

CV Einar Broch Johnsen

Date of birth: 30 May 1970

E-mail address: einarj@uio.no

Contact details: Department of Informatics, University of Oslo, PO Box 1080 Blindern, NO-0316 Oslo

Current position(s):

From year	Position	% employment	Name of institution
2008	Professor (full)	100	University of Oslo
2019	Professor (full)	10	Western Norway University of Applied Sciences

Previous positions:

Year		Position held	Name of institution
From	To		
2003	2008	Associate professor	University of Oslo
2002	2002	Research Associate	University of Bremen, DE
1998	2001	Research fellow	University of Oslo
1996	1997	Civil Servant	Norwegian Climbing Federation
1995	1995	Lecturer	University of Oslo

Education:

Year		Academic degree	Name of institution
From	To		
1998	2002	Dr Scient	University of Oslo
1993	1994	Cand Philol	University of Oslo
1989	1992	Cand Mag	University of Oslo
1986	1989	Baccalauréat	Lycée Corneille (FR)

Relevant teaching:

Year	Teaching activity	Name of Institution
1998–2023	Lecturer and course responsible for 9 courses at bachelor/master/PhD level	Department of Informatics, University of Oslo
1995–1996	Lecturer and course responsible for three courses	Faculty of Humanities, University of Oslo

Supervision of PhD students:

Year	Name of PhD student	Title of the thesis
Ongoing	Riccardo Sieve	Topic: Digital Twins for the Oslo Fjord
Ongoing	Erik Voogd	Topic: Semantics of Probabilistic Programs
Ongoing	Tobias John	Topic: Planning with Semantic Knowledge
Ongoing	Juliane Päßler	Topic: Safety of Autonomous Underwater Robots
Ongoing	Roxana Pop	Topic: AI with Structured Data
Ongoing	Paul Kobialka	Topic: Smart Analysis of User Journeys
2021	Shiji Bijo	Formal Models of Cache Coherent Multicore Architectures
2018	Johanna Beate Stumpf	Virtually Timed Ambients
2014	Violet Ka I Pun	Behavioral Static Analysis for Deadlock Detection

Year	Name of PhD student	Title of the thesis
2014	Silvia Lizeth Tapia Tarifa	Executable Modeling of Deployment Decisions for Resource-Aware Distributed Applications
2014	Crystal Chang Din	Verification of Asynchronously Communicating Objects
2013	Fatemeh Kazemeyni	Collaborative Wireless Sensor Networks: Modeling & Analysis
2013	Mai Truong Tran	Compositional Formal Analysis of Concurrent Object-Oriented Languages
2013	Espen Hallestvedt Lian	Default and Autoepistemic Reasoning in Only-Knowing Logic
2011	Arild Torjusen	Specification-Based Verification and Testing of Open Distributed Systems
2010	Ingrid Chieh Yu	Type Safety for Distributed Concurrent Objects and Runtime Upgrades
2009	Xuedong Liang	QoS Provisioning for Wireless Sensor Networks: Algorithms, Protocols and Modeling
2009	Johan Dovland	Incremental Reasoning about Distributed Object-Oriented Systems

Fellowships and grants: (last 5 years)

Nebulous (co-PI, Horizon Europe, RIA, 2022–2025), Smart Journey Mining (co-PI, RCN, IKTPLUSS, 2020–2024), REMARO (co-PI, EU, MSCA ITN, 2020–2024), SIRIUS (co-PI, RCN, SFI, 2015–2023)

Prizes and Awards: (last 10 years)

Best paper awards: SEFM 2022, EdbA 2022. Distinguished artefact award: ECOOP 2019

Other relevant assignments:

Leader of research group on Reliable System at the Department of Informatics, UiO.

