

Curriculum Vitae

Josu Doncel Vicente

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Contact Information

- Institution: University of the Basque Country (UPV/EHU)
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Education

- 2015 PhD Degree in Computer Science. Université de Toulouse. France.
Title: *Efficiency of Distributed Queueing Games and of Path Discovery Algorithms*.
Advisors: Olivier Brun and Balakrishna Prabhu.
- 2011 Master Degree in Mathematical Modelling, Statistics and Computation. University of the Basque Country. Spain.
Title: *Development and Testing of Index Policies in Internet Routers*.
Advisors: Urtzi Ayesta and Peter Jacko.
- 2010 Bachelors degree in Mathematics. University of the Basque Country. Spain.
- 2007 Bachelors degree in Industrial Engineering, in Industrial Electronics. University of the Basque Country. Spain.

Research Experience

- 2023–Today Associate Professor (Profesor Titular). University of the Basque Country. Spain.
- 2017–2023 Assistant Professor (Profesor Adjunto). University of the Basque Country. Spain.
- 2019–2020 Invited professor for 5 months at CentraleSupélec. France.
- 2019 Invited professor for 2 months at Inria Paris. France.
- 2018 Invited professor for 3 months at laboratory DAVID. France.
- 2017 Invited professor for 2 months at Inria Paris. France.
- 2015–2017 Postdoctoral Researcher. INRIA Grenoble Rhones Alpes (Polaris Team). France.
- 2012–2015 PhD Student. LAAS-CNRS. France.
- 2011–2011 Intern Researcher. BCAM-Basque Center for Applied Mathematics. Spain.
- 2010–2011 Research Staff. University of the Basque Country. Spain.

Research Publications

H-index: 10 (google scholar). Number of citations: 362 (google scholar).

Selected recent publications: [J20], [J22], [J28], [J30].

JCR Journal Articles

- J31 G. Sagastabeitia, J. Doncel, J. Aguilar, A. Fernández Anta, J. M. Ramírez. “COVID-19 seroprevalence estimation and forecasting in the USA from ensemble machine learning models using a stacking strategy.” *Expert Systems with Applications*. Volume 258, 2024.
- J30 A. Basic, A. Cadas, J. Doncel, J.M. Fourneau. “Performance paradox of dynamic matching models under greedy policies”. *Queueing Systems*. Volume 107, 2024.
- J29 A. Basic, J. Doncel, J.M. Fourneau. “Dynamic load balancing in energy packet networks”. *Performance Evaluation*. Volume 165, 2024.
- J28 J. Anselmi, J. Doncel. “Load Balancing with Job-Size Testing: Performance Improvement or Degradation?”. *ACM Transactions on Modeling and Performance Evaluation of Computing Systems*, vol 2, issue 2, article num 8, pp 1-27.
- J27 B. Gandarias, J. Doncel, M. Assaad. “On the Age of Information of Processor Sharing Systems”. *Journal of Communications and Networks*, vol 25, Num 5, October 2023, Pages 643-656.
- J26 Fernando Miguelez, Urtzi Ayesta, Josu Doncel. “Price of Anarchy with multiple information sources under competition”. *Operations Research Letters*. Volume 51, Issue 6, November 2023, Pages 605-611.
- J25 Luis Zabala, Josu Doncel, Armando Ferro. “Modeling a Linux Packet-Capturing System with a Queueing System with Vacations”. *Mathematics* 2023, 11(7), 1663.

