

# Laurent ALFANDARI

Professor

Department: Information Systems, Data  
Analytics and Operations  
ESSEC Business School  
3 avenue Bernard Hirsch  
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Country of origin: France

## RESEARCH INTERESTS

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Operations Research, Combinatorial Optimization, Mathematical Programming, Decision Sciences,

## EDUCATION

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|------|---|
| 1999 | Doctorate in Operations Research, Paris-Dauphine, PSL University, France          |
| 1995 | Master of Research in Management Science, Paris-Dauphine, PSL University, France  |
| 1993 | M.Sc in Management (Grande Ecole program), ESSEC Business School, France          |
| 1990 | Bachelor in Mathematics & Social Sciences, Paris-Dauphine, PSL University, France |

## EMPLOYMENT

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### Full-time academic positions

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| 2010 - Present | Professor, ESSEC Business School, France           |
| 2007 - 2010    | Associate Professor, ESSEC Business School, France |
| 2000 - 2007    | Assistant Professor, ESSEC Business School, France |

### Other affiliations and appointments

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|----------------|---|
| 2019 - 2023    | Academic co-director of ESSEC-CentraleSupélec Master in Data Sciences & Business Analytics, ESSEC Business School, France |
| 2018 - 2021    | Head of PhD concentration in Operations & Data Analytics, ESSEC Business School, France                                   |
| 2013 - 2021    | Coordinator of MiM Business Analytics Methods track, ESSEC Business School, France  |
| 2012 - 2014    | Department head (IDS Department), ESSEC Business School, France   |
| 2009 - 2011    | Academic director of ESSEC Master in Logistics & SCM, ESSEC Business School, France                                       |
| 2002 - Present | Member of the LIPN Laboratory, Sorbonne Université, France  |
| 1995 - 2002    | Member of the LAMSADE Laboratory, Paris-Dauphine, PSL University, France  |

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## Other professional experiences

1993 - 1993	Consulting in Town Planning and Development of Specialized Retail, PROCOS, France
1992 - 1992	Management controller, Hachette group, France
1992 - Present	Audit reporter, TOTAL, France
1991 - 1991	Marketing, Hachette group, France

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## GRANTS AND HONORS

### Awards and Honors

2020	Teaching Awards ESSEC Top 4 Permanent Professors, ESSEC Business School, France
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## PUBLICATIONS

### Journal Articles

BISWAS, D., ALFANDARI, L. and ARCHETTI, C. (2024). A Triple Bottom Line optimization model for assignment and routing of on-demand home services. *Computers & Operations Research*, 167, pp. 106644.

DELLE DONNE, D., ARCHETTI, C., ALFANDARI, L. and LJUBIC, I. (2023). Freight-on-Transit for urban last-mile deliveries: A strategic planning approach. *Transportation Research Part B: Methodological*, 169, pp. 53-81.

ALFANDARI, L., LJUBIC, I. and DE MELO DA SILVA, M. (2022). A tailored Benders decomposition approach for last-mile delivery with autonomous robots. *European Journal of Operational Research*, 299(2), pp. 510-525.

BISWAS, D. and ALFANDARI, L. (2022). Designing an optimal sequence of nonpharmaceutical interventions for controlling COVID-19. *European Journal of Operational Research*, 303(3), pp. 1372-1391.

ALFANDARI, L., HASSANZADEH, A. and LJUBIC, I. (2021). An Exact Method for Assortment Optimization under the Nested Logit Model. *European Journal of Operational Research*, 291(3), pp. 830-845.

FURINI, F., LJUBIC, I., SAN SEGUNDO, P. and ZHAO, Y. (2021). A branch-and-cut algorithm for the Edge Interdiction Clique Problem. *European Journal of Operational Research*, 294(1), pp. 54-69.

ALFANDARI, L. and TOULOUSE, S. (2021). Approximation of the Double Traveling Salesman Problem with multiple stacks. *Theoretical Computer Science*, 877, pp. 74-89.

