Gül Çalıklı

Curriculum Vitae

26.04.2021

contact information

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publication indexes

http://GoogleScholar
http://DBLP

languages

Turkish native
English: fluent
Swedish: conversational
German: can read with dictionary

professional memberships

ACM

EDUCATION

2012 **Ph.D.** in Computer Engineering, **Boğaziçi University, Turkey**
Thesis: "Improving Performance of Defect Predictors Using Confirmation Bias Metrics"

2004 **M.Sc.** in Computer Engineering, **Boğaziçi University, Turkey**
Thesis: "A Policy Specification language for an 802.11 WLAN with Enchanced Security Network"

2000 **B.Sc.** in Mechanical Engineering, **Boğaziçi University, Turkey**

PROFESSIONAL APPOINTMENTS

09.2020–now **senior researcher**, **University of Zurich, Switzerland**
Research in empirical software engineering with focus on human cognitive and social aspects, data analytics and experimentation in the context of code review.

09.2016-09.2020 **universitetslektor**, **University of Gothenburg, Sweden**
Research in empirical software engineering with focus on human aspects. Taught 6 software engineering courses & 1 basic computer science course with 9 instances in total. Supervised B.Sc., M.Sc. and Ph.D. students.

10.2013-09.2016 **postdoc fellow**, **The Open University, UK**
Worked in the EPSRC funded "Privacy Dynamics" project for the design & development of privacy-aware software using theories from social psychology & logic based Machine Learning (ML).

08.2012-09.2013 **postdoc fellow**, **Ryerson University, Canada**
Worked at Data Science Lab with focus on data analytics and ML methods on software engineering, & human cognitive aspects.

01.2003-06.2012 **reasearch assistant**, **Boğaziçi University, Turkey**
Worked as a teaching assistant of 13 computer science courses. Worked at industrial research projects in collaboration with IBM Canada, Logo Software, Turkcell and IBTech.

09.2000-12.2002 **R&D engineer**, **Alarko-Carrier, Turkey**
Developed software to modify submersible pump shafts' and burner fans' designs.

AWARDS

2021 **ACM SIGSOFT Distinguished Paper Award** — **ICSE 2021**
"Why don't Developers Detect Improper Input Validation?'; DROP TABLE Papers; –"

2020 **ACM SIGSOFT Distinguished Artifact Award** — **ICSE 2020**
"Primers or Reminders? The Effects of Existing Review Comments on Code Review"

2013 **Best Paper Award**, Industry Track, (**First Author**) — **ESEM 2013**
"Towards a Metrics Suite Proposal to Quantify Confirmation Biases of Developers"

GRANTS & FUNDING

2018 **Chalmers Area of Advance SEED Funding** — **PI, 100k SEK**
"SEFIS: Software Engineering for Intelligent Systems"

2017 **Chalmers SWC Project# 3: Metrics** — **Co-PI, ∼120k SEK**
"Continuous Product & Organisational Performance" (Sprints 13-14)

2016 **Chalmers SWC Project# 1: Metrics** — **Co-PI, ∼60k SEK**
"Implications of Continuous Deployment" (Sprint 12)

INVITED TALKS

2020 **Advancing Research on Cognition in Software Engineering**
University of Zurich — **Zurich, Switzerland**

2019 **Software Engineering for Intelligent Systems**
Chalmers ICT Area of Advance — **Gothenburg, Sweden**

2017 **A Portfolio of Quality Metrics for Continuous Deployment**
Software Center Breakout Session — **Gothenburg, Sweden**

2016 **Privacy Dynamics: Towards Privacy-aware Software**
Dept. of Computer Engineering, Bilgi University — **Istanbul, Turkey**

2014 **Elicitation of Privacy Requirements Using Personas**
Department of Computing & Informatics, Bournemouth University — **Dorset, UK**

2014 **Modelling Human Aspects in Software Engineering**
Department of Computer Engineering, Boğaziçi University — **Istanbul, Turkey**

2013 **Confirmatory Behaviour of Software Developers**
Department of Computer Engineering, Gebze Technical University — **Kocaeli, Turkey**

2013 **Confirmation Bias in Software Engineering**
Department of Computer Science, York University — **Toronto, Canada**

2012 **Research 2.0: Confirmation Bias as a Human Aspect in Software Engineering**
Microsoft Research (video of the talk) — **Redmond, WA, USA**

2010 **Prediction of Defect Density by Using Confirmation Bias Metrics**
Logo Software — **Kocaeli, Turkey**

2009 **Confirmatory Biases of Developers and Testers**
Turkcell **Kocaeli, Turkey**

PROFESSIONAL SERVICE

conference organisation committees

SPLC Conference Chair, Systems and Software Product Lines Conference, 2018.

conference program committees

ASE PC member (Tool Demos Track), IEEE/ACM International Conference on Automated Software Engineering, 2021.