Evaluator of research proposals: ERC CG & StG (EU, 2022, 2023), CHIST-ERA (EU, 2019), MIUR (Italy, 2018), FWF (Austria, 2018, 2014), NWO (Netherlands, 2017, 2016, 2007), FWO (Belgium, 2013, 2011)

Selection committees: Professorship at Aarhus University (Denmark, 2019, 2012), habilitation at Åbo Akademi (Finland, 2015), assistant professor at University of Southern Denmark (2015)

Advisory boards: UiO's dScience Center (2021-Present), Aarhus University's Center for Digitalization (Denmark, 2017-Present), University of Turin's Phd Programme Steering Committee (Italy, 2017-Present), EU H2020 project COEMS (2017-2020), Sintef (Norway, 2009–2015)

Editorial boards: Formal Aspects of Computing (ACM, 2022-Present), Journal of Logical and Algebraic Methods in Programming (Elsevier, 2020-Present)

Conference Steering Committees: FM (from 2016), IFM (chair, from 2013), FORTE (from 2012)

Programme committee chair for international conferences: FASE 2022, SEFM 2018, TAP 2017, ESOC 2016, IFM 2013, FMOODS 2007. **Programme committee member** for 96 conferences and workshops.

Organization chair of international conferences and PhD schools: Shonan seminars (2023, 2015), Lorents workshop (2014), ESOC 2017, FM2015, DisCoTec (2008) and PhD schools SFM (2015, 2014)

Invited talks: PNSE 2022, FormalISE 2022, Engineering Digital Twins Community 2022, Energy Valley 2020, FOCLASA 2019, KeY Symposium 2019, Internet Week Denmark 2018, SoftCOM 2017, ALP4IoT 2017, iFMCloud 2016, TAP 2015; **guest lectures at universities/companies:** Vienna, Nijmegen, Linz,

Bergen, Minho, Big Insight SFI, SAP, Statoil, INRIA Sophia-Antipolis, Visma, SuperOffice, NRK, SINTEF, Turku, Imperial College London, Uppsala, Madrid, Reykjavik, Macau, Arequipa (Peru), CWI Amsterdam, Chalmers, Lille, Bremen, Freiburg, Kiel, Norwegian Comp. Center.

Publications Einar Broch Johnsen

Editorial work:

I have edited 20 volumes of Springer's lecture Notes in Computer Science and journal special issues, including issues of Formal Methods in System Design, Theoretical Computer Science, Software and Systems Modeling, Formal Aspects of Computing and Journal of Logic and Algebraic Programming

Journals (last 10 years):

