# Tülay Flamand

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| **CONTACT INFORMATION** | University of Colorado Denver |
| | Business School, Business Analytics |
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**RESEARCH INTERESTS**

Retail Analytics
Sports Analytics
Enhanced Optimization Methodologies
Branch-and-Price Algorithm
Decomposition Techniques
Optimization-based Heuristic Approaches
Supply Chain Management
Mining Operations
Renewable Energy Design

**TEACHING INTERESTS**

Business Analytics
Python for Business Analytics
Predictive Analytics
Prescriptive Analytics
Linear & Integer Programming
Network Modeling
Stochastic Modeling
Supply Chain Analytics
Manufacturing & Service Operations Management
Management Science / Decision Sciences

**ACADEMIC POSITIONS**

**Assistant Professor**     **2023 − Present**
Business Analytics, Business School
University of Colorado Denver
Denver, CO

**Assistant Professor**     **2016 − 2023**
Department of Economics & Business
Colorado School of Mines
Golden, CO

**EDUCATION**

**Ph.D., Management Science**     **2011 − 2016**
University of Massachusetts Amherst
Isenberg School of Management
Department of Operations & Information Management
Dissertation: "Retail Analytics and Optimization for Store-wide Shelf-Space Management."
Advisor: Dr. Ahmed Ghoniem

**M.S., Industrial Engineering**            **2007 − 2010**

Istanbul Technical University, Istanbul, Turkey
Thesis: "Sequential Decision Making: A Partially Observable Markov Decision Process (POMDP) Implementation For an Inventory Management Problem"

**B.S., Mathematical Engineering (High Honors Degree)**     **2003 − 2007**

Yildiz Technical University, Istanbul, Turkey

ACADEMIC
EXPERIENCE

**Instructor**
- EBGN 525B Business Analytics, **Online**, Colorado School of Mines, Fall 2020 (16-week), 2022 (8-week).
- EBGN 425A/525A Business Analytics, Colorado School of Mines, Spring 2020 - 2022.
- EBGN 525A Business Analytics, Colorado School of Mines, Fall 2016 - 2021.
- EBGN 461A/526A Stochastic Modeling, Colorado School of Mines, Spring 2021, 2022, 2023.
- EBGN 559A Supply Chain Management, Colorado School of Mines, Spring 2017 - 2018.
- OIM 301 Introduction to Operations Management, UMass Amherst, Fall 2013, Spring 2014.
- OIM 301 Introduction to Operations Management, **Online**, UMass Amherst, Fall 2014, Summer 2015.
- OIM 240 Business Data Analysis, **Online**, UMass Amherst, Spring 2015, 2016.

**Teaching Assistant**
- OIM 301 Introduction to Operations Management, UMass Amherst, Fall 2014.
- OIM 310 Manufacturing & Service Operations Methods, UMass Amherst, Spring 2013, 2014.
- OIM 410 Business Process Optimization, UMass Amherst, Fall 2014.
- OIM 412 Supply Chain Management, UMass Amherst, Fall 2013.
- SCH-MGMT 825X Integer Programming (Graduate level), UMass Amherst, Spring 2015.

**Research Assistant**                     **2011 − 2016**

University of Massachusetts Amherst
Isenberg School of Management
Department of Operations & Information Management

PUBLICATIONS

(* represents PhD advisees)

Flamand T., Ghoniem A., Maddah B. (2023). Store-wide shelf space allocation with ripple effects driving traffic, *Operations Research*, 71(4): 1073–1092.
https://doi.org/10.1287/opre.2023.2437.

Abdelaziz F.B., Maddah B., Flamand T., Azar J. (2023). Balancing impulse buying and shopping convenience: analytical modeling and a real-world application, *European Journal of Operational Research*. https://doi.org/10.1016/j.ejor.2023.06.027.

Flamand T., Iori M., Haouari M. (2023). The transportation problem with packing constraints, *Computers & Operations Research*, 157:106278.
https://doi.org/10.1016/j.cor.2023.106278.

Olmez Turan M*., Flamand T. (2023). Optimizing investment and transportation decisions for the European natural gas supply chain, *Applied Energy*, 337: 120859. https://doi.org/10.1016/j.apenergy.2023.120859.

Hirwa J.A*., Zolan A.J., Flamand T., Newman A. M. (2023). Optimizing design and dispatch of a resillient renewable energy microgrid for a South African hospital, *Applied Energy*, 348: 121438. https://doi.org/10.1016/j.apenergy.2023.121438.

Flamand, T., Ghoniem, A., Maddah, B. (2023). A Solver-Free Heuristic for Store-Wide Shelf Space Allocation. In: Ghoniem, A., Maddah, B. (eds) Retail Space Analytics. International Series in Operations Research & Management Science, vol 339. Springer, Cham. https://doi.org/10.1007/978-3-031-27058-1_2.