CSCW Associate Chair, ACM Conference on Computer Supported Cooperative Work and Social Computing, 2021.

QUATIC PC member, International Conference on the Quality of Information and Communications, 2020.

SANER PC member, IEEE International Conference on the Software Evolution and Re-engineering, 2017.

CSMR-WCRE PC member, Conference on Software Maintenance, Re-engineering and Reverse Engineering (ERA Track), 2014.

conference paper reviewing as a reviewer/sub-reviewer

CSCW ACM Conference on Computer Supported Cooperative Work and Social Computing; 2019, 2020.

ICSM International Conference on Software Maintenance; 2013.

ESEM International Symposium on Empirical Software Engineering and Measurement; 2010, 2011, 2012, 2013.

PROMISE International Symposium on Predictive Models in Software Engineering; 2010, 2011, 2012, 2013.

SEAA EUROMICRO Conference on Software Engineering and Applications; 2013.

ICSE International Conference on Software Engineering; 2011, 2012.

journal reviewing

TSE IEEE Transactions on Software Engineering, IEEE

IEEE Software (Special Issues) Diversity Crisis in Software Development; Green Software; Sentiment and Emotion in Software Engineering, IEEE

EMSE Empirical Software Engineering, Springer

JSS Journal of Software and Systems, Elsevier

SQJ Software Quality Journal, Springer

IET Journal Institution of Software Engineering and Technology, IET

Transactions on Reliability IEEE Transactions on Reliability, IEEE

editorial assignments

Guest Editor IEEE Transactions on Industrial Informatics, Special Issue on Engineering Big Data Analytics Platforms on Internet of Things, 14(2):744-747, 2018.

TEACHING

teaching at University of Gothenburg, Sweden

Data Structures and Algorithms (Spring 2018-2020, ≈ 85 students)
Students learn about algorithm complexity, recursion, sorting algorithms, and data structures (e.g., linked lists) and abstract data types (e.g., stacks and queues). In Spring 2018 term, I designed the course from scratch. In Spring 2019 term, I redesigned this course introducing three more course components besides lectures so that this instance consisted of the following course components: (1) Lectures, (2) hands–on programming sessions, (3) problem sessions and (4) supervision sessions. I prepared all course material of each component from scratch.

Mini Project Team Programming (Fall 2019, ≈ 85 students)
Students learn about project management and human aspects (e.g., group dynamics, cognitive bias-es during lectures, that are complemented by hands-on exercises done in class. Students put theory they learn during lectures into practice while working on a software development project in groups.

Product, Project and People Management (Fall 2016-2017, ≈ 65 students)
Students learn about software project management (e.g., scheduling, effort and cost estimation, risk management) and human aspects.

Mini Project: Systems Development (Spring 2018, ≈ 50 students)
This is the updated version of the "Project: Systems Development" course (see below) in the new curriculum where the scope of the autonomous mini-car system to be developed is delimited to fewer features.

Change Management in Software Development Organisations (Fall 2016-2017, ≈ 30 students)
This course focuses on explanatory theories on organizational change and change management in software industry.

Project: Systems Development (Spring 2017, ≈ 65 students)
This is a software development project course, which employs problem–based learning technique. Students work in groups developing a system for autonomous mini–cars and develop skills in requirements analysis, software design, quality analysis, programming and testing.

Project: Changing Software Development Process (Fall 2017, ≈ 15 students)
This is an elective course where students are expected to conduct an exploratory research study in industrial settings. This instance continue from the previous with two additional tutorials that I prepared for data collection and analysis techniques.

teaching at Ryerson University, Canada

Business Information Systems 1(Fall 2012, ≈ 60 students)
This course was offered as a service course for students from various programs at the university.

