

Curriculum Vitæ

Omar Besbes

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Decision, Risk & Operations division
Graduate School of Business, Columbia University
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Research interests

Development and understanding of data-driven decision-making algorithms, with applications in pricing, market design, and supply chain management.

Academic Appointments

Columbia University, New York, NY

Graduate School of Business, Decision, Risk & Operations division

- Vikram S. Pandit Professor of Business (07/2020 - present)
- Full Professor (07/2020 - present)
- Philip H. Geier Jr. Associate Professor of Business (07/2013 - 06/2016)
- Associate Professor (01/2013 - 06/2020)
- Assistant Professor (07/2009 - 12/2012)

University of Pennsylvania, Philadelphia, PA

The Wharton School, Operations and Information Management Department

- Visiting Associate Professor, Fall 2017
- Assistant Professor (07/2007 - 06/2009)

Education

Ph.D. in *Decision, Risk & Operations*, 2008

Columbia University, Graduate School of Business, New York, NY

Thesis: Revenue management under model uncertainty: theory and methods

M.Sc. in Aeronautics and Astronautics, 2000

Stanford University, Stanford, CA

Ingénieur de l'École Polytechnique, 1999

École Polytechnique, Palaiseau, France

Major in Applied Mathematics and Mechanical Engineering

University-level preparation for the competitive entrance to French Engineering Schools, 1995-1997

Lycée Saint-Louis, Paris, France

Major in Mathematics and Physics

Teaching Experience

Graduate School of Business, Columbia University, New York, NY

- Business Analytics (MBA Core), Fall 2013, 2014, 2015, 2016, 2019, 2020, 2021, 2022
- Business Analytics (EMBA Core), Spring 2016, 2017, 2019
- Operations Management (MBA Core), Spring 2010, 2011, 2012, 2013, 2021
- Analytics for Competitive Advantage (MBA elective), Spring 2012, Fall 2012
- Seminar on topics in Operations (Ph.D. program), Spring 2022
- Seminar on dynamic optimization under model uncertainty (Ph.D. program), Spring 2011

The Wharton School, University of Pennsylvania, Philadelphia, PA

- Operations Management: Quality and Productivity (MBA Core), Spring 2008, Spring 2009
- Introduction to stochastic processes (Ph.D. Program), Fall 2008
- Seminar on revenue management and pricing (Ph.D. Program), Spring 2009

Other Professional Experience

- Consulting/Advising in market design, data science and operations (2008-present)
- Consulting/Project management for new mass transit systems (2000-2003)

Research Papers

Published or forthcoming in refereed journals

1. O. Besbes, O. Mouchtaki. “How big should your data really be? Data-driven newsvendor: Learning one sample at a time.” *Management Science* (forthcoming).
 - **2021 Jeff McGill RMP Best Student Paper Prize, winner (O. Mouchtaki)**
 - **2021 INFORMS George Nicholson student paper competition, finalist (O. Mouchtaki)**
 - **2021 INFORMS Applied Probability Society student paper competition, finalist (O. Mouchtaki)**
2. S. Balseiro, O. Besbes, D. Pizarro. “Survey of Dynamic Resource Constrained Reward Collection Problems: Unified Model and Analysis.” *Operations Research* (forthcoming).
3. A. Allouah, A. Bahamou, O. Besbes. “Optimal pricing with a single point.” *Management Science* (forthcoming).
 - **2021 M&SOM student paper competition, 2nd place (A. Bahamou)**
4. S. Balseiro, O. Besbes, F. Castro. “Mechanism design under epsilon-incentive compatibility.” *Operations Research* (forthcoming).
5. R. Singal, O. Besbes, A. Desir, V. Goyal and G. Iyengar (2022). “Shapley meets uniform: an axiomatic framework for attribution in online advertising.” *Management Science*, 68 (10), 7457-7479.
 - **2019 Jeff McGill RMP Best Student Paper Prize, 2nd place (R. Singal)**

