Simon Oddershede Gregersen

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Employment

2024 –	**New York University**. Postdoctoral fellow. Advised by Joseph Tassarotti.
2023 – 2024	**Aarhus University**. Postdoctoral researcher. Advised by Lars Birkedal.
2021	**Huawei Technologies R&D (UK), Edinburgh**. Research intern. Advised by Dan Ghica.
2017	**Aarhus University**. Center for Advanced Software Analysis. Student programmer.
2015 – 2017	**CCI Europe A/S (now Stibo DX)**. Student software developer.

Education

2017 – 2023	**PhD in Computer Science**. Aarhus University. Advised by Amin Timay and Lars Birkedal Thesis: Higher-Order Separation Logic for Distributed Systems and Security
2017 – 2020	**MSc in Computer Science**. Aarhus University
2014 – 2017	**BSc in Computer Science**. Aarhus University

Publications

[12] Li, K. H., Aguirre, A., **Gregersen, S. O.**, Haselwarter, P. G., Tassarotti, J., Birkedal, L., "Modular Reasoning about Error Bounds for Concurrent Probabilistic Programs". In: *Proc. ACM Program. Lang.* 9.ICFP (Aug. 2025). DOI: 10.1145/3747514.

[11] **Gregersen, S. O.**, Agarwal, C., Tassarotti, J., "Logical Relations for Formally Verified Authenticated Data Structures". In: *Proc. ACM SIGSAC Conference on Computer and Communications Security, CCS 2025, Taipei, Taiwan, October 13-17, 2025, Proceedings*. 2025, to appear. arXiv: 2501.10802.

[10] Haselwarter, P. G., Li, K. H., Aguirre, A., **Gregersen, S. O.**, Tassarotti, J., Birkedal, L., "Approximate Relational Reasoning for Higher-Order Probabilistic Programs". In: *Proc. ACM Program. Lang.* 9.POPL (2025). DOI: 10.1145/3704877.

[9] Haselwarter, P. G., Li, K. H., de Medeiros, M., **Gregersen, S. O.**, Aguirre, A., Tassarotti, J., Birkedal, L., "Tachis: Higher-Order Separation Logic with Credits for Expected Costs". In: *Proc. ACM Program. Lang.* 8.OOPSLA2 (2024). DOI: 10.1145/3689753.

[8] **Gregersen, S. O.**, Aguirre, A., Haselwarter, P. G., Tassarotti, J., Birkedal, L., "Almost-Sure Termination by Guarded Refinement". In: *Proc. ACM Program. Lang.* 8.ICFP (2024). DOI: 10.1145/3674632.

[7] Aguirre, A., Haselwarter, P. G., de Medeiros, M., Li, K. H., **Gregersen, S. O.**, Tassarotti, J., Birkedal, L., "Error Credits: Resourceful Reasoning about Error Bounds for Higher-Order Probabilistic Programs". In: *Proc. ACM Program. Lang.* 8.ICFP (2024). DOI: 10.1145/3674635.

[6] Timany, A., **Gregersen, S. O.**, Stefanesco, L., Hinrichsen, J. K., Gondelman, L., Nieto, A., Birkedal, L., "Trillium: Higher-Order Concurrent and Distributed Separation Logic for Intensional Refinement". In: *Proc. ACM Program. Lang.* 8.POPL (2024). DOI: 10.1145/3632851.

[5] **Gregersen, S. O.**, Aguirre, A., Haselwarter, P. G., Tassarotti, J., Birkedal, L., "Asynchronous Probabilistic Couplings in Higher-Order Separation Logic". In: *Proc. ACM Program. Lang.* 8.POPL (2024). DOI: 10.1145/3632868.

[4] **Gregersen, S. O.**, Bay, J., Timany, A., Birkedal, L., "Mechanized Logical Relations for Termination-Insensitive Noninterference". In: *Proc. ACM Program. Lang.* 5.POPL (2021). DOI: 10.1145/3434291.

[3] Gondelman, L., **Gregersen, S. O.**, Nieto, A., Timany, A., Birkedal, L., "Distributed Causal Memory: Modular Specification and Verification in Higher-Order Distributed Separation Logic". In: *Proc. ACM Program. Lang.* 5.POPL (2021). DOI: 10.1145/3434323.

[2] Krogh-Jespersen, M., Timany, A., Ohlenbusch, M. E., **Gregersen, S. O.**, Birkedal, L., "Aneris: A Mechanized Logic for Modular Reasoning about Distributed Systems". In: *Programming Languages and Systems - 29th European Symposium on Programming, ESOP 2020, Held as Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2020, Dublin, Ireland, April 25-30, 2020, Proceedings*. 2020. DOI: 10.1007/978-3-030-44914-8_13.

[1] **Gregersen, S. O.**, Thomsen, S. E., Askarov, A., "A Dependently Typed Library for Static Information-Flow Control in Idris". In: *Principles of Security and Trust - 8th International Conference, Held as Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2019, Prague, Czech Republic, April 6-11, 2019, Proceedings*. 2019. DOI: 10.1007/978-3-030-17138-4_3.

Awards

2024	**ICFP Distinguished Paper Award**
2024 – 2026	**Carlsberg Foundation, Internationalization Fellowship (CF23-0791)** DKK 1,020,000 (≈ USD 150,000).

Academic service

- **Artifact evaluation co-chair** for OOPSLA 2026.
- **Program committee member** for PLDI 2026, RADICAL 2025.
- **Artifact evaluation committee** for POPL 2022.
- **External reviewing**

Conferences	LICS 2025 & 2024, CCS 2022, POPL 2022, OOPSLA 2022, ICFP 2022, CSF 2022 & 2021, ESOP 2020
Journals	JFP (2025), TCS (2024), TOSEM (2023)

Selected talks

- *Logical Relations for Formally Verified Authenticated Data Structures.*
  Contributed talk at the New England Systems Verification Day (2 October, 2025).
- *Logical Relations for Formally Verified Authenticated Data Structures.*
  Contributed talk at the Iris Workshop (2 June, 2025).
- *Logical Relations for Formally Verified Authenticated Data Structures.*
  Contributed talk at the New Jersey Programming Languages and Systems Seminar (9 May, 2025).
- *Logical Relations for Formally Verified Authenticated Data Structures.*
  Invited talk at the VU Amsterdam PLSec reading group (16 April, 2025).
- *Trillium: Intensional Refinement in Higher-Order Separation Logic.*
  Contributed talk at the New England Systems Verification Day (16 April, 2024).
- *Asynchronous Probabilistic Couplings in Higher-Order Separation Logic.*
  Invited talk at the Bristol Programming Languages Research group seminar (19 July, 2023).

- *Asynchronous Probabilistic Couplings in Higher-Order Separation Logic.*
  Contributed talk at VeriProP (17 July, 2023).
- *Trillium: History-Sensitive Refinement in Separation Logic.*
  Contributed talk at The Second Iris Workshop (3 May, 2022).
- *Mechanized Logical Relations for Termination-Insensitive Noninterference.*
  Invited talk at the Chalmers ProgLog/Security seminar (4 November, 2020).