduate)	Ruhr-University Bochum

- Requirements elicitation, patterns, model driven architecture

2015	Groupware and knowledge management (graduate)	Ruhr-University Bochum

- Communication support, joint editing, collaborative modeling

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	Maria Angelica Medina Angarita – PhD student (ongoing), University of Tartu, Estonia
2019	Abasi-Amefon Obot Affia – PhD student (ongoing), University of Tartu, Estonia
2019	Sofiya Demchuk – Master student, University of Tartu, Estonia
2019	Karl-Martin Uiga – Master student, University of Tartu, Estonia
2016	Isabella Rüsing – Master student, Ruhr-University Bochum, Germany
2016	Malte Brokkötter – Master student, Ruhr-University Bochum, Germany
2015	Darius Wolodzko – Master student, Ruhr-University Bochum, Germany

Professional services

Committees (from 2015):

2020	25th International Conference on Collaboration Technologies and Social Computing (program chair)
2020	28th European Conference on Information Systems (program committee)
2020	15th International Conference on Global Software Engineering (program committee)
2020	6th Workshop on Socio-Technical Perspective in IS development @ CAiSE (program chair)
2020	12th 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	27th European Conference on Information Systems (program committee)
2019	27th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (registration chair)
2019	25th International Conference on Collaboration Technologies and Social Computing (program committee)
2019	14th International Conference on Global Software Engineering (program committee)
2019	20th Conference on Business Process Modeling, Development and Support (program committee)
2019	11th International Conference on Subject-Oriented Business Process Management (program committee)
2019	5th 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	26th European Conference on Information Systems (program committee)
2018	30th International Conference on Advanced Information Systems Engineering (webmaster and social media chair)
2018	13th International Conference on Global Software Engineering (program committee)
2018	10th International Conference on Subject-Oriented Business Process Management (program committee)
2018	2nd Workshop on Hacking and Making at Time-Bounded Events: Current Trends and Next Steps in Research and Event Design @ CHI (organizer)
2018	4th 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	12th International Conference on Global Software Engineering (program committee)
2017	3rd Workshop on Socio-Technical Perspective in IS development @ CAiSE (program committee)
2016	11th 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, Jäneda, 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.)

(Co-)Organization of hackathons

2019	Cloud HPC Hackathon @ SC19, Denver, CO, USA (18.11. – 20.11.)
2019	World of Code Hackathon, Pittsburgh, PA, USA (01.11. – 03.11.)
2019	Cybersecurity Hackathon, Tartu, Estonia (11.10. – 13.10.)
2019	Cybersecurity Idea Garage, Kiev, Ukraine (19.09.)
2019	Cybersecurity Idea Garage, Vilnius, Lithuania (17.09.)
2019	Cybersecurity Idea Garage, Helsinki, Finland (16.09.)
2019	SGCI Hackathon @ PEARC18, Chicago, IL, USA (28.07. – 31.07.)
2018	Cloud HPC Hackathon @ SC18, Dallas, TX, USA (12.11. – 14.11.)
2018	SGCI Hackathon @ PEARC18, Pittsburgh, PA, USA (26.07. – 27.07.)

Grants and scholarships

2017	Deutsche Forschungsgemeinschaft (DFG) Research fellowship for the project *Supporting sustained collaboration over time in hybrid collocated and online settings* at the University of Pittsburgh, PA, USA (103.249,80 €)
2017	Volkswagen Foundation Grant for participation in the symposium Design Trade-Offs for Quality of Life: Exploring Grand Challenges for the Digital Age, Hannover, Germany (1.500€)
2014	University of Liechtenstein Grant for participation in the European BPM Round Table, Vaduz, Liechtenstein (500 €)
2013	German Academic Exchange Service (DAAD) Scholarship for a short term research visit, Queensland University of Technology, Brisbane, Australia (5.256 €)
2008	German Federal Ministry for Economic Affairs and Energy (BMWi) eXist Business Start-up Grant, RWTH Aachen University, Germany (11.600 €)

Technical and other skills

Research	My main focus is on conducting field studies which included ethnographic methods, interviews, observations and workshops, I also conducted controlled lab studies, surveys and archival data analyses. For analysis purposes I used MaxQDA, ELAN, Python, SPSS and R.
Technical	Python, Java, Java EE, PHP, HTML, CSS, JavaScript, GWT, MySQL, Eclipse, Linux (Ubuntu), Apache, Glassfish, MySQL, SVN

Languages

German – native language

English – speak fluently and read/write with high proficiency (C2)