- J24 Luis Zabala, Josu Doncel, Armando Ferro. “Optimality of a Network Monitoring Agent and Validation in a Real Probe”. *Mathematics* 2023, 11(3), 610.
- J23 Begoña Ispizua, Josu Doncel. “Analysis of the Refined Mean-Field Approximation for the 802.11 Protocol Model”. *Sensors* 2022, 22(22), 8754
- J22 Arnaud Cadas, Josu Doncel, Ana Busic. “Analysis of an optimal policy in dynamic bipartite matching models”. *Performance Evaluation*. Volume 154, 2022.
- J21 J. Doncel, M. Assaad. “Age of Information in a Decentralized Network of Parallel Queues with Routing and Packets Losses”. *Journal of Communications and Networks*. Volume 24 n. 1. February 2022.
- J20 F. Miguelez, J. Doncel, B. Prabhu. “Load-balancing for multi-skilled servers with Bernoulli routing”. *Annals of Operations Research* 312, pages 949-971 (2022).
- J19 J. Doncel. ‘Age of Information of Parallel Server Systems with Energy Harvesting.’ *Entropy* 2021, 23, 1549.
- J18 Sebastien Samain, Josu Doncel, Ana Busic, Jean-Michel Fourneau. “Multiclass Energy Packet Networks with finite capacity energy queues”. *Performance Evaluation*, Volume 152, 2021.
- J17 J. Doncel, V. Mancuso. “Optimal performance of parallel-server systems with job size prediction errors”. *Operations Research Letters*. Volume 49, Issue 4, July 2021, Pages 459-464.
- J16 J. Doncel, N. Gast, B. Gaujal. “A Mean Field Game Analysis of SIR Dynamics with Vaccination”. *Probability in the Engineering and Informational Sciences*. Published online: 13 November 2020.
- J15 E. Bachmat, J. Doncel. “Size-Based Routing Policies: Non-Asymptotic Analysis and Design of Decentralized Systems”. *Sensors* 2021, 21(8), 2701.
- J14 J. Doncel, M. Assaad. “Age of Information of Jackson Networks with Finite Buffer Size”. *IEEE Wireless Communications Letters* vol. 10, no. 4, pp. 902-906, April 2021.
- J13 J. Doncel. “Age of Information of a Server with Energy Requirements”. *PeerJ Computer Science* 7:e354.
- J12 J. Doncel, L. de la Pisa, A. Fernandez Anta, A. Santos Mendez. “A fair and scalable mechanism for resource allocation: the multilevel QPQ approach”. *IEEE Access*, vol. 9, pp. 19439-19456, 2021.
- J11 J. Doncel, J.M. Fourneau. “Energy Packet Networks with Multiple Energy Packet Requirements”. *Probability in the Engineering and Informational Sciences* 35 (1), 92-110.
- J10 E. Bachmat, J. Doncel, H. Sarfati. “Analysis of the Task Assignment based on Guessing Size policy”. *Performance Evaluation*, Volume 142, 2020, 102122.
- J9 J. Doncel. “Performance Balancing Size-Interval Routing Policies”. *INFOR: Information Systems and Operational Research*, 2020.
- J8 C. Thraves-Caro, J. Doncel, O. Brun. “Optimal Path Discovery Problem with Homogeneous Knowledge”. *Theory of Computing Systems* 64, pages 227-250 (2020).

- J7 J. Anselmi, J. Doncel. “Asymptotically Optimal Size-Interval Task Assignments”. IEEE Transactions on Parallel and Distributed Systems, vol. 30, no. 11, pp. 2422-2433, 1 Nov. 2019.
- J6 J. Doncel, N. Gast, B. Gaujal. “Discrete Mean Field Games: Existence of Equilibria and Convergence”. Journal of Dynamics & Games, 2019, 6 (3) : 221-239.
- J5 J. Doncel, S. Aalto, U. Ayesta. “Performance Degradation of Scale in Parallel-Server Systems”. IEEE/ACM Transactions on Networking, Volume 47 (2), April 2019.
- J4 J. Doncel, U. Ayesta, O. Brun, B. J. Prabhu. “A Resource Sharing Game with Relative Priorities”. Performance Evaluation Volume 79, September 2014.
- J3 J. Doncel, U. Ayesta, O. Brun, B. Prabhu. “Is the Price of Anarchy the right measure for Load Balancing Games?”. ACM Transactions on Internet Technology (ToIT) 14, 2-3, Article 18 (September 2014).
- J2 K. Avratchenkov, U. Ayesta, J. Doncel, P. Jacko. “Congestion Control of TCP Flows in Internet Routers by Means of Index Policy”. Computer Networks, Volume 57 Issue 17 (2013).
- J1 J. Doncel, J. M. Olasso, R. Justo, V. Gujjarrubia, A. Perez, M. I. Torres. “Kiosko Basado en Sistema de Dialogo Multimodal.” Procesamiento del Lenguaje Natural 45 (2010).

