

Halil SEN



Operations Research Analyst
Industrial Engineer & Developer

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Experienced postdoctoral researcher with a demonstrated history of working at the cross-section between research and industry. Skilled in Mathematical Modelling, Optimization, Algorithm Design, Coding, Teamwork, and Software Development.

Experiences

- JUNIOR RESEARCHER, PGM0** 01/2018–08/2018
R&D ENGINEER 10/2017–12/2017
POSTDOCTORAL RESEARCHER, PGM0 10/2015–10/2017
Inria Bordeaux – Sud-Ouest, Realopt Team and University of Bordeaux BORDEAUX, FR
- Designed models for stochastic and deterministic optimization problems
 - Developed and implemented optimization algorithms (especially decomposition algorithms)
 - Improved existing data structures to increase the performance and robustness of the software
 - Parallelised legacy code using Boost and OpenMP
 - Designed, implemented, and applied unit and regression tests
 - Provided analytical support and expertise on optimisation projects undertaken by PhD students:
 - Two-echelon location-routing problem
 - Industrial-scale real-life stochastic energy management problem
 - Pickup-and-delivery problem with time windows
- COLLABORATION** 02/2013–06/2015
LIP6 - Sorbonne University, Prof. Safia Kedad-Sidhoum PARIS, FR
- Work on single-machine earliness-tardiness scheduling with machine unavailability
- RESEARCH & TEACHING ASSISTANT** 09/2008–06/2015
Sabancı University İSTANBUL, TR
- Carried out research on modelling and analysis of scheduling systems in general
 - Assisted the following courses and held their recitation hours:
 - MS301: Deterministic models in OR
 - MS302: Stochastic models in OR
 - MS303: Decision economics
 - MS304: Production and service systems planning and design
 - MS306: Ergonomics
 - MS401: Production and service systems operations
- VISITING RESEARCHER** 02–06/2014
The Ohio State University, ISE, Assoc. Prof. Simge Küçükyavuz COLUMBUS, OH
- Work on chance-constrained two-stage mean-risk stochastic programming problems
- PEP - TRAINEE DEVELOPMENT PROGRAM** 09/2007–09/2008
Mercedes-Benz Türk A.Ş. İSTANBUL, TR
- Worked for the production planning division and the department of facility planning & design
 - Prepared product trees and designed production flows
 - Found contractors for installation of new tools and prepared their instructions
- PRODUCTION PLANNING INTERN** 08–10/2006
BEKO Elektronik A.Ş. İSTANBUL, TR
- Developed models to evaluate and balance the workload of the new computer assembly line

Education

PH.D., OPERATIONS RESEARCH <i>Sabancı University</i>	08/2015 İSTANBUL, TR
M.SC., OPERATIONS RESEARCH <i>Sabancı University</i>	08/2010 İSTANBUL, TR
B.SC., INDUSTRIAL ENGINEERING <i>Yıldız Technical University</i>	06/2008 İSTANBUL, TR

Skills

- PROGRAMMING: Bash, C/C++ (Boost, OpenMP, STL, etc.), Julia, Matlab, Python
- APPLICATIONS: Cplex/Gurobi, Git/SVN, L^AT_EX/LibreOffice/MS Office, Unix/macOS/Windows
- LANGUAGE: English (Fluent), French (Intermediate), Turkish (Fluent)
- VARIOUS: Team spirit, Troubleshooting skills, Right to work in the EU without limit (Dir. 2004/38/CE)

Fellowships & Awards

- The Gaspard Monge program for optimization and operations research (PGMO) fellowship 2015
- Graduated from Sabancı University as a student with honors 2015
- Doctoral colloquium invitee, YAEM, Ankara, TR 2014
- Third prize in best student paper competition of PMS 2012, Leuven, BE 2012
- TÜBİTAK M.Sc. and Ph.D. Scholarships 2008–2015
- Sabancı University M.Sc. and Ph.D. Fellowships 2008–2015
- Graduated from Yıldız Technical University as a student with honors 2008
- Turkish prime ministry scholarship 2004–2008
- Ranked in top 0.3% (among 1.8M) in the national higher education entrance exam 2004

Articles

Bülbül, K. and Kedad-Sidhoum, S. and Şen, H. (2018). Single-Machine Common Due Date Total Earliness/Tardiness Scheduling with Machine Unavailability. *Journal of Scheduling*, Online, 1–23.
<https://doi.org/10.1007/s10951-018-0585-x>

