CASPER MOLDRUP RYSGAARD

Computer Science Ph.D. in Algorithms and Data structures from Aarhus University

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ABOUT ME

I am a recent Ph.D. graduate from Aarhus University, supervised by Gerth Stølting Brodal. My focus has been on Algorithms and Data structures, with a further focus on I/O efficiency and persistence.

During my time at Aarhus University, I have spent many years as a Teaching Assistant (TA), with many of these as a lead TA. I have, as part of this work, been the exam contact person a few times for written exams, where I handled error clarifications and collecting the repsonses. Further, I have helped proofreading written exams sets for both errors and clarification issues. This gave me a lot of usefull insight into how exams are executed, and how the evaluation process works. Additionally, my work with TA'ing have given me knowledge on how to grade handins, and how to ask questions in a manner understandable to the students.

PUBLICATIONS

- A. Biniaz, A. Maheshwari, M. C. R. Merrild, J. S. B. Mitchell, S. Odak, V. Polishchuk, E. W. Robson, **C. M. Rysgaard**, J. K. R. Schou, T. C. Shermer, J. Spalding-Jamieson, R. Svenning, and D. W. Zheng, "Polynomial-time algorithms for contiguous art gallery and related problems," in *41st International Symposium on Computational Geometry, SoCG 2025, June 23-27, 2025, Kanazawa, Japan*, ser. LIPIcs, vol. 332, Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2025, 20:1–20:21. DOI: 10.4230/LIPICS.SOCG.2025.20.

- G. S. Brodal and **C. M. Rysgaard**, "Pure binary finger search trees," in *2025 Symposium on Simplicity in Algorithms, SOSA 2025, New Orleans, LA, USA, January 13-15, 2025*, SIAM, 2025, pp. 172–195. DOI: 10.1137/1.9781611978315.14.

- G. S. Brodal, **C. M. Rysgaard**, and R. Svenning, "Buffered partially-persistent external-memory search trees," in *33rd Annual European Symposium on Algorithms, ESA 2025, September 15-17, 2025, Warsaw, Poland*, ser. LIPIcs, vol. 351, Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2025, 82:1–82:18. DOI: 10.4230/LIPICS.ESA.2025.82.

- **C. M. Rysgaard** and S. Wild, "Lazy b-trees," in *50th International Symposium on Mathematical Foundations of Computer Science, MFCS 2025, August 25-29, 2025, Warsaw, Poland*, ser. LIPIcs, vol. 345, Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2025, 87:1–87:19. DOI: 10.4230/LIPICS.MFCS.2025.87.

- G. S. Brodal, R. Fagerberg, and **C. M. Rysgaard**, "On Finding Longest Palindromic Subsequences Using Longest Common Subsequences," in *32nd Annual European Symposium on Algorithms (ESA 2024)*, ser. Leibniz International Proceedings in Informatics (LIPIcs), vol. 308, Dagstuhl, Germany: Schloss Dagstuhl – Leibniz-Zentrum für Informatik, 2024, 35:1–35:16, ISBN: 978-3-95977-338-6. DOI: 10.4230/LIPIcs.ESA.2024.35.

- S. C. Sølvsten, **C. M. Rysgaard**, and J. van de Pol, "Random access on narrow decision diagrams in external memory," in *Model Checking Software - 30th International Symposium, SPIN 2024, Luxembourg City, Luxembourg, April 8-9, 2024, Proceedings*, ser. Lecture Notes in Computer Science, vol. 14624, Springer, 2024, pp. 137–145. DOI: 10.1007/978-3-031-66149-5_7.

- G. S. Brodal, **C. M. Rysgaard**, J. K. R. Schou, and R. Svenning, "Space-efficient functional offline-partially-persistent trees with applications to planar point location," in *Algorithms and Data Structures - 18th International Symposium, WADS 2023, Montreal, QC, Canada, July 31 - August 2, 2023, Proceedings*, ser. Lecture Notes in Computer Science, vol. 14079, Springer, 2023, pp. 644–659. DOI: 10.1007/978-3-031-38906-1_43.

- G. S. Brodal, **C. M. Rysgaard**, and R. Svenning, "External memory fully persistent search trees," in *Proceedings of the 55th Annual ACM Symposium on Theory of Computing, STOC 2023, Orlando, FL, USA, June 20-23, 2023*, ACM, 2023, pp. 1410–1423. DOI: 10.1145/3564246.3585140.

EDUCATION

Ph.D. in Computer Science
Aarhus University, Denmark
📅 2021 – 2025

MSc in Computer Science
Aarhus University, Denmark
📅 2020 – 2023

BSc in Computer Science
Aarhus University, Denmark
📅 2017 – 2020

TEACHING

Teaching Assistant
Algorithms and Data Structures
📅 2018, 2019, 2020, 2021, 2022, 2023, 2024

Introduction to Programming with Scientific Applications (Python)
📅 2019, 2022, 2023

Programming Languages
📅 2020, 2021

VOLUNTEER WORK

Chairman, TÅGEKAMMERET
📅 2022 – 2023

TÅGEKAMMERET is a party- and lecture organisation for students of Computer Science, Math, Physics, and more.

Board Member, DSAU
📅 2019 – 2022

DSAU is a Computer Science student organisation hosting social and skill learning events, in collaboration with various companies.

Bartender, Fredagscaféen
📅 2018 – 2025

The Computer Science's friday bar at Aarhus University.

Kitchen Responsible, Regnecentralen
📅 2018 – 2025

A kitchen and social hub for students.

Tutor, Mat/Fys-Tutorgruppen
📅 2018 – 2022, 2025

The tutors welcome the new students to the university.