1. R Ghzouli, T Berger, **EB Johnsen**, A Wasowski, S Dragule: *Behavior Trees and State Machines in Robotics Applications*, IEEE Transactions on Software Engineering, 2023. To appear.
2. G Turin, A Borgarelli, S Donetti, F Damiani, **EB Johnsen**, SL Tapia Tarifa: *Predicting Resource Consumption of Kubernetes Container Systems using Resource Models*, Journal of Systems and Software 203: 111750, 2023.
3. NC Stenseth, R Schlatte, X Liu, R Pielke, Jr., R Li, B Chen, ON Bjørnstad, D Kusnezov, GF Gao, C Fraser, JD Whittington, Y Bai, K Deng, P Gong, D Guan, Y Xiao, B Xu, **EB Johnsen**: *How to avoid a local epidemic becoming a global pandemic*, Proc. National Academy of Sciences 120 (10), 2023.
4. S Khaleghian, H Ullah, **EB Johnsen**, A Andersen, A Marinoni: *AFSD: Adaptive Feature Space Distillation for Distributed Deep Learning*, IEEE Access 10: 84569– 84578, 2022.
5. J-C Lin, M-C Lee, IC Yu, **EB Johnsen**: *A Configurable and Executable Model of Spark Streaming on Apache YARN*, Intl. Journal of Grid and Utility Computing (IJGUC) 11 (2): 185–195, 2020
6. S Bijo, **EB Johnsen**, KI Pun, SL Tapia Tarifa: *A Formal Model of Parallel Execution on Multicore Architectures with Multilevel Caches*. Science of Computer Programming 179: 24–53, 2019.
7. A Gkolfi, CC Din, **EB Johnsen**, LM Kristensen, M Steffen, IC Yu, *Translating Active Objects into Colored Petri Nets for Communication Analysis*, Science of Computer Programming 181, 2019.
8. E Albert, J Correas, **EB Johnsen**, KI Pun, G Román-Díez: *Parallel Cost Analysis*, ACM Transactions on Computational Logic (TOCL) 19(4) 31:1–31:37, 2018.
9. CC Din, **EB Johnsen**, O Owe, IC Yu: *A Modular Reasoning System with Uninterpreted Predicates*, J. Logical and Algebraic Methods in Programming 95:82– 102, 2018.
10. **EB Johnsen**, M Steffen, JB Stumpf: *Virtually Timed Ambients: A Calculus of Nested Virtualization*, J. Logical and Algebraic Methods in Programming 94: 109–127, 2018.
11. F de Boer, V Serbanescu, CC Din, R Hähnle, L Henrio, J Rochas, **EB Johnsen**, M Sirjani, E Khamespanah, K Fernandez-Reyes, AM Yang: *A Survey of Active Object Languages*. ACM Computing Surveys 50(5) 76:1– 76:39, 2017.
12. R Bubel, F Damiani, R Hähnle, **EB Johnsen**, O Owe, I Schaefer, IC Yu: *Proof Repositories for Software Verification In-the-Large*, Springer Transactions on Foundations for Mastering Change 1:130–156, Lecture Notes in Computer Science, vol. 9960, 2016.
13. D Ancona, V Bono, M Bravetti, G Castagna, J Campos, P-M Deniérou, SJ Gay, N Gesbert, E Giachino, R Hu, **EB Johnsen**, F Martins, V Mascardi, F Montesi, N Ng, R Neykova, L Padovani, VT Vasconcelos, N Yoshida: *Behavioral Types in Programming Languages*, Foundations and Trends in Programming Languages 3 (2–3): 95–230, 2016.
14. **EB Johnsen**, O Owe, D Clarke, J Bjørk: *A formal model of service-oriented dynamic object groups*, Science of Computer Programming 115–116: 3–22, 2016.
15. R Hähnle, **EB Johnsen**: *Designing Resource-Aware Applications for the Cloud*, IEEE Computer 48 (6): 72-75, 2015.

16. J Dovland, **EB Johnsen**, O Owe, IC Yu: *A Proof System for Adaptable Class Hierarchies*, J. Logical and Algebraic Methods in Programming 84 (1): 37–53, 2015.
17. **EB Johnsen**, R Schlatte, SL Tapia Tarifa: *Integrating Deployment Architectures and Resource Consumption in Timed Object-Oriented Models*, J. Logic and Algebraic Programming 84 (1), 2015.
18. E Albert, FS de Boer, R Hähnle, **EB Johnsen**, R Schlatte, SL Tapia Tarifa, PYH Wong: *Formal Modeling and Analysis of Resource Management for Cloud Architectures: An Industrial Case Study using Real-Time ABS*, J. Service-Oriented Computing and Applications 8 (4): 323–339, 2014.
19. FS de Boer, **EB Johnsen**, D Clarke, S Drossopoulou, N Yoshida, T Wrigstad: *Scaling Future Software: The Manycore Challenge*. ERCIM NEWS 99: 14–15, Oct. 2014.
20. F Kazemeyni, O Owe, **EB Johnsen**, I Balasingham: *Formal Modeling and Analysis of Learning-based Routing in Mobile Wireless Sensor Networks*, Springer Advances in Intelligent and Soft Computing 263: 127–150, 2014.
21. S de Gouw, FS de Boer, **EB Johnsen**, A Kohn, P Wong: *Run-Time Assertion Checking of Data- and Protocol-Oriented Properties of Java Programs: An Industrial Case Study*, Springer Transactions on Aspect-Oriented Software Development 11: 1–26, 2014.
22. F Damiani, J Dovland, **EB Johnsen**, I Schaefer: *Verifying Traits: An Incremental Proof System for Fine-Grained Reuse*, Formal Aspects of Computing 26 (4): 761–793, 2014.
23. J Bjørk, FS de Boer, **EB Johnsen**, R Schlatte, SL Tapia Tarifa: *User-defined Schedulers for Real-Time Concurrent Objects*, Innovations in Systems and Software Engineering 9 (1):29-43, 2013.

