David REY

Professeur

Académie : Digitalisation

Centre de recherche : SKEMA Centre for Analytics and Operations

Campus : Sophia Antipolis

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Intérêts de recherche

Optimisation, Programmation mixte en nombres entiers, Optimisation bi-niveaux, Transport, Logistique, Theorie des jeux, Optimisation stochastique, Apprentissage par renforcement

Formation

2023	Habilitation à Diriger des Recherches, Recherche Opérationelle, Université de Toulouse, France
2014	Ph.D. in Operations Research, Université Grenoble Alpes, France
2008	Diplôme National de Master, Sciences, Mathématiques, Pontifical Catholic University of Rio de Janeiro, Brésil
2005	Maîtrise, Ingénierie, Génie électrique et informatique industrielle, Université de Montpellier, France
2004	Licence, Ingénierie, Génie électrique et informatique industrielle, Université de Montpellier, France

Expérience Professionnelle

Positions académiques principales

Depuis 2024	Professeur, SKEMA Business School, France
2021 - 2023	Associate Professor, SKEMA Business School, France
2018 - 2021	Senior Lecturer, UNSW School of Civil and Environmental Engineering, Australie
2016 - 2018	Lecturer, UNSW School of Civil and Environmental Engineering, Australie

Contrats de recherche, prix et distinctions

Prix et distinctions

2022	Professeur invité, School of Civil and Environmental Engineering, UNSW Sydney, UNSW Sydney, Australie
2019	Professeur Invité, I-SITE FUTURE, Université Gustave Eiffel, France

Contrats de recherche

2022	URBANE - UPSCALING INNOVATIVE GREEN URBAN LOGISTICS SOLUTIONS, CINEA - European Climate, Infrastructure and Environment Executive Agency

2021	LP200100531, Australian Research Council, Australie
2021	DP210103138, Australian Research Council, Australie
2020	DP190102873, Australian Research Council, Australie
2020	LP190100650, Australian Research Council, Australie

Publications

Articles académiques revus

QIU, E., REY, D. et WALLER, S.T. (2026). Operationalizing social justice theory in transport resource allocation. *Transportation Research - Part D: Transport and Environment*, 153, pp. 105218.

NOURMOHAMMADI, Z., REY, D. et SABERI, M. (2026). E-cargo bike route optimization with rider fatigue considerations: A chance-constrained programming approach. *Computers & Operations Research*, 191, pp. 107460.

LEVIN, M. et REY, D. (2026). A spatial branch-and-price-and-cut algorithm for finding globally optimal solutions to the continuous network design problem. *Transportation Research - Part E: Logistics and Transportation Review*, 211, pp. 104870.

LUAN, M., RASHIDI, T.H., WALLER, S.T. et REY, D. (2026). Statistical regression-powered optimization methods for path-based congestion pricing at scale. *Transportation Research Part C: Emerging Technologies*, 182, pp. 105414.

AUSSEL, D., LATCHOOMUN, L., NOURMOHAMMADI, Z., REY, D. et SABERI, M. (2026). Sustainable EV charging infrastructure design for Tropical Islands: a case study of Mauritius. *Computational Management Science*, 23(23).

REY, D. et LEVIN, M. (2026). A branch-and-price-and-cut algorithm for discrete network design problems under traffic equilibrium. *Transportation Research - Part B: Methodological*, 212, pp. 103563.

FAJEMISIN, A., REY, D. et BRUSSET, X. (2026). A game-theoretical model for green urban logistics coordination: Exact and data-driven methods. *European Journal of Operational Research*.

LEVIN, M. et REY, D. (2025). Charging Station Location and Fleet Sizing for Shared Autonomous Electric Vehicles using Benders' Decomposition. *Networks and Spatial Economics*, 25, pp. 681–716.

NOURMOHAMMADI, Z., HU, B., REY, D. et SABERI, M. (2025). A data-driven preference learning approach for multi-objective vehicle routing problems in last-mile delivery. *Transportation Research Part C: Emerging Technologies*, 174, pp. 105101.

PAUL, A., LEVIN, M., WALLER, S.T. et REY, D. (2025). Data-driven optimization for drone delivery service planning with online demand. *Transportation Research - Part E: Logistics and Transportation Review*, 198, pp. 104095.