ALFANDARI, L., DENOYEL, V. and THIELE, A. (2020). Solving Utility-Maximization Selection Problems with Multinomial Logit Demand: Is the First-Choice Model a Good Approximation? *Annals of Operations Research*, 292, pp. 553-573.

ZHAO, Y. and ALFANDARI, L. (2020). Design of diversified package tours for the Digital Travel industry: A branch-cut-and-price approach. *European Journal of Operational Research*, 285(3), pp. 825-843.

- ZHAO, Y. and ALFANDARI, L. (2020). Design of diversified package tours for the Digital Travel industry: A branch-cut-and-price approach. *European Journal of Operational Research*, 285(3), pp. 825-843.
- ALFANDARI, L., DAVIDOVIC, T., FURINI, F., LJUBIC, I., MARAS, V. and MARTIN, S. (2019). Tighter MIP models for Barge Container Ship Routing. *Omega*, 82, pp. 38-54.
- FARD, M.K. and ALFANDARI, L. (2019). Trade-Offs Between the Stepwise Cost Function and Its Linear Approximation for the Modular Hub Location Problem. *Computers & Operations Research*, 104, pp. 358-374.
- ESPINOZA GARCIA, J.C. and ALFANDARI, L. (2018). Robust Location of New Housing Developments Using a Choice Model. *Annals of Operations Research*, 271, pp. 527-550.
- ALFANDARI, L. and ESPINOZA GARCIA, J.C. (2018). Robust Optimization for Non-Linear Impact of Data Variation. *Computers & Operations Research*, 99, pp. 38-47.
- DENOYEL, V., ALFANDARI, L. and THIELE, A. (2017). Optimizing Healthcare Network Design Under Reference Pricing and Parameter Uncertainty. *European Journal of Operational Research*, 263(3), pp. 996-1006.
- GIANESSIA, P., ALFANDARI, L., LETOCART, L. and WOLFLER CALVOA, R. (2016). A Column Generation Based Heuristic for the Multicommodity-Ring Vehicle Routing Problem. *Transportation Research Procedia*, 12, pp. 227-238.
- BUTELLE, F., ALFANDARI, L., COTI, C., FINTA, L., LÉTOCART, L. and PLATEAU, G. (2016). Fast Machine Reassignment. *Annals of Operations Research*, 242(1), pp. 130-160.
- GIANESSI, P., ALFANDARI, L., LÉTOCART, L. and CALVO, R.F. (2016). The Multicommodity-Ring Location Routing Problem. *Transportation Science*, 50(2), pp. 541-558.
- ALFANDARI, L., PLATEAU, A. and SCHEPLER, X. (2015). A Branch-and-Price-and-Cut Approach for Sustainable Crop Rotation Planning. *European Journal of Operational Research*, 241(3), pp. 872-879.
- ALFANDARI, L. and MONNOT, J. (2014). A Note on the Clustered Set Covering Problem. *Discrete Applied Mathematics*, 1(164), pp. 13-19.
- ALFANDARI, L., SADKI, J., PLATEAU, A. and NAGIH, A. (2013). Hybrid Column Generation for Large-Size Covering Integer Programs: Application to Transportation Planning. *Computers & Operations Research*, 40(8), pp. 1938-1946.
- ROZENKNOP, A., WOFLER, C., ALFANDARI, L., CHEMLA, D. and LETOCART, L. (2013). Solving Electricity Production Planning By Column Generation. *Journal of Scheduling*, 16(6), pp. 585-604.
- ALFANDARI, L., LEMALADE, J.L., NAGIH, A. and PLATEAU, G. (2011). A MIP Flow Model for Crop-Rotation Planning in a Context of Forest Sustainable Development. *Annals of Operations Research*, 190(1), pp. 149-164.
- LIBERTI, L., ALFANDARI, L. and PLATEAU, M.C. (2011). Edge Cover by Connected Bipartite Subgraphs. *Annals of Operations Research*, 188(1), pp. 307-329.
- ALFANDARI, L. (2007). Improved Approximation of the General Soft-capacitated Facility Location Problem. *RAIRO - Operations Research*, pp. 83-93.
- ALFANDARI, L. (2001). The Minimum Bounded-Diameter Spanning Forest Problem Is Log-Approximable. *Foundations of Computing and Decision Sciences*, pp. 123-132.
- ALFANDARI, L. and PASCHOS, V. (2000). Master-slave Strategy and Polynomial Approximation. *Computational Optimization and Applications*, pp. 231-245.