Invited chapters in books (last 10 years):

24. FS de Boer, **EB Johnsen**, R Schlatte, SL Tapia Tarifa, L Tveito: *Inseguendo Fagiani Morti: Partial Order Reduction for Guarded Command Languages*, in: Festschrift for Maurizio Gabrielli, Open Access Series in Informatics, Vol. 86, Schloss Dagstuhl– Leibniz-Zentrum fuer Informatik, 2020.
25. E Kamburjan, CC Din, R Hähnle, **EB Johnsen**: *Behavioral Contracts for Cooperative Scheduling*, in: Deductive Verification - State of the Art (DV-SOA20). Lecture Notes in Computer Science, vol. 12345, Springer, 2020.
26. F de Boer, M Bonsangue, **EB Johnsen**, VKI Pun, SL Tapia Tarifa, L Tveito: *SymPaths: Symbolic Execution Meets Partial Order Reduction*, in: Deductive Verification - State of the Art (DV-SOA20). Lecture Notes in Computer Science, vol. 12345, Springer, 2020.
27. **EB Johnsen**, IC Yu: *Dynamic Software Updates and Context Adaptation for Distributed Active Objects*, in: Festschrift for Arnd Poetsch-Häffter, Springer, 2018.
28. R Schlatte, **EB Johnsen**, J Mauro, SL Tapia Tarifa, IC Yu: *Release the Beasts: When Formal Methods Meet Real World Data*, in: Festschrift for Farhad Arbab, 2018. Lecture Notes in Computer Science, vol. 10865, Springer, 2018.
29. R Hähnle, **EB Johnsen**: *A Model-Centric Approach to the Design of Resource-Aware Cloud Applications*, in: Software Technology: 10 Years of Innovation in IEEE Computer. Wiley, 2018.

Selected Papers at International Conferences and Workshops (last 10 years):

30. E Voogd, **EB Johnsen**, A Silva, ZJ Susag, A Wąsowski: *Symbolic semantics for probabilistic programs*, in: Proc. 20th Intl. Conference on Quantitative Evaluation of SysTems (QEST). Lecture Notes in Computer Science, Springer 2023. To appear.
31. ÅAA Kløvstad, E Kamburjan, **EB Johnsen**: *Compositional Correctness and Completeness for Symbolic Partial Order Reduction*, in: Proc. 34th Intl. Conference on Concurrency Theory (CONCUR), Leibniz Intl. Proceedings in Informatics (LIPIcs), 2023. To appear.