QIU, E., REY, D. et WALLER, S.T. (2025). Multi-period bus frequency optimization and fleet rebalancing based on equity over time. *Transportation*.

LUAN, M., RASHIDI, T., WALLER, S.T. et REY, D. (2025). Choice-driven bilevel optimization for multiclass traffic congestion management via eco-routing incentives. *Transportation Research - Part B: Methodological*, 200, pp. 103289.

DIAS, F., HIJAZI, H. et REY, D. (2025). A heuristic algorithm for aircraft conflict resolution based on closed-form analytical solutions of relaxed pairwise problems. *Operations Research Letters*, 63, pp. 107368.

XI, H., AUSSEL, D., LIU, W., WALLER, S.T. et REY, D. (2024). Single-leader multi-follower games for the regulation of two-sided Mobility-as-a-Service markets. *European Journal of Operational Research*, 317(3), pp. 718-736.

BARBARA, M., REY, D., RASHIDI, T. et NAIR, D. (2024). School choice modeling and network optimization in an urban environment. *Annals of Regional Science*, 72, pp. 927–958.

DIXIT, V., NIU, C., REY, D., WALLER, S.T. et LEVIN, M. (2024). Quantum computing to solve scenario-based stochastic time-dependent shortest path routing. *Transportation Letters*, 16(8), pp. 793-803.

GUILLOT, M., REY, D., FURNO, A. et EL FAOUZI, N.E. (2024). A stochastic hub location and fleet assignment problem for the design of reconfigurable park-and-ride systems. *Transportation Research - Part E: Logistics and Transportation Review*, 184, pp. 103469.

HUANG, W., JIAN, S. et REY, D. (2024). Non-additive network pricing with non-cooperative mobility service providers. *European Journal of Operational Research*, 318, pp. 802-824.

HU, Y., REY, D., MOHAJERPOOR, R. et SABERI, M. (2024). Optimizing traffic signal control for continuousflow intersections: Benchmarking against a stateofpractice model. *IET Intelligent Transport Systems*, 18(11), pp. 2152-2165.

DIAS, F. et REY, D. (2024). Aircraft conflict resolution with trajectory recovery using mixed-integer programming. *Journal of Global Optimization*, 90, pp. 1031–1067.

LEVIN, M. et REY, D. (2023). Branch-and-Price for Drone Delivery Service Planning in Urban Airspace. *Transportation Science*, 57(4), pp. 839-1114, C2.

REY, D., HAMMAD, A. et SABERI, M. (2023). Vaccine allocation policy optimization and budget sharing mechanism using reinforcement learning. *Omega*, 115, pp. 102783.

HAMMAD, A.W.A., REY, D., AKBARNEZHAD, A. et HADDAD, A. (2023). Integrated mathematical optimisation approach for the tower crane hook routing problem to satisfy material demand requests on-site. *Advanced Engineering Informatics*, 55, pp. 101885.

XI, H., LIU, W., WALLER, S.T., HENSHER, D.A., KILBY, P. et REY, D. (2023). Incentive-compatible mechanisms for online resource allocation in mobility-as-a-service systems. *Transportation Research - Part B: Methodological*, 170, pp. 119-147.

LUAN, M., WALLER, S.T. et REY, D. (2023). A non-additive path-based reward credit scheme for traffic congestion management. *Transportation Research - Part E: Logistics and Transportation Review*, 179, pp. 103291.

DIAS, F., HIJAZI, H. et REY, D. (2022). Disjunctive linear separation conditions and mixed-integer formulations for aircraft conflict resolution. *European Journal of Operational Research*, 296(2), pp. 520-538.

DONG, X., CHOW, J., WALLER, S.T. et REY, D. (2022). A chance-constrained dial-a-ride problem with utility-maximizing demand and multiple pricing structures. *Transportation Research - Part E: Logistics and Transportation Review*, 158, pp. 102601.

HENRY, E., FURNO, A., EL FAOUZI, N.E. et REY, D. (2022). Locating park-and-ride facilities for resilient on-demand urban mobility. *Transportation Research - Part E: Logistics and Transportation Review*, 158, pp. 102557.

DIAS, F. et REY, D. (2022). Robust aircraft conflict resolution under trajectory prediction uncertainty. *Operations Research Letters*, 50(5), pp. 503-508.