ALFANDARI, L. and PASCHOS, V. (1999). Approximating Minimum Spanning Tree of Depth 2. *International Transactions in Operational Research*, pp. 607-622.

ALFANDARI, L. (1999). The Greedy Approach for the Crew Pairing Problem: Some Cases of Polynomial Subproblems. *Cahiers du Lamsade (Laboratoire d'Analyse et de Modélisation de Systèmes d'Aide)*, pp. 1-10.

### Book chapters

ALFANDARI, L. (2018). Décision et complexité : le cas de la planification optimale de tout simplisme. In: *Complexité et organisations : faire face aux défis de demain*. 1st ed. Eyrolles, pp. 229-242.

ALFANDARI, L. and NAGIH, A. (2010). Applications of Combinatorial Optimization: Airline Crew Pairing Optimization. In: *Applications of Combinatorial Optimization*. 1st ed. Wiley, pp. 1-22.

ALFANDARI, L. and NAGIH, A. (2006). Optimisation de la construction de rotations d'équipages en transport aérien. In: *Optimisation combinatoire 3. Applications (traité IC2)*. 1st ed. Hermès Sciences, Lavoisier, pp. 23-45.

ALFANDARI, L., PLATEAU, A. and TOLLA, P. (2004). A Path Relinking Algorithm for the Generalized Assignment Problem. In: *Metaheuristics Computer Decision-making*. 1st ed. Kluwer Academic Publishers, pp. 1-17.

### Conference proceedings

ALFANDARI, L. and MONNOT, J. (2010). Approximation of the Clustered Set Covering Problem. In: *Electronic Notes in Discrete Mathematics*. ISCO.

ALFANDARI, L. and PASCHOS, V. (1998). On the Approximation of Some Spanning Arborescence Problems. In: *Advances in Computer and Information Sciences '98. 13th International Symposium on Computer and Information Sciences (ISCIS)*. IOS Press, pp. 574-581.

### Conferences

ALFANDARI, L., LJUBIC, I. and PUNAM-MANDAL, M. (2024). Robust facility location for earthquake preparedness with aftershocks. In: *2024 Optimisation au deuxième niveau (Centre International de Rencontres Mathématiques)*. Marseille.

ALFANDARI, L., HASSANZADEH, A. and LJUBIC, I. (2024). Fractional programming for Assortment optimization. In: *2024 International Symposium on Combinatorial Optimization (ISCO)*. Tenerife.

DELLE DONNE, D., ALFANDARI, L. and KUZBAKOV, Y. (2024). A column generation approach for last-mile deliveries with capacitated robot stations. In: *International Symposium on Combinatorial Optimization (ISCO)*. Tenerife, Spain.

ALFANDARI, L., LJUBIC, I. and PUNAM-MANDAL, M. (2023). Robust Facility Location in Disaster Preparation for Earthquakes with Aftershocks. In: *OR 2023: Decision Support & Choice-Based Analytics for a Disruptive World*. Hamburg.

ALFANDARI, L. (2023). Approximation of the Double Traveling Salesman Problem with Multiple Stacks. In: *23rd Congress of International Federation of Operational Research Societies (IFORS) 2023*. Santiago de Chile.

DELLE DONNE, D., KUZBAKOV, Y. and ALFANDARI, L. (2023). A Branch-and-price Approach for Last-mile Deliveries with Capacitated Robot Stations. In: *23rd Conference of the International Federation of Operational Research Societies 2023*. Santiago.