6. O. Besbes, J.M. Chaneeton and C. Moallemi. “The exploration-exploitation trade-off in the newsvendor problem.” *Stochastic Systems (published online)*.
7. A. Allouah, A. Bahamou, O. Besbes (2022). “Pricing with samples.” *Operations Research*, 70 (2), 1088-1104.
8. O. Besbes, F. Castro and I. Lobel (2022). “Spatial capacity planning.” *Operations Research*, 70 (2), 1271-1291.
9. O. Besbes, A. Elmachtoub, Y. Sun (2022). “Static pricing: universal guarantees for reusable resources.” *Operations Research*, 70 (2), 1143-115.
- **2019 INFORMS Revenue Management and Pricing Practice Award, finalist (1/2)**
10. O. Besbes, F. Castro and I. Lobel (2021). “Surge pricing and its spatial supply response.” *Management Science*, 67 (3): 1350-1367.
- **Featured article**
11. A. Allouah and O. Besbes (2020). “Prior-independent optimal auctions.” *Management Science*, 66 (10), 4417-4432.
EC’18 conference best paper award, finalist
12. O. Besbes, A. Elmachtoub, Y. Sun (2020). “Pricing Analytics for Rotable Spare Parts.” *Informa Journal on Applied Analytics*, 50 (5), p. 313- 324.
- **2019 Daniel H. Wagner Prize for Excellence in Operations Research Practice, finalist**
- **2019 INFORMS Revenue Management and Pricing Practice Award finalist (2/2)**
13. S. Balseiro, O. Besbes and G. Weintraub (2019). “Dynamic mechanism design with budget constrained buyers under limited commitment.” *Operations Research*, 67 (3), 711-730.
14. O. Besbes, Y. Gur and A. Zeevi (2019). “Optimal exploration-exploitation in a multi-armed-bandit problem with non-stationary rewards.” *Stochastic Systems*, 9 (4), 319-337.
15. T. Chan, F. de Véricourt, and O. Besbes (2019). “Contracting in medical equipment maintenance services: an empirical investigation.” *Management Science*, 65 (3), 1136-1150.
16. O. Besbes and M. Scarsini (2018) “On information distortions in online ratings.” *Operations Research*, 66 (3), 597-610.
17. O. Besbes, D. Iancu, N. Trichakis (2018). “Dynamic pricing under debt: spiraling distortions and efficiency losses.” *Management Science*, 64 (10), 4572-4589.
18. O. Besbes, Y. Gur and A. Zeevi (2016). “Optimization in online content recommendation services: beyond click-through rates.” *Manufacturing & Service Operations Management*, 18 (1), 15-33.
- **lead article in special issue on practice-focused research**
- **2014 M&SOM student paper competition, winner (Y. Gur)**
19. O. Besbes and D. Saure (2016). “Product assortment and price competition under multinomial logit demand.” *Production and Operations Management*, 25 (1), 114-127.

20. O. Besbes, Y. Gur and A. Zeevi (2015). “Non-stationary stochastic optimization.” *Operations Research*, 63 (5), 1227-1244.
- **2013 INFORMS George Nicholson student paper competition, hon. mention (Y. Gur)**
21. S. Balseiro, O. Besbes and G. Weintraub (2015). “Repeated auctions with budgets in Ad exchanges: approximations and design.” *Management Science*, 61 (4), 864-884.
- **2014 INFORMS George Nicholson student paper competition, finalist (S. Balseiro)**
- **part of thesis awarded the 2014 George B. Dantzig Dissertation Award (S. Balseiro)**
22. O. Besbes and A. Zeevi (2015). “On the (surprising) sufficiency of linear demand models for dynamic pricing with demand learning.” *Management Science*, 61 (4), 723-739.
23. O. Besbes and I. Lobel (2015). “Intertemporal price discrimination: structural results and computation of optimal policies.” *Management Science*, 61 (1), 92-110.
- **2018 Best OM Paper in Management Science Award, finalist**
24. O. Besbes and D. Saure (2014). “Dynamic pricing strategies in the presence of demand shifts.” *Manufacturing & Service Operations Management*, 16 (4), 513-528.
25. O. Besbes and A. Muharremoglu (2013). “On implications of demand censoring in the newsvendor problem.” *Management Science*, 59 (6), 1407-1424.
26. O. Besbes and C. Maglaras (2012). “Dynamic pricing with financial milestones: feedback-form Policies.” *Management Science*, 58 (9), 1715-1731.
27. O. Besbes and A. Zeevi (2012). “Blind network revenue management.” *Operations Research*, 60 (6), 1537-1550.
28. O. Besbes and A. Zeevi (2011). “On the minimax complexity of pricing in a non-stationary environment.” *Operations Research*, 59 (1), 66-79.
29. O. Besbes, R. Phillips and A. Zeevi (2010). “Testing the validity of a demand model: An operations perspective.” *Manufacturing & Service Operations Management*, 12 (1), 162-183.
- **M&SOM best paper award (2013)**
30. O. Besbes and C. Maglaras (2009). “Revenue management of a make-to-order firm in an uncertain environment.” *Operations Research*, 57 (6), 1438-1450.
- **INFORMS Revenue Management and Pricing Section Prize (2012), part 1 of 2.**
31. O. Besbes and A. Zeevi (2009). “Dynamic pricing without knowing the demand function: Risk bounds and near-optimal algorithms.” *Operations Research*, 57 (6), 1407-1420.
- **INFORMS Revenue Management and Pricing Section Prize (2012), part 2 of 2.**
32. O. Besbes and S. Savin (2009). “Going bunkers: The joint route selection and refueling problem.” *Manufacturing & Service Operations Management*, 11 (4), 694-711.