Refereed International Conference Papers

- C18 J. Doncel, M. Assaad. “Optimizing Age of Information with Attacks”.. Proceedings of International Conference on NETwork Games, COntrol and OPTimization (NETGCOOP). Lille, France. October 2024.
- C17 I. Iriondo, J. Doncel. “Performance Paradox of Dynamic Bipartite Matching Models”. Proceedings of International Conference on NETwork Games, COntrol and OPTimization (NETGCOOP). Lille, France. October 2024.
- C16 M. Sanchez, J. Doncel. “Efficiency of Symmetric Nash Equilibria in Epidemic Models with Confinements”. Proceedings of 16th EAI International Conference on Performance Evaluation Methodologies and Tools. Crete, Greece. September 2023.
- C15 A. Busic, A. Cadas, J. Doncel, J.M. Fourneau. “Product form solution for the steady-state distribution of a Markov chain associated with a general matching model with self-loops”. Proceedings of 18th European Performance Engineering Workshop (EPEW 2022). Alicante, Spain. September 2022.
- C14 A. Cadas, J. Doncel, A. Busic, J.M. Fourneau. “Flexibility can hurt dynamic matching model performance”. Proceedings of IFIP Performance 2021. Milano, Italy, November 2021.
- C13 M. H. Ly, J. Doncel and M. Assaad. “Age-Oriented Scheduling of Correlated Sources in Multi-server System”. Proceedings of 17th International Symposium on Wireless Communications Systems. Berlin, Germany. September 2021.
- C12 E. Bachmat, J. Doncel. “Non-Asymptotic Performance Analysis of Size-based Routing Policies.” Proceedings of IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS). Nice, France. November 2020.

- C11 S. Samain, A. Busic, J. Doncel, J.M. Fourneau. "Energy Packet Networks with Finite Capacity Energy Queues." Proceedings of 13rd EAI International Conference on Performance Evaluation Methodologies and Tools.
- C10 J. Doncel, N. Gast, B. Gaujal. "Virus Propagation in a Large Population: Mean Field Equilibrium versus Social Optimum". Proceedings of 10th International Conference on NETWORK Games, CONTROL and OPTimization (NETGCOOP).
- C9 E. Bachmt, J. Doncel, H. Sarfati. "Performance and Stability Analysis of the Task Assignment based on Guessing Size Routing Policy." Proceedings of IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS), pages 1-13. Rennes, France. October 2019.
- C8 J. Doncel, N. Gast, M. Tribastone, M. Tschaikowski, A. Vandin. "UTOPIC: Under-Approximation Through Optimal Control." Proceedings of International Conference on Quantitative Evaluation of SysTems (QEST), pages 277-291. Glasgow, UK. September 2019.
- C7 J. Doncel, J.M. Fourneau. "Balancing energy consumption and losses with Energy Packet network models." Proceedings of International Conference on Fog Computing, pages 59-68. Prague, Czech Republic. June 2019.
- C6 A. Cadas, A. Busic, J. Doncel. "Optimal Control of Dynamic Bipartite Matching Models" Proceedings of 12nd EAI International Conference on Performance Evaluation Methodologies and Tools, pages 39-46. Mallorca, Spain. March 2019.
- C5 M. Abidini, O. Boxma, J. Doncel. "Size-Based Routing to Balance Performance of the Queues". Proceedings of 11th EAI International Conference on Performance Evaluation Methodologies and Tools, pages 198-205. Venice, Italy, December 2017
- C4 J. Doncel, S. Aalto, U. Ayesta. "Economies of Scale in Parallel-Server Systems". Proceedings of IEEE Infocom 2017, pages 1-9. Atlanta, US, May 2017.
- C3 J. Doncel, U. Ayesta, O. Brun, B. J. Prabhu. "A Resource Sharing Game with Relative Priorities". Proceedings of IFIP Performance 2014. Torino, Italy, October 2014.
- C2 H. Ben Cheikh, J. Doncel, O. Brun, B.J. Prabhu. "Predicting Response Times of Applications in Virtualized Environments". Proceedings of IEEE Network Cloud Computing and Applications, pages 83-90. Rome, Italy, February 2014.
- C1 J. Doncel, U. Ayesta, O. Brun, B.J. Prabhu. "On the Efficiency of Non-Cooperative Load Balancing". Proceedings of IFIP/TC6 Networking 2013, pages 1-9. New York, US, May 2013.