LILASATHAPORNKIT, T., REY, D., LIU, W. et SABERI, M. (2022). Traffic assignment problem for footpath networks with bidirectional links. *Transportation Research Part C: Emerging Technologies*, 144, pp. 103905.

SONG, C., MONTEIL, J., YGNACE, J.L. et REY, D. (2021). Incentives for Ridesharing: A Case Study of Welfare and Traffic Congestion. *Journal of Advanced Transportation*, pp. 106904.

RANAWEERA, M., SENEVIRATNE, A., REY, D. et SABERI, M. (2021). Detection of anomalous vehicles using physics of traffic. *Vehicular Communications*, 27, pp. 100304.

CHAKRABORTY, S., REY, D., LEVIN, M. et WALLER, S. (2021). Freeway network design with exclusive lanes for automated vehicles under endogenous mobility demand. *Transportation Research Part C: Emerging Technologies*, 133, pp. 103440.

BARBARA, M., REY, D. et AKBARNEZHAD, A. (2021). Optimizing Location of New Public Schools in Town Planning Considering Supply and Demand. *Journal of Urban Planning and Development*, (4).

REY, D., LEVIN, M. et DIXIT, V. (2021). Online incentive-compatible mechanisms for traffic intersection auctions. *European Journal of Operational Research*, 293(1), pp. 229-247.

SAXENA, N., RASHIDI, T. et REY, D. (2020). Determining the market uptake of demand responsive transport enabled public transport service. *Sustainability*, 12(12), pp. 4914.

CHEN, R., HU, J., LEVIN, M. et REY, D. (2020). Stability-based analysis of autonomous intersection management with pedestrians. *Transportation Research Part C: Emerging Technologies*, 114, pp. 463-483.

HAMMAD, A., REY, D., BU-QAMMAZ, A. et GRZYBOWSKA, H. (2020). Mathematical optimization in enhancing the sustainability of aircraft trajectory: A review. *International Journal of Sustainable Transportation*, 14(6), pp. 413-436.

NAJMI, A., REY, D., WALLER, S. et RASHIDI, T. (2020). Model formulation and calibration procedure for integrated multi-modal activity routing and network assignment models. *Transportation Research Part C: Emerging Technologies*, 121, pp. 102853.

DONG, X., REY, D. et WALLER, S. (2020). Dial-a-ride problem with users' accept/reject decisions based on service utilities. *Transportation Research Record: Journal of the Transportation Research Board*, 2674(10), pp. 55-67.

REY, D. et BAR-GERA, H. (2020). Long-term scheduling for road network disaster recovery. *International Journal of Disaster Risk Reduction*, 42, pp. 101353.

REY, D., BAR-GERA, H., DIXIT, V. et WALLER, S. (2019). A Branch-and-Price Algorithm for the Bilevel Network Maintenance Scheduling Problem. *Transportation Science*, 53(5), pp. 1455-1478.

ZLOJUTRO, A., REY, D. et GARDNER, L. (2019). A decision-support framework to optimize border control for global outbreak mitigation. *Scientific Reports*, 9, pp. 2216.

REY, D. et LEVIN, M. (2019). Blue phase: Optimal network traffic control for legacy and autonomous vehicles. *Transportation Research - Part B: Methodological*, 130, pp. 105-129.

ZHANG, X., WALLER, S., REY, D. et DUELL, M. (2019). Integrating uncertainty considerations into multi-objective transportation network design projects accounting for environment disruption. *Transportation Letters*, 11(7), pp. 351-361.

ZHANG, X., REY, D., WALLER, S. et CHEN, N. (2019). Range-Constrained Traffic Assignment with Multi-Modal Recharge for Electric Vehicles. *Networks and Spatial Economics*, 19, pp. 633-668.

JIAN, S., REY, D. et DIXIT, V. (2019). An Integrated Supply-Demand Approach to Solving Optimal Relocations in Station-Based Carsharing Systems. *Networks and Spatial Economics*, 19, pp. 611-632.

LEVIN, M., REY, D. et SCHWARTZ, A. (2019). Max-pressure control of dynamic lane reversal and autonomous intersection management. *Transportmetrica B: Transport Dynamics*, 7(1), pp. 1693-1718.