DELLE DONNE, D., ALFANDARI, L., ARCHETTI, C. and LJUBIC, I. (2022). Freight-on-Transit for urban last-mile deliveries: A Strategic Planning Approach. In: International Workshop on Freight Transportation and Logistics (ODYSSEUS). Tanger.

DELLE DONNE, D., ALFANDARI, L., ARCHETTI, C. and LJUBIC, I. (2022). Freight-on-Transit for urban last-mile deliveries: A Strategic Planning Approach. In: Spanish Conference on Statistics and Operations Research (SEIO). Granada.

ARCHETTI, C., ALFANDARI, L. and ALFANDARI, L. (2022). Capacity Design and Resource Allocation in Online Food Delivery Platforms. In: International Workshop on Freight Transportation and Logistics (Odysseus 2022). Tanger.

ARCHETTI, C., ALFANDARI, L. and ALFANDARI, L. (2022). Capacity Design and Resource Allocation in Online Food Delivery Platforms. In: International Workshop on Freight Transportation and Logistics (Odysseus 2022). Tanger.

ALFANDARI, L. (2022). Optimizing Drone Use in Early Infant Diagnosis of HIV Supply Chain in Less Developed Countries. In: 2022 Euro. Espoo.

FURINI, F., LJUBIC, I., SAN SEGUNDO, P. and ZHAO, Y. (2021). The Edge Interdiction Clique Problem. In: 31st European Conference on Operational Research 2021. Athens (virtual).

ALFANDARI, L., LJUBIC, I. and DE MELO DA SILVA, M. (2021). A tailored Benders Decomposition Approach for Last-Mile Delivery With autonomous Robots. In: 31st European Conference on Operational Research 2021 (EURO 2021). Athens.

DELLE DONNE, D., ALFANDARI, L., ARCHETTI, C. and LJUBIC, I. (2021). Freight on Public Transport: Strategical decision making with mixed integer programming. In: European Conference on Operational Research (EURO). Athens.

ALFANDARI, L., HASSANZADEH, A. and LJUBIC, I. (2020). Une méthode exacte pour le problème d'assortiment optimal avec modèle de choix nested-logit. In: 21st ROADEF 2020.

ALFANDARI, L. and ALFANDARI, L. (2019). Le problème de Team Orienteering avec contraintes de diversité entre les tours : Une approche de Branch-and-Price-and-Cut. In: ROADEF 2019.

ALFANDARI, L. and ALFANDARI, L. (2019). Le problème de Team Orienteering avec contraintes de diversité entre les tours : Une approche de Branch-and-Price-and-Cut. In: ROADEF 2019.

ALFANDARI, L., LJUBIC, I. and MELO, M. (2019). Optimal Vehicle Routing with Autonomous Devices for Last-Mile Delivery. In: 2019 Workshop of the EURO Working Group on Vehicle Routing and Logistics optimization (VeRoLog 2019).

ALFANDARI, L. and ESPINOZA-GARCIA, J.C. (2019). Robust optimization for non-linear impact of data variation. In: 30th European Conference on Operational Research (EURO 2019). Dublin.

ALFANDARI, L., DAVIDOVIC, T., FURINI, F., LJUBIC, I., MARAS, V. and MARTIN, S. (2018). New MIP models for liner shipping route design with empty container repositioning. In: 4th International Conference on Logistics Operations Management (GOL'2018).

ALFANDARI, L. and ESPINOZA-GARCIA, J.C. (2018). Optimisation robuste pour la localisation de nouveaux logements avec modèle de choix. In: 19ème Congrès de la société Française de Recherche Opérationnelle et d'Aide à la Décision (ROADEF 2018).

ALFANDARI, L. and ESPINOZA-GARCIA, J.C. (2018). Robust Optimization for Non-Linear Impact of Data Variation. In: ISMP Bordeaux 2018 (International Symposium of Mathematical Optimization).