Applied Research Methods (Fall 2012, ≈ 30 students, **M.Sc./Ph.D.** level course)
Students learn about qualitative and quantitative research methods. In this course, I lectured on data collection methods in field studies (e.g., interviews, questionnaires, shadowing, observation synchronized shadowing, participant observation, think aloud protocols), statistical analysis techniques, qualitative measures and construct validity.

TEACHING EDUCATION

pedagogy courses completed

2019 **Supervision in Postgraduate Education** (HPE201), **University of Gothenburg**
This course discusses the context of the postgraduate programme, its organization and conditions as well as various research environments and supervision cultures. This course also covers every day practice and ethical dilemmas of supervision of doctoral students. Supervisor's responsibility for documentation, planning, and follow-up of the doctoral work and supervisor's role as a mentor into the science community are also discussed.

2018 **Teaching and Learning in Higher Education 1: Applied Analysis** (HPE103), **University of Gothenburg**
This course aims to enhance knowledge and ability to analyse, reflect, discuss and design a pedagogical development piece of work on the basis of science and proven experience.

2017 **Teaching and Learning in Higher Education 2: Pedagogy at the Faculty of Science** (HPE102), **University of Gothenburg**
This course teaches how to design courses that effectively teaches students to think like a scientist. The course teaches to use backward design to plan a course providing a tool box of examples of active teaching and assessment methods.

2017 **Teaching and Learning in Higher Education 1: Basic Course** (HPE101), **University of Gothenburg**
This foundational course offers an introduction to learning theories, teaching methods and student learning in higher education.

STUDENT SUPERVISION & MENTORING

2016-2021 **Katja Tuma (Ph.D. Student)**, **University of Gothenburg, Sweden**
"Efficiency and Automation in Threat Analysis of Software Systems"
Main Supervisor: Prof. Dr. Riccardo Scandariato
My Role: co-supervisor

2018-ongoing **Wardah Mahmood (Ph.D. Student)**, **University of Gothenburg, Sweden**
"Software product line engineering and variability management"
Main Supervisor: Prof. Dr. Thorsten Berger
My Role: co-supervisor

2016-ongoing **Jacob Krüger (Ph.D. Student)**, **Otto Von Guericke University, Germany**
"Feature oriented software evolution and human factors"
Supervisors: Prof. Dr. Gunter Saake, Prof. Dr. Thomas Leich and Prof. Dr. Thorsten Berger
My Role: mentor

2017 **Mohammed Al-Eryani** and **Emil Baldebo (B.Sc. students)**, **University of Gothenburg, Sweden**
"Effects of Automated Competency Evaluation on Software engineers' Emotions and Motivation: a Case Study"

2020 **Mohannad Alahdab (M.Sc. student)**, **University of Gothenburg, Sweden**
"Empirical Analysis of Hidden Technical Debt Patterns in Machine Learning Software"

2020-ongoing **Axel Aringskog** and **Filip Larsson (M.Sc. students)**, **University of Gothenburg, Sweden**
"A Framework for Ethics-aware Machine Learning Applications: From Ethical Risks to Requirements and Prototypes"

PhD EXAMINATION COMMITTEES

2019 Iflaah Salman, 'The Effect of Confirmation Bias and Time Pressure on Software Testing", Information Technology and Electrical Engineering, University of Oulu.

ADMINISTRATIVE DUTIES

2017-2018 Member of "**B.Sc. Thesis Examination Committee**"
Responsibilities included contributing to the preparation of templates and evaluation criteria for proposals, progress reports and final thesis reports as well as evaluation of the proposals and progress reports and the final reports.

REFERENCES

prof. dr. Alberto Bacchelli

Role: Associate Professor
Affiliation: University of Zurich
Address: Binzmühlstrasse 14, 8050 Zurich, Switzerland
Email: bacchelli@ifi.uzh.ch
Web: https://www.ifi.uzh.ch/en/zest/team/bacchelli.html
Phone: +41 44 635 75 39

prof. dr. Thorsten Berger

Role: Professor
Affiliation: Ruhr University Bochum; Chalmers & University of Gothenburg
Address: Universitätsstraße 150 ID-Gebäude, Postfach 11 44801 Bochum, Germany; Hörselgången 11, Gothenburg, Sweden
Email: thorsten.berger@rub.de; thorsten.berger@chalmers.se
Web: http://www.cse.chalmers.se/∼bergert/
Phone: (+49)(0)234 / 32 - 25975; +46 31 772 6075

prof. dr. Bashar Nuseibeh

Role: Professor
Affiliation: The Open University
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Phone: +44 1908-655185

prof. dr. Andy Zaidman

Role: Professor
Affiliation: Delft University of Technology
Address: Van Mourik Broekmanweg 6, 2628 XE Delft, The Netherlands
Email: a.e.zaidman@tudelft.nl
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prof. dr. Ivica Crnkovic