REY, D., ALMI'ANI, K. et NAIR, D. (2018). Exact and heuristic algorithms for finding envy-free allocations in food rescue pickup and delivery logistics. *Transportation Research - Part E: Logistics and Transportation Review*, 112, pp. 19-46.

CHAKRABORTY, S., REY, D., MOYLAN, E. et WALLER, S. (2018). Link Transmission Model-Based Linear Programming Formulation for Network Design. *Transportation Research Record: Journal of the Transportation Research Board*, 2672(48), pp. 139-147.

ZHANG, X., REY, D. et WALLER, S. (2018). Multitype Recharge Facility Location for Electric Vehicles. *Computer-Aided Civil and Infrastructure Engineering*, 33(11), pp. 943-965.

HAMMAD, A.W.A., REY, D. et AKBARNEZHAD, A. (2017). A cutting plane algorithm for the site layout planning problem with travel barriers. *Computers & Operations Research*, 82, pp. 36-51.

LEVIN, M. et REY, D. (2017). Conflict-point formulation of intersection control for autonomous vehicles. *Transportation Research Part C: Emerging Technologies*, 85, pp. 528-547.

CAFIERI, S. et REY, D. (2017). Maximizing the number of conflict-free aircraft using mixed-integer nonlinear programming. *Computers & Operations Research*, 80, pp. 147-158.

NAJMI, A., REY, D. et RASHIDI, T. (2017). Novel dynamic formulations for real-time ride-sharing systems. *Transportation Research - Part E: Logistics and Transportation Review*, 108, pp. 122-140.

HAMMAD, A.W.A., AKBARNEZHAD, A. et REY, D. (2017). Sustainable urban facility location: Minimising noise pollution and network congestion. *Transportation Research - Part E: Logistics and Transportation Review*, 107, pp. 38-59.

HAMMAD, A., AKBARNEZHAD, A. et REY, D. (2017). Bilevel Mixed-Integer Linear Programming Model for Solving the Single Airport Location Problem. *Journal of Computing in Civil Engineering*, 31(5).

NAIR, D., REY, D. et DIXIT, V. (2017). Fair allocation and cost-effective routing models for food rescue and redistribution. *IIE Transactions (Institute of Industrial Engineering)*, 49(12), pp. 1172-1188.

CHEN, N., REY, D. et GARDNER, L. (2017). Multiscale Network Model for Evaluating Global Outbreak Control Strategies. *Transportation Research Record: Journal of the Transportation Research Board*, 2626(1), pp. 42-50.

NAIR, D., GRZYBOWSKA, H., REY, D. et DIXIT, V. (2016). Food Rescue and Delivery: Heuristic Algorithm for Periodic Unpaired Pickup and Delivery Vehicle Routing Problem. *Transportation Research Record: Journal of the Transportation Research Board*, 2548(1), pp. 81-89.

HAMMAD, A., AKBARNEZHAD, A., REY, D. et WALLER, S. (2016). A Computational Method for Estimating Travel Frequencies in Site Layout Planning. *Journal of Construction Engineering and Management*, 142(5).

HAMMAD, A., AKBARNEZHAD, A. et REY, D. (2016). A multi-objective mixed integer nonlinear programming model for construction site layout planning to minimise noise pollution and transport costs. *Automation in Construction*, 61, pp. 73-85.

CHEN, N., GARDNER, L. et REY, D. (2016). Bilevel Optimization Model for the Development of Real-Time Strategies to Minimize Epidemic Spreading Risk in Air Traffic Networks. *Transportation Research Record: Journal of the Transportation Research Board*, 2569(1), pp. 62-69.

RASHIDI, T., REY, D., JIAN, S. et WALLER, S. (2016). A Clustering Algorithm for Bi-Criteria Stop Location Design with Elastic Demand. *Computer-Aided Civil and Infrastructure Engineering*, 31(2), pp. 117-131.

JIAN, S., REY, D. et DIXIT, V. (2016). Dynamic Optimal Vehicle Relocation in Carshare Systems. *Transportation Research Record: Journal of the Transportation Research Board*, 2567(1), pp. 1-9.

REY, D., RAPINE, C., FONDACCI, R. et EL FAOUZI, N.E. (2016). Subliminal Speed Control in Air Traffic Management: Optimization and Simulation. *Transportation Science*, 50(1), pp. 242-262.