- ALFANDARI, L. (2018). Robust Optimization for Non-Linear Impact of Data Variation. In: Workshop on Robust Optimization Avignon (RO 2018).
- ALFANDARI, L., FURINI, F., LJUBIC, I. and MARTIN, S. (2017). New MIP models for Liner Shipping Route Design with Empty Container Repositioning. In: 18ème Conférence ROADEF de la Société Française de Recherche Opérationnelle et d'Aide à la Décision.
- ALFANDARI, L., DAVIDOVIC, T., FURINI, F., LJUBIC, I., MARAS, V. and MARTIN, S. (2017). Tighter MIP Formulations for the Barge Container Ship Routing Problem. In: 21st Conference of the International Federation of Operational Research Societies (IFORS).
- ALFANDARI, L., DENOYEL, V. and THIELE, A. (2016). Optimisation robuste pour la sélection d'un réseau d'hôpitaux dans un système de Prix de Référence. In: 17ème congrès de la société Française de Recherche Opérationnelle et d'Aide à la Décision (ROADEF2016).
- ALFANDARI, L. and KESHVARI-FARD, M. (2015). Localisation de hubs avec fonction de coût discrète. In: ROADEF February Conference.
- ALFANDARI, L., DENOYEL, V. and THIELE, A. (2015). Robust in Network Selection of Hospitals by Healthcare Under Reference Pricing. In: EURO 2015 12 July 2015 Conference.
- ALFANDARI, L., DENOYAL, V. and THIELE, A. (2014). Optimal Facility In-Network Selection for Healthcare Payers under Reference Pricing. In: 20th Conference of the International Federation of Operational Research Societies.
- ESPINOZA, I.C. and ALFANDARI, L. (2014). Robust Facility Location Optimization with Location-dependent Demands. In: 2014 INFORMS Annual Meeting.
- ALFANDARI, L., PLATEAU, A. and SCHEPLER, X. (2014). Un algorithme de branch-and-price-and-cut pour la planification durable des rotations agricoles. In: 15ème congrès annuel de la Société française de recherche opérationnelle et d'aide à la décision (ROADEF).
- ALFANDARI, L. (2013). Approximation du problème de Clustered Set Covering. In: 14ème Conférence ROADEF 2013.
- ALFANDARI, L., NAGIH, A., PLATEAU, A. and SADKI, J. (2013). Hybrid Column Generation for Large-Size Covering Integer Programs. In: 26th Conference of European Chapter on Combinatorial Optimization.
- ALFANDARI, L., NAGIH, A., PLATEAU, A. and SADKI, J. (2013). Hybrid Column Generation for Large-Size Integer Programs. In: 26th EURO – INFORMS Joint International Conference.
- ALFANDARI, L. (2013). Un algorithme de BranchandPrice pour le problème de planification durable de rotations culturelles. In: 14ème Conférence ROADEF 2013.
- ALFANDARI, L., NAGIH, A., PLATEAU, A. and SADKI, J. (2012). Generalizations of Dobson Approximation Algorithm and Cooperation with Column Generation for Large-Size Covering Integer Programs. In: 2nd International Symposium on Combinatorial Optimization (ISCO 2012).
- ALFANDARI, L. (2012). Planification et routage pour l'optimisation de la distribution urbaine de marchandise. In: 13e congrès annuel de la Société Française de Recherche Opérationnelle et d'Aide à la Décision (ROADEF 2012).
- ALFANDARI, L., NAGIH, A., PLATEAU, A. and SADKI, J. (2011). Hybridization of Column Generation and Approximation Heuristics for Large-size Covering Integer Programs. In: MIC 2011 - Metaheuristics International Conference.
- ALFANDARI, L., NAGIH, A., PLATEAU, A. and SADKI, J. (2011). Schéma hybride de génération de colonnes pour un problème de planification de production agricole. In: ROADEF 2011.

ALFANDARI, L. (2000). Logical Definability of Covering and Partitioning Minimization Problems. In: CLAI0 X (Congresso Latino-Americano de Investigacion Operativa)-Latin-American Congress of Operations Research, Mexico.