Bülbül, K. and Şen, H. (2017). An Exact Extended Formulation for the Unrelated Parallel Machine Total Weighted Completion Time Problem. *Journal of Scheduling*, 20(4), 373–389.
<https://doi.org/10.1007/s10951-016-0485-x>

Şen, H. and Bülbül, K. (2015). A Strong Preemptive Relaxation for Weighted Tardiness and Earliness/Tardiness Problems on Unrelated Parallel Machines. *INFORMS Journal on Computing*, 27(1), 135–150.
<https://doi.org/10.1287/ijoc.2014.0615>

Conference Proceedings

Şen, H. and Bülbül, K. (2012). A Simple, Fast, and Effective Heuristic for the Single-Machine Total Weighted Tardiness Problem. In Demeulemeester, E. and Herroelen, W. (Eds.), *Proceedings of the 13th International Conference on Project Management and Scheduling*, (PMS 2012, Leuven, BE), 282–286.

Refereed Conference Presentations & Invited Talks

Benders decomposition.

In collaboration with B. Detienne, R. Sadykov and F. Vanderbeck.

- ROADEF2018, Lorient, FR, 2018
- ROADEF2017, Metz, FR, 2017
- PGMO Days 2016, EDF'Lab Paris Saclay, FR, 2016
- 4th International Symposium on Combinatorial Optimization (ISCO 2016), Vietri sul Mare, IT, 2016

A strong preemptive formulation for minsum scheduling problems on unrelated parallel machines.

In collaboration with K. Bülbül.

- 35th National Conference on Operations Research and Industrial Engineering (YAEM), Ankara, TR, 2015[†]
- 22nd International Symposium on Mathematical Programming (ISMP 2015), Pittsburgh, PA, 2015[†]
- University of Bordeaux, Seminar Series of the INRIA Project Team ReAlOpt, Bordeaux, FR, 2015
- The Université Catholique de Louvain, CORE Seminar Series, Louvain-la-Neuve, BE, 2015
- University of Southern California, Los Angeles, CA, 2014[†]

Single-machine earliness-tardiness scheduling with periods of machine unavailability.

In collaboration with K. Bülbül and S. Kedad-Sidhoum.

- 20th Conference of the International Federation of Operational Research Societies (IFORS 2014), Barcelona, ES, 2014[†]

A strong preemptive relaxation for weighted tardiness and earliness/tardiness problems on unrelated parallel machines. In collaboration with K. Bülbül.

- OR and IE Doctoral Students Colloquium, Middle East Technical University, Ankara, TR, 2014
- The Ohio State University, ISE Seminar Series, Columbus, OH, 2014[†]
- 33rd National Conference on Operations Research and Industrial Engineering (YAEM) – joint with the International IIE Conference, İstanbul, TR, 2013
- XXVI EURO – INFORMS Joint International Conference, Rome, IT, 2013[†]
- Joint 2nd Workshop of the Turkish and Israeli Operations Research Societies (WITOR2), Tel Aviv, IL, 2013[†]

A preemption-based heuristic for the single-machine generalized total weighted tardiness problem.

In collaboration with K. Bülbül.

- 13th International Conference on Project Management and Scheduling (PMS 2012), Leuven, BE, 2012
- 32nd National Conference on Operations Research and Industrial Engineering (YAEM), İstanbul, TR, 2012

A simple, fast, and effective heuristic for the single-machine total weighted tardiness problem.

In collaboration with K. Bülbül.

- Turkish Naval Academy, İstanbul, TR, 2012
- 24th European Conference on Operational Research (EURO XXIV), Lisbon, PT, 2010
- 30th National Conference on Operations Research and Industrial Engineering (YAEM), İstanbul, TR, 2010

Manuscripts in Preparation

Combining Dantzig-Wolfe and Benders decompositions to solve a large-scale planning problem in nuclear power production. In collaboration with P. Bendotti, B. Detienne, R. Griset, M. Porcheron and F. Vanderbeck.

Stochastic multi-period two-echelon location-routing problem.

In collaboration with I. Ben-Mohamed, W. Klibi, R. Sadykov and F. Vanderbeck.

Chance-constrained two-stage mean-risk stochastic programming.

In collaboration with K. Bülbül, S. Küçükyavuz and N. Noyan.

Logic-based Benders decomposition for unrelated parallel machine weighted earliness/tardiness scheduling.

In collaboration with K. Bülbül.

Single-machine weighted tardiness problem: increasing convex functions.

In collaboration with K. Bülbül.

References

François Vanderbeck, Postdoctoral Supervisor

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Kerem Bülbül, Ph.D. Advisor

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