REY, D., DIXIT, V., YGNACE, J.L. et WALLER, S. (2016). An endogenous lottery-based incentive mechanism to promote off-peak usage in congested transit systems. *Transport Policy*, 46, pp. 46-55.

REY, D., GARDNER, L. et WALLER, S. (2016). Finding Outbreak Trees in Networks with Limited Information. *Networks and Spatial Economics*, 16(2), pp. 687-721.

NARAYANAN, P., REY, D., MAGHREBI, M. et WALLER, S. (2015). Using Lagrangian Relaxation to Solve Ready Mixed Concrete Dispatching Problems. *Transportation Research Record: Journal of the Transportation Research Board*, 2498(1), pp. 84-90.

REY, D., RAPINE, C., DIXIT, V. et WALLER, S. (2015). Equity-Oriented Aircraft Collision Avoidance Model. *IEEE Transactions on Intelligent Transportation Systems*, 16(1), pp. 172-183.

GARDNER, L. et REY, D. (2014). A Scenario-Based Evaluation of the Middle East RespiratorySyndrome Coronavirus and the Hajj. *Risk Analysis*, 34(8), pp. 1391-1400.

REY, D., ALMI'ANI, K., VIGLAS, A. et LIBMAN, L. (2014). Transit Route Design Solved with Wireless Data Collection Algorithms. *Transportation Research Record: Journal of the Transportation Research Board*, 2466(1), pp. 42-51.

REY, D., RAPINE, C., FONDACCI, R. et EL FAOUZI, N.E. (2012). Minimization of Potential Air Conflicts through Speed Regulation. *Transportation Research Record: Journal of the Transportation Research Board*, 2300(1), pp. 59-67.

Chapitres d'ouvrage

CERULLI, M., PELEGRIN, M., CAFIERI, S., D'AMBROSIO, C. et REY, D. (2023). Aircraft Conflict Resolution. Dans: Pardalos, P.M., Prokopyev, O.A. eds. *Encyclopedia of Optimization*. 1st ed. Springer.

HAMMAD, A., AKBARNEZHAD, A. et REY, D. (2018). Accounting for embodied carbon emissions in planning and optimization of transport operations during construction. Dans: Francesco Pomponi, Catherine De Wold, Alice Moncaster eds. *Embodied carbon in buildings: measurement, management, and mitigation*. 1st ed. Springer, pp. 301-323.

HAMMAD, A., AKBARNEZHAD, A. et REY, D. (2017). Estimation of input parameters used in site layout planning through integration of BIM and project schedules. Dans: Haijiang Li, Peng Wu, Xiangyu Wang eds. *Integrated building information modelling*. 1st ed. Bentham Science Publishers, pp. 121-153.

HAMMAD, A., AKBARNEZHAD, A. et REY, D. (2016). Accounting for noise pollution in planning of smart cities. Dans: *Handbook of research on smart cities as a solution for reducing urban waste and pollution*. 1st ed. IGI Global.

Actes d'une conférence

DIAS, F. et REY, D. (2020). A two-stage algorithm for aircraft conflict resolution with trajectory recovery.

RANAWEERA, M., SENEVIRATNE, A., REY, D., SABERI, M. et DIXIT, V. (2019). Anomalous data detection in vehicular networks using traffic flow theory.

BARBARA, M., REY, D. et AKBARNEZHAD, A. (2019). Multi-Period Location Optimization Of New Public Facilities To Maximize Equity In Access And Capacity-Saturation.

REY, D. (2019). Computational benchmarking of exact methods for the bilevel discrete network design problem.

REY, D. et HIJAZI, H. (2017). Complex number formulation and convex relaxations for aircraft conflict resolution.

ZHANG, X., REY, D. et WALLER, S. (2016). Multiobjective link-based equitable network design problem incorporating energy consumption.

REY, D., ZHANG, X. et WALLER, S. (2016). Sustainable transportation network design incorporating environment disruption under strategic user equilibrium.

Présentations dans des conférences

DIAS, F. et REY, D. (2020). A two-stage algorithm for aircraft conflict resolution with trajectory recovery. Dans: International Conference on Research in Air Transportation (ICRAT).