Muniz M*., Flamand T. (2022). A weighted network clustering approach in the NBA, *Journal of Sports Analytics*, 8(4): 251–275.

Muniz M*., Flamand T. (2022). Sports analytics for balanced team-building decisions, *Journal of the Operational Research Society*. https://doi.org/10.1080/01605682.2022.2118634.

Aranoglu F*., Flamand T., Duzgun S. (2022). Analysis of artisanal and small-scale gold mining in Peru under climate impacts using system dynamics modeling, *Sustainability*, 14(12): 73-90. https://doi.org/10.3390/su14127390.

Nesbitt P*., Sipeki L., Flamand T., Newman A. M. (2020). Optimizing underground mine design with method-dependent precedences, *IISE Transactions*, 53(6): 643-656, DOI: 10.1080/24725854.2020.1823534.

Flamand T., Ghoniem A., Haouari M., Maddah B. (2017). Integrated assortment planning and store-wide shelf space allocation: An optimization-based approach, *Omega*, 81: 134–149.

Flamand T., Ghoniem A., Maddah B. (2016). Promoting impulse buying by allocating retail shelf space to grouped product categories, *Journal of the Operational Research Society*, 67(7): 953–969.

Ghoniem A., Flamand T., Haouari M. (2016). Exact solution methods for a generalized assignment problem with location/allocation considerations, *INFORMS Journal on Computing*, 28(3): 589–602.

Ghoniem A., Flamand T., Haouari M. (2016). Optimization-based very large-scale neighborhood search for generalized assignment problems with location/allocation considerations, *INFORMS Journal on Computing*, 28(3): 575–588.

**UNDER REVIEW/REVISION MANUSCRIPTS**

Muniz M*., Flamand T., A Column Generation approach for the team formation problem, *under the first round of revision*.

Aranoglu F*., Flamand T., Duzgun S., Martinez G., and Smith N., Optimizing decisions for formal small-scale surface mines in Peru, *under the first round of revision*.

Muniz M*., Flamand T., Hill J., A balanced multi-team formation problem under synergy, superstar and preference considerations in a basketball setting, *under review*.

Wales J.G., Zolan A.J., Flamand T., A decomposition methodology for solving large-scale renewable energy design and dispatch models, *under review.*

Olmez Turan M*., Gilbert B., Flamand T., How good are weather shocks for identifying energy elasticities? A LASSO-IV approach to European natural gas demand, *under review.*

**WORKING PAPERS**

Simulation-optimization of spare part inventory policy for the maintenance of a mining equipment, with Golbasi O.

**GRANTS**

01/2020 - 12/2022: National Science Foundation (NSF) Grant: Mapping, Modeling and Disrupting Illicit Gold Supply Chains in Peru, PI: Dr. Nicole Smith, **Co-PI: Dr. Tulay Flamand**, Co-PI: Dr. Sebnem Duzgun, Colorado School of Mines. Award: $673,754

**PRESENTATIONS**

The Transportation Problem with Packing Constraints, EURO Conference (Virtual), July 14, 2021.

Retail Analytics on Store-Wide Shelf-Space Allocation, INFORMS Annual Meeting, Anaheim, CA, October 26, 2021.

Retail Analytics on Store-Wide Shelf-Space Allocation, INFORMS Annual Meeting, Virtual, October 27, 2021.

Invited seminar speaker, Retail Analytics on Store-Wide Shelf-Space Allocation, Seminar for the Lubar School of Business, UW-Milwaukee, October 15, 2021.

Invited guest lecturer, MEGN688 Advanced Integer Optimization, Lecture for the branch-and-price algorithm, April 2020.

Attended to Virtual INFORMS Annual Meeting, November 7-13 2020. (PhD advisee Megan Muniz presented "Sports analytics for optimizing team-building decisions of an NBA Team").

Retail Analytics on Store-Wide Shelf-Space Allocation, Seminar for the Leeds School of Business, University of Colorado, Boulder, September 6, 2019.

A Branch-and-Price Algorithm for the Hitchcock-Koopmans Problem with Reusable Transportation Assets, INFORMS Annual Meeting, Phoenix, AZ, November 7, 2018.

Analytics for Store-Wide Shelf-Space Management, INFORMS Annual Meeting, Phoenix, AZ, November 5, 2018.

Optimal Gate Assignment Under the Consideration of Airport Retailing, INFORMS Annual Meeting, Phoenix, AZ, November 4, 2018.

Column Generation Approaches for the Optimal Deployment Problem, INFORMS Optimization Society Conference, Denver, CO, March 24, 2018.

Retail Analytics on Store-Wide Shelf-Space Allocation, Seminar for Rocky Mountain Chapter of INFORMS, Golden, CO, March 15, 2018.