Role: Professor
Affiliation: Chalmers University of Technology
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prof. dr. Michel Chaudron

Role: Professor
Affiliation: Eindhoven University of Technology
Address: Groene loper 5, 5612 AZ Eindhoven, Netherlands
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Web: https://research.tue.nl/en/persons/michel-rv-chaudron
Phone: +31 402479111

PUBLICATIONS

peer-reviewed journals

J1 Katja Tuma, **Gül Çalıklı**, Riccardo Scandariato: Threat analysis of software systems: A systematic literature review. Journal of Systems and Software 144: 275-294 (2018).

J2 Jan–Philipp Steghöfer, Håkan Burden, Regina Hebig, **Gül Çalıklı**, Robert Feldt, Imed Hammuda, Jennifer Horkoff, Eric Knauss, Grischa Liebel: Involving External Stakeholders in Project Courses. ACM Transactions on Computing Education TOCE 18(2): 8:1-8:32 (2018).

J3 Blaine Price, Avelie Stuart, **Gül Çalıklı**, Ciaran McCormick, Vikram Mehta, Luke Hutton, Arosha Bandara, Mark Levine, Bashar Nuseibeh: Logging you, Logging me: A Replicable Study of Privacy and Sharing Behaviour in Groups of Visual Lifeloggers. IMWUT 1(2): 22:1-22:18 (2017).

J4 **Gül Çalıklı** and Ayşe Bener. Empirical analysis of factors affecting confirmation bias levels of oftware engineers. Software Quality Journal 23(4): 695-722 (2015).

J5 **Gül Çalıklı** and Ayşe Bener. Influence of confirmation biases of developers on software quality: an empirical study. Software Quality Journal 21(2): 377-416 (2013).

peer-reviewed conference publications

C1 Larissa Braz, Enrico Fregnan, **Gül Çalıklı**, Alberto Bacchelli: Why don't Developers Detect Improper Input Validation?`'; DROP TABLE PAPERS; --`. ICSE2021 (accepted) (***ACM SigSoft Distinguished Paper Award***).

C2 Davide Spadini, **Gül Çalıklı**, Alberto Bacchelli: Primers or Reminders? The Effects of Existing Comments on Code Review. ICSE2020. (***ACM SigSoft Distinguished Artifact Award***)

C3 Jacob Krüger, **Gül Çalıklı**, Thorsten Berger, Thomas Leich,Gunter Saake: Effects of explicit feature traceability on program comprehension. ESEC/SIGSOFT FSE 2019: 338-349.

C4 Mohannad Alahdab, **Gül Çalıklı**: Empirical Analysis of Hidden Technical Debt Patterns in Machine Machine Learning Software. PROFES 2019: 195-202.

C5 Rashidah Kasauli, Eric Knauss, Benjamin Kanagwa, Agneta Nilsson, **Gül Çalıklı**i: Safety-Critical Systems and Agile Development: A Mapping Study. SEAA 2018: 470-477.

W1 **Gül Çalıklı**, Mohammed Al-Eryani, Emil Baldebo, Jennifer Horkoff, Alexander Ask: Effects of automated competency evaluation on software engineers' emotions and motivation: a case study. SEmotion@ICSE 2018: 44-50.

C6 **Gül Çalıklı**, Miroslaw Staron, Wilhelm Meding: Measure early and decide fast: Transforming quality management and measurement to continuous deployment. ICSSP 2018: 51-60.

C7 Yasmin Rafiq, Luke Dickens, Alessandra Russo, Arosha K. Bandara, Mu Yang, Avelie Stuart, Mark Levine,**Gül Çalıklı**, Blaine A. Price, Bashar Nuseibeh: Learning to share: ngineering adaptive decision-support for online social networks. ASE 2017: 280-285.