Submitted to refereed journals / Working papers

33. O. Besbes, W. Ma, O. Mouchtaki. “Beyond IID: data-driven decision-making in heterogeneous environments.” under review.
34. O. Besbes, Y. Fonseca and I. Lobel. “Contextual inverse optimization: offline and online learning.” under review.
35. J. Anunrojwong, S. Balseiro, and O. Besbes. “On the Robustness of Second-Price Auctions in Prior-Independent Mechanism Design.” under review.
- **2022 INFORMS George Nicholson student paper competition, finalist (J. Anunrojwong)**
36. O. Besbes, Y. Kanoria and A. Kumar. “The Multisecretary Problem with Many Types.” under review.
37. O. Besbes, V. Goyal, G. Iyengar and R. Singal,. “Effective Wages under Workforce Scheduling with Heterogeneous Time Preferences.” under review.
- **2022 Michael H. Rothkopf Junior Researcher Paper Prize, 2nd place (R. Singal)**
38. A. Allouah and O. Besbes. “Auctions in the online display advertising chain: coordinated versus independent campaign management.”

Refereed Conference Proceedings

1. O. Besbes, W. Ma, O. Mouchtaki. “Beyond IID: data-driven decision-making in heterogeneous environments.” To appear in the Proceedings of the 36th Conference on Neural Information Processing Systems (NeurIPS 2022).
2. O. Besbes, Y. Kanoria and A. Kumar. “The Multisecretary Problem with Many Types.” ACM Conference on Economics and Computation (EC), 2022.
3. J. Anunrojwong, S. Balseiro, and O. Besbes. “On the Robustness of Second-Price Auctions in Prior-Independent Mechanism Design.” ACM Conference on Economics and Computation (EC), 2022.
4. O. Besbes, Y. Fonseca and I. Lobel. “Online learning from optimal actions.” 34th Annual Conference on Learning Theory (COLT 2021).
5. A. Allouah, A. Bahamou, O. Besbes. “Revenue maximization from finite samples.” ACM Conference on Economics and Computation (EC), 2021.
6. A. Allouah, A. Bahamou, O. Besbes. “Optimal pricing with a single point.” ACM Conference on Economics and Computation (EC), 2021.
7. O. Besbes, F. Castro and I. Lobel. “Spatial capacity planning.” ACM Conference on Economics and Computation (EC), 2019.
8. O. Besbes, A. Elmachtoub, Y. Sun. “Static pricing: universal guarantees for reusable resources.” ACM Conference on Economics and Computation (EC), 2019.