32. M Varshosaz, M Ghaffari, **EB Johnsen**, A Wąsowski: *Formal Specification and Testing for Reinforcement Learning*, in: Proc. 28th Intl. Conference on Functional Programming (ICFP 2023). Proceedings of the ACM on Programming Languages. ACM 2023. To appear.
33. GR Silva, J Zwanepol, J Päßler, E Alberts, SL Tapia Tarifa, I Gerostathopoulos, **EB Johnsen**, CH Corbato: *SUAVE: An Exemplar for Self-Adaptive Underwater Vehicles*, in: Proc. Intl. 18th Symp on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2023). ACM/IEEE 2023.
34. P Kobialka, F Mannhardt, SL Tapia Tarifa, **EB Johnsen**: *Building User Journey Games from Multi-party Event Logs*, in: Proc. 3rd Intl. Workshop on Event Data and Behavioral Analytics (EdbA 2022). Lecture Notes in Business Information Proc., vol. 468, Springer 2023. **Best paper award.**
35. E Kamburjan, VN Klungre, R Schlatte, SL Tapia Tarifa, D Cameron, **EB Johnsen**: *Digital Twin Reconfiguration Using Asset Models*, in: Proc. 9th Intl. Symp. On Leveraging Applications of Formal Methods, Verification and Validation (ISOLA 2022). Lecture Notes in Computer Science, vol. 13704, Springer 2022.
36. E Kamburjan, CC Din, R Schlatte, SL Tapia Tarifa, **EB Johnsen**: *Twinning-by-Construction: Ensuring Correctness for Self-Adaptive Digital Twins*, in: Proc. 10th Intl. Symp. On Leveraging Applications of Formal Methods, Verification and Validation (ISOLA 2022). Lecture Notes in Computer Science, vol. 13701, Springer 2022.
37. R Pardo, **EB Johnsen**, I Schaefer, A Wąsowski: *A Specification Logic for Programs in the Probabilistic Guarded Command Language*, in: Proc. 19th Intl. Colloquium on Theoretical Aspects of Computing (ICTAC 2022). Lecture Notes in Computer Science, vol. 13572, Springer 2022.
38. P Kobialka, SL Tapia Tarifa, GR Bergersen, **EB Johnsen**: *Weighted Games for User Journeys*, in: Proc. 20th Intl. Conference on Software Engineering and Formal Methods (SEFM 2022). Lecture Notes in Computer Science, vol. 13550, Springer 2022. **Best paper award.**
39. E Kamburjan, **EB Johnsen**: *Knowledge Structures over Simulation Units*, in: Proc. Annual Modeling and Simulation Conference (ANNSIM 2022), IEEE 2022.
40. G Horn, R Schlatte, **EB Johnsen**: *Digital Twins for Autonomic Cloud Application Management*, in: Proc. Cloud Computing Projects and Initiatives (CCPI 2022). Lecture Notes in Networks and Systems, vol. 451, Springer 2022.
41. F Karami, D Basin, **EB Johnsen**: *DPL: A Language for GDPR Enforcement*, in: Proc. 35th IEEE Computer Security Foundations Symposium (CSF 2022), IEEE CS Press, 2022.
42. E Kamburjan, VN Klungre, R Schlatte, EB Johnsen, M Giese: *Programming and Debugging with Semantically Lifted States*, in: Proc. 18th Intl. Conference on The Semantic Web (ESWC 2021), Lecture Notes in Computer Science, vol. 12731, Springer 2021.
43. M Lienhardt, F Damiani, **EB Johnsen**, J Mauro: *Lazy Product Discovery in Huge Configuration Spaces*, in: Proc. 42nd Intl. Conference on Software Engineering (ICSE 2020), ACM 2020.
44. K Fernandez-Reyes, D Clarke, L Henrio, **EB Johnsen**, T Wrigstad: *Godot: All the Benefits of Implicit and Explicit Futures*, Proc. 33rd European Conference on Object- Oriented Programming (ECOOP 2019), Leibniz Intl. Proceedings in Informatics (LIPIcs), Vol. 134, Schloss Dagstuhl–Leibniz-Zentrum fuer Informatik, 2019. **Distinguished artefact award.**
45. E Ábrahám, F Corzilius, **EB Johnsen**, G Kremer, J Mauro: *Zephyrus2: On the Fly Deployment Optimization using SMT and CP Technologies*, in: Proc. Symposium on Dependable Software Engineering (SETTA 2016). Lecture Notes in Computer Science, vol. 9984, Springer, 2016.
46. J-C Lin, IC Yu, **EB Johnsen**, M-C Lee: *ABS-YARN: A Formal Framework for Modeling Hadoop YARN Clusters*, in: Proc. 19th Intl. Conference on Fundamental Approaches to Software Engineering (FASE 2016). Lecture Notes in Computer Science, vol. 9633, Springer, 2016.