Retail Analytics on Store-Wide Shelf-Space Allocation, INFORMS Annual Meeting,

Houston, TX, October 24, 2017.

Retail Analytics for Store-Wide Shelf-Space Management, POMS Conference, Seattle, WA, May 7, 2017.

Store-wide Shelf Space Analytics to Optimize Impulse Buying, INFORMS Annual Meeting, Nashville, TN, November 16, 2016.

Optimization Approaches For Generalized Assignment Problems with Location/Allocation Considerations, INFORMS Annual Meeting, Philadelphia, PA, November 4, 2015.

Very Large-Scale Neighborhood Search for Generalized Assignment Problems with Location/Allocation Considerations, INFORMS Computing Society Conference, Richmond, VA, January 12, 2015.

Optimizing a Class of Generalized Assignment Problems with Location/Allocation Considerations, INFORMS Annual Meeting, San Francisco, CA, November 12, 2014.

Invited Panelist at the UMass Amherst Student Chapter of INFORMS panel discussion: "The Process of Building a Teaching Portfolio", March 2014.

Store-wide Shelf Space Optimization to Maximize Impulse Buying, INFORMS Annual Meeting, Minneapolis, MN, October 8, 2013.

Impulse Purchase Maximization via Layout-based Shelf Space Allocation, POMS Conference, Denver, CO, May 3, 2013.

**PROFESSIONAL SERVICE**

- Chaired INFORMS session: Data Analytics and Optimization (both in-person and virtual), 2021.
- INFORMS Student Affairs Committee (SAC) Chair, 2020-2021.
- INFORMS Student Affairs Committee (SAC) Member, 2017-2019.
- Chaired INFORMS-ALIO International Conference session: Operations Planning in Supply Chains, 2019.
- Core Faculty, Operations Research with Engineering PhD Program, Colorado School of Mines.
- Faculty Fellow, Payne Institute, Colorado School of Mines.
- Chaired INFORMS session: Revenue Management, Pricing, 2017.
- Chaired INFORMS session: Military Applications, 2017.
- Chaired INFORMS session: Retail Analytics & Optimization session, 2016.
- Chaired INFORMS session: Retail Analytics & Optimization session, 2015.
- Referee for journals: Omega, Advances in Operations Research, Annals of Operations Research, ISERC conference proceedings, INFORMS TSL Conference, Management Decision, Letters in Spatial and Resource Sciences, JORS, EJOR, OR, POMS, IIE Transactions.
- Coordinator, AACSB Assurance of Learning Assessment Module: OIM 301 sections, Fall 2013, Spring 2014.
- UMass Student Chapter of INFORMS: Event Coordinator, 2013-2016.
- UMass Student Chapter of INFORMS: Secretary, 2012-2013.
- UMass Student Chapter of INFORMS: Vice President, 2011-2012.

**TRAININGS**

- Harassment Prevention for Employees Training, Colorado School of Mines, June 2021.
- QPR Training, Colorado School of Mines, November 2020.

- Engineering and Facilitating Online Learning (EFOL), Spring 2020.

**QUALIFICATION EXAM COMMITTEES**
- John Ayaburi, Operations Research with Engineering, PhD, Colorado School of Mines, Qual II Exam Committee Member (January 2023).
- Karoline Hood, Operations Research with Engineering, PhD, Colorado School of Mines, Qual II Exam Committee Member (December 2022).
- James Grymes, Operations Research with Engineering, PhD, Colorado School of Mines, Qual II Exam Committee Member (December 2021).
- John Cox, Operations Research with Engineering, PhD, Colorado School of Mines, Qual II Exam Committee Member (January 2021).
- Lois Kamga-Ngameni, Operations Research with Engineering, PhD, Colorado School of Mines, Qual II Exam Committee Member (August 2020).
- Kate Anderson, Advanced Energy Systems, PhD, Colorado School of Mines, Qual II Exam Committee Member (June 2020).
- Peter Nesbitt, Qual II Exam Committee Member, (December 2018).

**DOCTORAL COMMITTEES**
- Kehinde Abiodun, Mineral Energy Economics, PhD, Colorado School of Mines, Committee Member (defended in July 2022).
- John Cox, Operations Research with Engineering, PhD, Colorado School of Mines, Committee Member (defended in June 2022).
- Kate Anderson, Advanced Energy Systems, PhD, Colorado School of Mines, Committee Chair (defended in November, 2021).
- Lois Kamga-Ngameni, Operations Research with Engineering, PhD, Colorado School of Mines, Committee Member (defended in May, 2021).
- Oluwaseun Ogunmodede, Operations Research with Engineering, PhD, Colorado School of Mines, Committee Chair (defended in February, 2021).
- Jesse Wales, Operations Research with Engineering, PhD, Colorado School of Mines, Committee Member, (defended in July, 2020).
- Patrick O'Reilly, Mineral and Energy Economics, PhD, Colorado School of Mines, Committee Member (defended in November, 2019).
- Jennifer DiCarlo, Operations Research with Engineering, PhD, Colorado School of Mines, Committee Member (in progress).

