SUNE LAUTH GADEGAARD

Coffee drinking proof machine

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STRENGTHS

Optimization   Programming
Modelling   Teaching
Supervision   Mathematics

IT SKILLS

C++   C   VBA   LaTeX
OPL   Python
Windows   Linux Ubuntu
OS X

LANGUAGES

Danish: Native

English: Full Professional Proficiency

ABOUT ME

I am a 36 year old associate professor who takes pride in presenting difficult and technical topics in a comprehensible and enlightening way. I love solving difficult problems and enjoy employing the state-of-the-art theory in a practical setting.

EXPERIENCE

Associate Professor | Aarhus University

📅 05-2020 – Now   📍 Aarhus V, Denmark

- Department of Economics and Business Economics

Assistant Professor | Aarhus University

📅 02-2017 – 05-2020   📍 Aarhus V, Denmark

- Department of Economics and Business Economics

Research Assistant | Aarhus University

📅 06-2016 – 02-2017   📍 Aarhus V, Denmark

- Department of Economics and Business Economics

EDUCATION

PhD in Operations Research | Aarhus University

📅 02-2013 – 06-2016   📍 Aarhus V, Denmark

- Supervisors: Lars Relund Nielsen and Andreas Klose

Cand.scient.oecon | Aarhus University

📅 08-2010 – 02-2013   📍 Aarhus C, Denmark

- Mathematics-economics, with specialization in Operations Research
- Department of Mathematics, Science and technology, Aarhus University

BSc in mathematics | Aarhus University

📅 08-2007 – 06-2010   📍 Aarhus C, Denmark

- Pure mathematics
- Department of Mathematics, Science and technology, Aarhus University

RESEARCH

My main research interests include integer programming, mathematical modelling, multi-criteria optimization, vehicle routing, and facility location. In addition, more specialized and practice-oriented subjects such as group-forming and workforce scheduling are also topics I have studied.

Present and former Ph.D. students:

Jesper Bang Mikkelsen

📅 | September 2021–September 2024

- "Fleet optimization for the mixed fleet green vehicle routing problem"
- Role: Main supervisor

Nicolas Joseph Forget

📅 | September 2019–September 2022

- "Solution algorithms for multi-objective linear integer programming models""
- Role: Co-supervisor

WORK IN PROGRESS

A Branch-and-Cut Algorithm for the Mixed Fleet Green Vehicle Routing Problem

- Together with Jesper Bang Mikkelsen and Jens Lysgaard
- Intended outlet: European Journal on Operations Research

A column generation approach to the min-max capacitated vehicle routing problem

- Together with Jens Lysgaard
- Intended outlet: TBD

Finding all Pareto optimal solutions to bi–objective combinatorial optimization problems

- Together with Mark Lyngesen
- Intended outlet: Decision Science or Journal of the Operational Research Society

PUBLICATIONS

Branch-and-bound and objective branching with three or more objectives | Computers & Operations Research | doi |

📅 | December 2022

- Nicolas Forget, Sune Lauth Gadegaard, Lars Relund Nielsen, Kathrin Klamroth, and Anthony Przybylski

Warm-starting lower bound set computations for branch-and-bound algorithms for multi objective integer linear programs | European Journal of Operational Research | doi |

📅 | Februrary 2022

- Nicolas Forget, Sune Lauth Gadegaard, and Lars Relund Nielsen

A symmetry-free polynomial formulation of the Capacitated Vehicle Routing Problem | Discrete applied mathematics | doi

📅 | June 2021

- Sune Lauth Gadegaard and Jens Lysgaard

Bi-objective branch-and-cut algorithms based on LP relaxation and bound sets | INFORMS Journal on Computing | doi |

📅 | June 2019

- Sune Lauth Gadegaard, Lars Relund Nielsen, and Matthias Ehrgott
- Finalist for the *2022 MCDM Junior Researcher Best Paper Award*

An improved cut–and–solve algorithm for the single source capacitated facility location problem | EURO Journal on Computational Optimization | doi |

📅 | March 2018

- Sune Lauth Gadegaard, Andreas Klose, and Lars Relund Nielsen

A bi–objective approach to discrete cost–bottleneck location problems | Annals of Operations Research | doi |

📅 | November 2016

- Sune Lauth Gadegaard, Andreas Klose, and Lars Relund Nielsen

Discrete location problems - Theory, Algorithms, and extensions to multiple criteria | Department of Economics and Business Economics, Aarhus University | 🌐

📅 | June 2016

- Sune Lauth Gadegaard

Integrating cut-and-solve and semi-Lagrangean based dual ascent for the single-source capacitated facility location problem | optimization-online.org | 🌐