### Invited speaker

ALFANDARI, L., LJUBIC, I. and DE MELO DA SILVA, M. (2022). A Tailored Benders Decomposition Approach for Last-mile Delivery with Autonomous Robots. In: International Conference on Operations Research and Enterprise Systems (ICORES). Online.

### Working Papers

DELLE DONNE, D., ALFANDARI, L., ARCHETTI, C. and LJUBIC, I. (2021). *Freight-on-Transit for urban last-mile deliveries: A Strategic Planning Approach*. 2104, ESSEC Business School.

ALFANDARI, L., LJUBIC, I. and DE MELO DA SILVA, M. (2019). *Onlast-mile Delivery with Autonomous Robots*. ESSEC Business School.

KESHVARI FARD, M. and ALFANDARI, L. (2018). *Trade-offs between the Stepwise Cost Function and its Linear Approximation for the Modular Hub Location Problem*. ESSEC Business School.

ESPINOZA GARCIA, J.C. and ALFANDARI, L. (2015). *Robust Location of New Housing Developments Using a Choice Model*. ESSEC Business School.

ALFANDARI, L., PLATEAU, A. and SCHEPLER, X. (2014). *A Branch-and-Price-and-Cut Approach for Sustainable Crop Rotation Planning*. ESSEC Business School.

ALFANDARI, L. (2005). *Improved Approximation of the General Soft-Capacitated Facility Location Problem*. ESSEC Business School.

ALFANDARI, L. (2004). *Choice Rules with Size Constraints for Multiple Criteria Decision Making*. ESSEC Business School.

ALFANDARI, L., PLATEAU, A. and TOLLA, P. (2002). *A Path-relinking Algorithm for the Generalized Assignment Problem*. ESSEC Business School.

ALFANDARI, L. and PLATEAU, A. (2001). *A two-phase Path Relinking algorithm for the Generalized Assignment Problem*.

### Press

DELLE DONNE, D., ARCHETTI, C., LJUBIC, I. and ALFANDARI, L. (2023). When public transport delivers. *ESSEC Knowledge*.

ALFANDARI, L., ARCHETTI, C. and LJUBIC, I. (2021). Sustainable city logistics. *ESSEC Knowledge*.

## OTHER RESEARCH ACTIVITIES

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### Ad-hoc reviewer for :

Annals of Operations Research, Computational Optimization and Applications, Computers & Operations Research, Discrete Applied Mathematics, European Journal of Operational Research, RAIRO - Operations Research

### Organisation of a conference

2015 Organization of the French OR contest : "Les Pros de la RO", nov. 2015 (finalists : Gefco-Eurodecision, Amadeus, Decision Brain, Orange), France

2013 Organization of an event for practitioners and managers: "La Recherche Opérationnelle: clé de la performance des entreprises?", 200 managers and

practionners attended, round-table with Air France, Amadeus, and Bouygues Télécom, Paris-Dauphine, PSL University, France

### Affiliations

- 2011 - 2015 Vice-President of the ROADEF
- Since 2000 Member of the French OR Society (ROADEF)

### PhD Supervision

- 2020 Y. ZHAO (ESSEC Business School), Thesis co-director
- 2018 Milad KESHVARI FARD (ESSEC Business School), Thesis co-director, First Placement: Assistant Professor - Newcastle University Business School
- 2017 Victoire GARNIER ép DENOYEL (ESSEC Business School), Thesis director, First Placement: Assistant Professor, Business Analytics - Mercy College Graduate School of Business
- 2017 Juan Carlos ESPINOZA (ESSEC Business School), Thesis director, First Placement: Assistant Professor - Tecnologico de Monterrey
- 2014 P. GIANESSI (Université Sorbonne Paris Nord), Thesis co-director
- 2011 J. SADKI (Université Sorbonne Paris Nord), Thesis co-director
- 2006 , Thesis co-director

### Other research activities

- Since 1970 Member of GREFELOT, research group on transportation optimization

## PROFESSIONAL ACTIVITIES

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### Consulting

- 1970 - Present Consulting activities & industrial contracts : SNCF, ESSEC BS, Babcock-Wanson, Aid-Impact...