9. A. Allouah, O. Besbes. “Sample-based optimal pricing.” ACM Conference on Economics and Computation (EC), 2019.
10. R. Singhal, O. Besbes, A. Desir, V. Goyal and G. Iyengar. “Shapley meets uniform: an axiomatic framework for attribution in online advertising.” WWW Conference, 2019.
11. A. Allouah and O. Besbes. “Prior-independent optimal auctions.” ACM Conference on Economics and Computation (EC), 2018.
12. S. Balseiro, O. Besbes and G. Weintraub. “Dynamic mechanism design with budget constrained buyers under limited commitment.” ACM Conference on Economics and Computation (EC), 2016.
13. O. Besbes, Y. Gur and A. Zeevi. “Stochastic multi-armed-bandit problem with non-stationary rewards.” Advances in Neural Information Processing Systems 27 (NIPS 2014), Z. Ghahramani and M. Welling and C. Cortes and N.D. Lawrence and K.Q. Weinberger, 199-207.
14. S. Balseiro, O. Besbes, and G.Y. Weintraub. “Auctions for online display advertising exchanges: approximations and design.” ACM Conference on Economics and Computation (EC), 2013.
15. F. Thivet, O. Besbes and D. Knight. “Effect of grid resolution on accuracy of skin friction and heat transfer in turbulent boundary layers.” AIAA Paper No. 2000-0820, AIAA 38th Aerospace Sciences Meeting, Reno, Nevada, 2000.

Teaching Cases

- Tahoe Healthcare Systems (2014). with M. Broadie and G. van Ryzin.
Used in the Business Analytics core MBA/EMBA classes at Columbia Business School.
- Nomis Solutions (A&B) (2013). with R. Phillips and D. Chen.
Used in the Business Analytics core MBA/EMBA classes at Columbia Business School.
- Pandora Internet Radio (2013). with M. Broadie and G. van Ryzin.
Used in the Business Analytics core MBA/EMBA classes at Columbia Business School.
- Emergency Department Congestion at Saintemarie University Hospital (2012). with L. Hublet and C. Chan.
Used in the Operations Management core MBA class at Columbia Business School.
- Beleza Natural (2011). with N. Fraiman, M. Olivares, M. Quinteros and G. Weintraub.
Used in the Operations Management core MBA/EMBA classes at Columbia Business School.

Honors and Awards

Research

- INFORMS Frederick W. Lanchester Prize (2019)
- Daniel H. Wagner Prize for Excellence in Operations Research Practice, finalist (2019)
- INFORMS Revenue Management and Pricing (RMP) Practice Award, finalist (2019)
- *Best Operations Management Paper in Management Science award*, finalist (2018)
- *EC'18 best paper award*, finalist (2018)
- *MSOM Young Scholar prize* (2017)
- Adobe research award (2016)
- Rudolph Schoenheimer Faculty Fund Award (Columbia, 2015)
- *M&SOM best paper award* (2013)
- *INFORMS Revenue Management and Pricing Section Prize* (2012)
- NET institute grant, with S. Balseiro and G. Weintraub (2012)
- Ph.D. degree with distinction, Columbia University (2008)
- Paul M. Montrone Scholar, Columbia University (2005)

Teaching and Service

- Commitment to Excellence award, EMBA program (2020)
- Named in the *Top 40 under 40* list of Business School Professors (2014), *Poets and Quants*
- Dean's core teaching award, Graduate School of Business, Columbia University (2012)
- Best reviewer award, NIPS (2017)
- *Management Science* Meritorious Service Award (2010, 2013)
- *Operations Research* Meritorious Service Award (2012)

Others

- Nicholas J.Hoff Award for Outstanding Master's Degree Student, Stanford University (2000)
- Scholarship from Fondation de l'École Polytechnique (1999)
- Excellence Scholarship from the French Government (1995)

Ph.D. student supervision

Current students

- Yuri Fonseca (co-advisor with I. Lobel and F. Zheng)
- Achraf Bahamou, (co-advisor with D. Goldfarb)
- Omar Mouchtaki, (co-advisor with W. Ma)
- Jerry Anunrojwong, (co-advisor with S. Balseiro)
- Akshit Kumar, (co-advisor with Y. Kanoria)