REY, D. (2019). Computational benchmarking of exact methods for the bilevel discrete network design problem. Dans: EURO Working Group on Transportation (EWGT). Barcelona.

RANAWEERA, M., SENEVIRATNE, A. et REY, D. (2019). Anomalous data detection in vehicular networks using traffic flow theory. Dans: IEEE 90th Vehicular Technology Conference 22. Honolulu, Hawaii.

BARBARA, M., REY, D. et AKBARNEZHAD, A. (2019). Multi-Period Location Optimization Of New Public Facilities To Maximize Equity In Access And Capacity-Saturation. Dans: Annual Conference of the Canadian Society for Civil Engineers. Laval.

REY, D. et HIJAZI, H. (2017). Complex number formulation and convex relaxations for aircraft conflict resolution. Dans: IEEE Conference on Decision and Control. Melbourne.

ZHANG, X., REY, D. et WALLER, S. (2016). Multiobjective link-based equitable network design problem incorporating energy consumption. Dans: Annual Meeting of Transportation Research Board (TRB). Washington DC.

ZHANG, X., WALLER, S. et REY, D. (2016). Sustainable transportation network design incorporating environment disruption under strategic user equilibrium. Dans: Annual Meeting of Transportation Research Board (TRB). Washington DC.

Présentations dans des séminaires de recherche

REY, D. (2023). Transport and Logistics Optimization. Dans: 9th St-Luc Operations Management Workshop.

REY, D. (2023). Facility Location for Green-Charging of Electric Vehicles. Dans: Green CEV Mauritius.

REY, D. (2023). Non-cooperative mobility network pricing: an application of bilevel optimization with generalized Nash equilibrium problems. Dans: Journée Programmation mathématique non linéaire (axe PMNL du GDR ROD). Toulouse.

Autres activités de recherche

Editeur associé d'une revue

Depuis 2021	Transportation Letters

Membre d'un comité éditorial

2020 - 2023	Journal of Advanced Transportation
2016 - 2021	Transportation Letters

Relecteur pour :

Dynamic Games and Applications, Omega, INFORMS Journal on Computing, Mathematical Programming, European Journal of Operational Research, Transportation Research - Part B: Methodological, Transportation Research - Part E: Logistics and Transportation Review, Computers & Operations Research, Transportation Research Part C: Emerging Technologies, Transportation Science

Organisation d'une conférence ou d'un séminaire

2024	Optimisation bi-niveaux et ses applications ROADEF 2024, France
2023	Optimisation bi-niveaux et applications session a ROADEF 2023, France

Affiliations

Depuis 2025	2025 INFORMS TSL Best Paper Award Committee

Supervision de thèses / HDR

Depuis 2023	P. BEAUPUITS, SKEMA Business School, Doctorat, Directeur de thèse
Depuis 2022	Z. NOURMOHAMMADI, Doctorat, Co-directeur de thèse

Depuis 2021	E. QIU, Doctorat, Directeur de thèse
Depuis 2021	A. PAUL, Doctorat, Directeur de thèse
Depuis 2020	M. LUAN, Doctorat, Directeur de thèse
2024	M. ABDOLVAND, Doctorat, Rapporteur
2023	F. M. GONSALVES, Doctorat, Rapporteur
2023	D. VILLAMAR, Doctorat, Membre de jury
2022	H. XI, Doctorat, Co-directeur de thèse
2022	C. DANIEL, Université Gustave Eiffel, Doctorat, Membre de jury
2021	E. HENRY, Université Gustave Eiffel, Doctorat, Membre de jury
2021	F. H. C. DIAS, UNSW Sydney, Doctorat, Directeur de thèse
2020	S. CHAKRABORTY, UNSW Sydney, Doctorat, Directeur de thèse
2020	B. SHAHBAZI, UNSW Sydney, Doctorat, Directeur de thèse
2018	X. LIU, UNSW Sydney, Doctorat, Co-directeur de thèse
2017	X. ZHANG, UNSW Sydney, Doctorat, Co-directeur de thèse
2017	A. HAMMAD, UNSW Sydney, Doctorat, Co-directeur de thèse

Autres activités académiques

Depuis 2025	12th INFORMS Transportation Science and Logistics Society Workshop (TSL 2025)
2024	11th INFORMS Transportation Science and Logistics Society Workshop (TSL 2024), France