C8 **Gül Çalıklı**, Mark Law, Arosha K. Bandara, Alessandra Russo, Luke Dickens, Blaine A. Price, Avelie Stuart, Mark Levine, Bashar Nuseibeh: Privacy dynamics: learning privacy norms for social software. SEAMS@ICSE 2016: 47-56.

W2 **Gül Çalıklı**, Blaine A. Price, Mads Schaarup Andersen, Bashar Nuseibeh, Arosha K. Bandara: Personal informatics for non-geeks: lessons learned from ordinary people. UbiComp Adjunct 2014: 683-686.

C9 **Gül Çalıklı**, Ayşe Bener, Turgay Aytaç, Ovünç Bozcan: Towards a Metric Suite Proposal to Quantify Confirmation Biases of Developers. ESEM 2013: 363-372. (***Best Industry Paper Award***)

C10 **Gül Çalıklı**, Ayşe Bener: An algorithmic approach to missing data problem in modeling human aspects in software development. PROMISE 2013: 10:1-10:10.

C11 **Gül Çalıklı**, Ayşe Bener: The Impact of Confirmation Bias on the Release-based Defect Prediction of Developer Groups. SEKE 2013: 461-466.

C12 **Gül Çalıklı**, Ayşe Bener, Bora Çağlayan, Ayse Tosun Mısırlı: Modeling Human Aspects to Enhance Software Quality Management. ICIS 2012.

C13 Bora Çağlayan, Ayşe Tosun Mısırlı, **Gül Çalıklı**, Ayşe Bener, Turgay Aytaç, Burak Turhan: Dione: an integrated measurement and defect prediction solution. SIGSOFT FSE 2012: 20.

C14 **Gül Çalıklı**, Ayşe Başar Bener: Preliminary analysis of the effects of confirmation bias on software defect density. ESEM 2010.

C15 **Gül Çalıklı**i, Ayşe Başar Bener, Berna Arslan: An analysis of the effects of company culture, education and experience on confirmation bias levels of software developers and testers. ICSE NIER Track 2010: 187-190.

W3 **Gül Çalıklı**, Berna Arslan, Ayşe Bener: Confirmation Bias in Software Development and Testing: An Analysis of the Effects of Company Size, Experience and Reasoning Skills. PPIG 2010: 14.

C16 **Gül Çalıklı**, Ayşe Başar Bener: Empirical analyses of the factors affecting confirmation bias and the effects of confirmation bias on software developer/tester performance. PROMISE 2010:10.'

C17 **Gül Çalıklı** , Ayşe Tosun, Ayşe Başar Bener, Melih Çelik: The effect of granularity level on software defect prediction. ISCIS 2009: 531-536.

C18 **Gül Çalıklı**, Ufuk Çağlayan: A Formal Policy Specification Language for an 802.1WLAN with Enhanced Security Network. ISCIS 2005: 183-192.

book chapters

BC1 Ayşe Bener, Ayşe Tosun Mısırlı, Bora Cağlayan, Ekrem Kocagüneli, **Gül Çalıklı**: Lessons Learned from Software Analytics in Practice. The Art and Science of Analyzing Software Data 2015: 453-489.

BC2 Ayşe Tosun Mısırlı, Ayşe Bener, Bora Çaglayan, **Gül Çalıklı**, Burak Turhan: Field Studies - A Methodology for Construction and Evaluation of Recommendation Systems in Software Engineering. 2014: 329-355.

technical reports

TR1 Larissa Braz, Enrico Fregnan, **Gül Çalıklı**, Alberto Bacchelli: Why don't Developers Detect Improper Input Validation?`';DROP TABLE PAPERS; --`. CoRR abs/2102.06251 (2021)

TR2 Jan-Philipp Steghöfer, Håkan Burden, Regina Hebig, Gül Çalıklı, Robert Feldt, Ime-Hammouda, Jennifer Horkoff, Eric Knauss, Grischa Liebel: Involving External Stakeholders in Project Courses. CoRR abs/1805.01151 (2018)

TR3 Rashidah Kasauli, Eric Knauss, Benjamin Kanagwa, Joseph Kikombo Balikuddembe,Agneta Nilsson, Gül Çalıklı: Safety-Critical Systems and Agile Development: A Mapping in Project Courses. CoRR abs/1805.01151 (2018).

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