Former students

- Raghav Singal (2020, co-advisor with V. Goyal and G. Iyengar)
first position: Dartmouth University, Tuck School of Business (postdoc at Amazon)
- Amine Allouah (2019)
first position: Meta, Core Data Science
- Francisco Castro (2019, co-advisor with I. Lobel and G. Weintraub)
first position: UCLA, Anderson School of Management (postdoc at Uber)
- Juan Manuel Chaneton (2015, co-advisor with C. Moallemi and G. van Ryzin)
first position: Celect
- Yonatan Gur (2014, co-advisor with A. Zeevi)
first position: Stanford University, Graduate School of Business
- Santiago Balseiro (2013, co-advisor with G. Weintraub)
first position: Duke University, Fuqua School of Business

Thesis committee member

- Anand Kalvit (2022), Gowtham Tangirala (2021), Yaarit Even (2020), Dana Pizzaro (2020), Goutam Kumar (2020), Cagil Kocyigit (2020), Min-hwan Oh (2020), Thomas Nedelec (2019), Zhe Liu (2019), Michael Hamilton (2019), Yunjie Sun (2019), Vashist Avadhanula (2018), Dongwook Shin (2017), Lijian Lu (2016), Cinar Kilcioglu (2016), Tian Chan (2016), John Yao (2016), Caner Gocmen (2013), Around den Boer (2013), Min Wang (2011), Denis Saure (2011), Chieh Ou-Yang (2010)

Invited talks and conferences

- 2022: MIT (Sloan School of Management), Hi! PARIS Symposium, Amazon, Yale University, University of Michigan, University of Singapore (plenary speaker, Analytics for X conference), University of Toronto (Rotman School of Business), Queens University (Smith School of Business).
- 2021: University of Chicago (Booth School of Business), University of California Berkeley (IEOR department), UT Dallas (Naveed Jindal School of Business), American University of Beirut (Center of Advanced Mathematical Science and the Olayan School of Business)
- 2020: Stanford (Graduate School of Business), Amazon pricing seminar, LinkedIn internal seminar, AdKDD Keynote speaker, Baruch College (omega seminar), MIT (DSL lab), Shanghai University of Economics
- 2019: NYC Operations Day, UIUC (ISE), Georgia Tech (ISyE), Microsoft Research (NYC), Revenue Management & Pricing conference
- 2018: MIT (Operations Research Center), University of Southern California (Marshall School of Business), Penn State (Smeal College of Business), Imperial College, Google research, EC'18 conference, ISMP conference, Institute of Mathematics and its Applications (IMA), 5th Rutgers Applied Probability Conference
- 2017: Duke (Fuqua School of Business), Dartmouth (Tuck School of Business), plenary speaker at the Market Innovation Workshop (Stanford University), Dynamic Pricing Workshop (U. of Chile), M&SOM Service Management SIG (discussant)
- 2016: Consumer Analytics Workshop (University of Chile), UT Austin (McCombs School of Management), George Washington University, UCLA (Anderson School of Management), London Business School, University College London, Adobe Data Science Symposium, International INFORMS meeting (invited tutorial), EC'16 conference, INFORMS annual meeting
- 2015: Yale School of Management, LUISS, Cornell University (Johnson School of Management), University of California at Irvine, Revenue Management & Pricing conference, ISMP, INFORMS annual meeting
- 2014: University of Pennsylvania (the Wharton School), University of California, Berkeley (Haas School of Business), University of Michigan (Ross School of Business), University of Minnesota (ISyE department), INSEAD, Singapore University of Technology and Design, National University of Singapore Business School, University of Colorado (Leeds School of Business), Revenue Management & Pricing conference, M&SOM Service Management SIG (discussant)
- 2013: Stanford University (Graduate School of Business), University of Southern California (Marshall School of Business), University of Toronto (Rotman School of Business), IESE, Vrije

Universiteit, University of North Carolina Chapel Hill (Kenan-Flagler Business School), Revenue Management & Pricing conference, EC13 conference, M&SOM conference, INFORMS invited Tutorials