**DEPARTMENT AND UNIVERSITY COMMITTEES**
- Department Head Search Committee Member, Department of Economics and Business, Fall 2021.
- Business Analytics Faculty Search Committee Member, Department of Economics and Business, Fall 2021.
- Research Council Member, Colorado School of Mines, Fall 2021 - Present
- Graduate Council Member, Colorado School of Mines, Spring 2020
- Committee member for developing Business Engineering and Management Science undergraduate program, Colorado School of Mines, Fall 2019 - Present.
- ETM Program Committee, Colorado School of Mines.
- ETM Admissions Committee, Colorado School of Mines.
- ORwE Program Committee, Colorado School of Mines.
- ORwE Admissions Committee, Colorado School of Mines.
- Faculty Search Committee Member, Division of Economics and Business, Fall 2017.

**PROFESSIONAL MEMBERSHIPS**
- The Institute for Operations Research and the Management Sciences (INFORMS).
- INFORMS Analytics Society.
- INFORMS Computing Society (ICS).

- Rocky Mountain Chapter of INFORMS.
- INFORMS Junior Faculty Group.
- INFORMS Women in ORMS.

**AWARDS & HONORS**

- Excellence in Teaching Award, Department of Economics and Business, Colorado School of Mines (May 2021).
- OER Incentive Grant ($250), Colorado School of Mines (May 2021).
- Excellence in Teaching Award, Division of Economics and Business, Colorado School of Mines (May 2018).
- Outstanding Researcher Award, Isenberg School of Management, UMass Amherst (April 2016).
- UMass Amherst INFORMS Student Chapter Outstanding Service Award (April 2016).
- Doctoral Consortium, POMS Annual Meeting, Orlando (April, 2016).
- Summer Dissertation Research Fellowship, UMass Amherst (February 2016).
- Dissertation Research Award, Isenberg School of Management, UMass Amherst (June 2015).
- Doctoral Student Colloquium, INFORMS Annual Meeting, San Francisco (2014).
- INFORMS Cum Laude Student Chapter Annual Award (2014).
- INFORMS Magna Cum Laude Student Chapter Annual Award (2011-2013).
- Scientific and Technological Research Council of Turkey (TUBITAK) fellowship (2007-2009).
- Distinctive Graduate, Yildiz Technical University (2007).
- Turkish American Women Scholarship Fund (2006).

**UNDERGRADUATE ADVISEES**

- Elijah Knodel, Applied Mathematics and Statistics, Colorado School of Mines, Mines Undergraduate Research Fellowship (MURF) Program Advisor, Sports Analytics for Team-Building Decisions for an NBA Team, Fall 2021 - Spring 2022.

- Amandin Chyba Rabeendran, Applied Mathematics, Colorado School of Mines, MURF Program Advisor, Evaluation of the Impact of Government Controls on the Spread of COVID-19 in Colorado by Data Analytics on COVID-19 Cases, Social Distancing and Mobility, Fall 2020 - Spring 2021.

- Chiang Cheng Siew, Petroleum Engineering, Colorado School of Mines, MURF Program Advisor, Evaluation of the Impact of Government Controls on the Spread of COVID-19 in Colorado by Data Analytics on COVID-19 Cases, Social Distancing and Mobility, Fall 2020.

**PHD ADVISEES**

- Peter Nesbitt, Operations Research with Engineering PhD Program, (co-advisor), graduated in Spring 2020.
Dissertation: Optimization-based Procedures for Underground Mine Planning
Assistant Professor, Naval Postgraduate School, Fall 2020-present

- Megan Muniz, Operations Research with Engineering PhD Program, graduated in Summer 2022.
Dissertation: Sports Analytics and Optimization for Team Formation Problems
Air Force AI Liaison, DAF / MIT AI Accelerator, Fall 2022 - Present

- Merve Olmez Turan, Mineral and Energy Economics PhD Program, graduated in Summer 2022.

Dissertation: Supply Chain Analysis in Mineral and Energy Markets
Postdoctoral Researcher, National Renewable Energy Laboratory, Summer 2022 - Present.

- Jusse Aline Hirwa, Mineral and Energy Economics PhD Program, graduated in Summer 2022.
Dissertation: Applications of Optimization and Statistical Models to the Energy Sector
Data Scientist, Chevron, Summer 2022-Present

- Fatih Aranoglu, Earth Resources Development Engineering PhD Program, (co-advisor), Fall 2020-Present.