📅 | April 2016

- Sune Lauth Gadegaard

FORMAL TEACHING DEVELOPMENT

Course on Online and Blended Learning | Centre for Educational Development at AU

📍 | 2022-2023

Master's and PhD Supervision for Professors and Associate Professors at BSS | Centre for Educational Development at AU

📍 | 2021–2022

Teaching Training Program for assistant professors and post.docs | AU Educational Development Network

📍 | 2017

Introduktion til planlægning, præsentationsteknik og undervisning | Center for Undervisning og Læring Aarhus BSS

📍 | 2015

TEACHING

I give teaching, and the planning and development thereof, high priority in my daily work. I have developed the literature for several courses as well as electronic teaching material in order to increase student learning. Below is a list of courses I have taught:

Modeling within Prescriptive Analytics | 🌊 |

📅 | 2019–present   📍 |Department of Economics and Business Economics

- Focuses on equipping the student with the skills and knowledge to use mathematical modelling and optimization to solve business related decision problems.

1 **4.8** 5
Evaluation

Optimisation for Prescriptive Analytics | 🌊

📅 | 2020–2021   📍 | Department of Economics and Business Economics

- Focuses on both exact and heuristic solution procedures for optimization problems arising within business economics. The course is part of the master in Operations and Supply Chain Analytics.

1 **3.7** 5
Evaluation

Operations Management | 🌊

📅 | 2017–2021   📍 | Department of Economics and Business Economics

- Focuses on equipping the student with a broad insight into and understanding of the firm, especially with a focus on solving the tasks related to operations.

1 **4.1** 5
Evaluation

Quantitative modelling within transportation and distribution | 🌊

📅 | 2016–2018   📍 | Department of Economics and Business Economics

- Focus was on optimization models and their use when planning transportation and distribution networks.

1 **4.6** 5
Evaluation

Topics in Data Analysis | 🌊

📅 | 2016   📍 | Department of Mathematics

- I taught the part of the course focusing on large scale optimization. Topics in this part included simplex algorithms, column generation for LP and IP, Lagrangean relaxation, and Benders decomposition.
- The course was not evaluated

Modeling and Solving Discrete Optimization Problems w/i Logistics | 〰

📅 | 2015   📍 | Department of Mathematics

- This summer university course focused on implications of modelling choices when solving integer programming problems. The cases in the course was based on examples from different problems in logistics.

1 [4.6] 5
Evaluation

SUPERVISION

I have supervised internship reports, project reports, bachelor's theses, and master's theses. Usually I have bi-weekly meetings with my theses students. During the project, I use a digital infrastructure where the students can upload material before the meetings. Before each meeting, the students are required to produce a structured agenda. I have also supervised 2 PhD students.

1 [4.9] 5
Evaluation

Average evaluation over relevant statistics

Supervision experience

- PhD theses : 2
- Masters' theses : 35
- Bachelors' theses : 31
- Company internships : 5
- Research internships : 1
- Project reports in Mathematics-economics: 3

Prices won by my thesis-students

- Oliver Østergaard Madsen has received "Handelsungdommens Uddannelseslegat" for excellent bachelor's theses
- Anne Katrine Tinggaard has received "Vissing fondens energipris" for excellent master's theses on energy supply with a focus on the green transition.

ACADEMIC SERVICE

Departmental service

2023-present	Teaching coordinator for the Operations and Supply Shain Analytics cand.merc program
2022-present	Member of the LSU at the Department of Economics and Business Economics
2021-present	Contact person for the LMS user group at the Department of economics and business economics.
2021-present	Co-organiser of the "Operations and Supply Chain day at the Department of Economics and Business Economics
2018-2022	Deputy chairman of the departmental forum at the Department of economics and business economics.
2022	Member of the review group for the Operations Management course at the HA study.
2021	Member of working group focusing on means to increase employee recognition in the workplace at the Department of economics and business economics.
2020	Coordinator for the CORAL research cluster
2018-2019	Member of the logistics section's internal review board for the Cand.Merc.Log. study program.

Referee duty

Since 2018	INFORMS journal on Computing
Since 2015	European Journal of Operational Research
	→ *Outstanding reviewer since 2017*
Since 2018	Computers & Operations Research
	→ *Outstanding reviewer since 2017*
Since 2019	Annals of Operations Research
Since 2021	RAIRO - Operations Research
Since 2017	IISE Transactions

PERSONAL INFORMATION

I am married to Irene Lauth Gadegaard since 2011. Together we have two daughters Selma (from 2012) and Ida (from 2016).