- 2012: New York University (Stern School of Business), Duke University (Fuqua School of Business), M&SOM conference, Revenue Management & Pricing conference, INFORMS annual meeting
- 2011: Google research lab, M&SOM Service Management SIG (discussant), M&SOM conference, Revenue Management & Pricing conference, INFORMS annual meeting
- 2010: University of Chicago (Booth School of Business), University of Pittsburgh (IE department), INFORMS annual meeting
- 2009: University of Maryland (Robert H. Smith School of Business), Columbia University (Graduate School of Business), M&SOM conference, Revenue Management & Pricing conference, Applied Probability Conference, INFORMS annual meeting
- 2008: M&SOM conference, M&SOM Service Management SIG, Revenue Management & Pricing conference, INFORMS annual meeting
- 2007: University of Pennsylvania (Wharton School), New York University (Stern School of Business), Harvard Business School, Stanford University (Graduate School of Business), UT Austin (McCombs School of Business), Northwestern University (Kellogg School), INSEAD, Universitat Pompeu Fabra, Cornell University (ORIE School), INFORMS annual meeting
- 2006: MIT (Sloan School of Management), M&SOM conference, Revenue Management & Pricing conference, INFORMS annual meeting
- 2005: INFORMS annual meeting

Service

Internal:

- Columbia University
 - Tenure Review Advisory Committee (TRAC), 09/2022 - present
 - Data Science Institute, Executive Committee member, 07/2019 - present
 - Provost's Faculty Advisory Committee on Online Learning: 05/2016 - 06/2019
- Columbia Business School
 - Digital Future Initiative, 09/2021-present
 - Dean working group: 09/2020-06/2022
 - Core review committee: 09/2020-01/2022

- Curriculum working group: 09/2019-03/2020
- Digital/Online Initiatives Committee: 05/2016 - 06/2017
- MBA program: Academics Committee (2011/2012), speaker at the 2011 Cluster Z Capstone
- Decision, Risk & Operations division
 - Ph.D. program:
 - program coordinator for the Decision, Risk & Operations division: 08/2012-08/2015
 - recruiting committee: 2010 - present
 - Junior faculty liaison for the division, 05/2016-present
 - Faculty search committee: 2010/2011, 2011/2012, 2018/2019 (chair), 2022/2023 (chair)
 - Core course coordinator for Business Analytics: 06/2015 - 06/2017

External:

- Department Editor for:
 - Management Science* (Revenue Management and Market Analytics): 01/2020-present
- Associate Editor for:
 - *Management Science*:
 - Operations Management & Stochastic Models and Simulation, 2014-2020
 - Revenue Management and Market Analytics, 2017-2020
 - Special issue on Business Analytics, 2012-2014
 - *Operations Research*:
 - Stochastic Models, 2012-2022
 - Revenue Management and Market Analytics, 2017-present
- Referee for: *Management Science*, *Operations Research*, *Manufacturing & Service Operations Management*, *Mathematics of Operations Research*, *Econometrica*, NIPS, EC, *Production and Operations Management*, *INFORMS Transactions on Education*, *Naval Research Logistics*, *M&SOM service SIG*
- Conference organizing committee member:
 - Co-chair, Marketplace Innovation Workshop (2021, 2022, 2023)
 - Senior Program Committee, WINE (2021, 2022)
 - Program Committee member, EC'20
 - M&SOM conference (2012)
 - INFORMS Revenue Management Conference (2011 and 2015)
- Chair-elect of the INFORMS Revenue Management and Pricing Section (2021-2022)
- Chair of the INFORMS Revenue Management and Pricing Section (2022-2023)

– Prize Committees:

- Revenue Management and Pricing Section Prize committee chair (2018)
- Revenue Management and Pricing Section Prize committee (2014, 2015)
- Revenue Management and Pricing Section Dissertation Prize committee (2016)
- INFORMS Nicholson prize committee (2014, 2015)
- M&SOM student paper competition:
 - Co-chair of 2012 competition
 - judge: 2010, 2011, 2013, 2015, 2016
- INFORMS JFIG best paper award (2016, 2022)
- Judge for *Production and Operations Management* best paper award (2009)

– speaker at the INFORMS Doctoral Colloquium (2010, 2022)

Outside Activities

Columbia Business School requires faculty members to disclose any recent activities that might present a real or apparent conflict of interest. Recently I have served as an advisor for a large online marketplace, a foundation on predictive analytics, an OEM on pricing, a transportation firm, and an accounting services firm.