Workshop Papers

- W8 G. Sagastabeitia, J. Doncel, N. Gast. "To Confine or not to Confine: A Mean Field Game Analysis of the End of an Epidemic". Proceedings of Eleventh International Workshop on Practical Applications of Stochastic Modelling (PASM 2022). Alicante, Spain. September 2022.
- W7 F. Miguelez, J. Doncel, U. Ayesta. "A Resource Sharing Game for the Freshness of Status Updates". Workshop on Mathematical performance Modeling and Analysis (MAMA). Beijing, China, June 2021.

- W6 E. Anton, C. Carballo, J. Doncel, C. Gorria, E. Iriondo, M. Lezaun. “Improvement of the Contact Center Performance”. European Studying Group with Industry. Bilbao, Spain, May 2017.
- W5 J. Doncel, N. Gast, B. Gaujal. “Are mean-field games the limits of finite stochastic games?”. Workshop on Mathematical performance Modeling and Analysis (MAMA). Antibes Juan-les-Pins, France, June 2016.
- W4 J. Doncel, N. Gast, B. Gaujal. “A Mean-Field Game with Explicit Interactions for Epidemic Models”. Atelier d’Evaluation de Performance. Toulouse, France, March 2016.
- W3 K. Avratchenkov, U. Ayesta, J. Doncel, P. Jacko. “Optimal Congestion Control of TCP Flows in Internet Routers”. Workshop on Mathematical performance Modeling and Analysis (MAMA). London, UK, June 2012.
- W2 J. Doncel, J. M. Olasso, R. Justo, V. Guijarrubia, A. Perez, M. I. Torres. “Dialogue system based on EDECAN architecture”. IMPRESS 2010, Interactive Multimodal Pattern Recognition in Embedded Systems. Bilbao, Spain, September 2010.
- W1 J. Doncel, J. M. Olasso, R. Justo, V. Guijarrubia, A. Perez, M. I. Torres. “Kiosko Basado en Sistema de Dialogo Multimodal.” CEDI 2010. Valencia, Spain, September 2010.

Awards

- Best paper award: International Conference on Fog Computing 2019 [C7], EAI International Conference on Performance Evaluation Methodologies and Tools 2019 [C6].
- CAF-Elhuyar Price to the Best PhD thesis based dissemination article. 2017.

Students Supervision

PhD Students

2022–2025 Fernando Miguelez (UPNA, Co-supervision with M. Dolores Ugarte, UPNA).

Master Students

2023–2024 Beñat Gandarias (UPV/EHU), Alex de la Puente (UPV/EHU).

2022–2023 Begoña Ispizua (UPV/EHU. Cosupervision with C. Vidaurre, Ikerbasque), Gontzal Sagastabeitia (UPV/EHU. Cosupervision with A. Fernandez Anta, Imdea Networks).

2019–2020 Ly Ming Hoang (CentraleSupélec, France. Co-supervision with M. Assaad, L2S), Fernando Miguelez (UPV/EHU).

Undergraduate Students

2023-2024 Aritz Cerezo (UPV/EHU), Aritz Martin (UPV/EHU), Irati Delgado (UPV/EHU), Iratxe Iriondo (UPV/EHU), Ruben Lopez (UPV/EHU).

2022-2023 Aitor Galvez (UPV/EHU), Andoni Latorre (UPV/EHU), Beñat Gandarias (UPV/EHU), Miren Rementeria (UPV/EHU), Maider Sanchez (UPV/EHU).

2021-2022 Nerea Perez (UPV/EHU), Gontzal Sagastabeitia (UPV/EHU. Cosupervision with N. Gast, Inria).

2020-2021 Pablo Arroniz (UPV/EHU), Iker Teran (UPV/EHU), Nerea Arregi (UPV/EHU).

2019-2020 Begoña Ispizua (UPV/EHU), Isabel Gallardo(UPV/EHU).

2018-2019 Luis de la Pisa (UPV/EHU), Iker Resano (UPV/EHU)

2017-2018 Jokin Labaien (UPV/EHU. Cosupervision with A. Alvarez, Tecnalia), Uxue Aiestaran (UPV/EHU), Fernando Miguelez (UPV/EHU).

2014-2015 Irati Unzurrunzaga (UPV/EHU).

2014-2014 Anouar Aaboub (INPT, Moroco), Ayoub Maouheb (ENSEEIH, Toulouse, France).

2013-2013 Raouf Harzi. Ecole Nationale des Sciences de l'Informatique (Tunisie).

Teaching Experience

2017-Today: Courses to different levels at the University of the Basque Country.

- Statistical Inference, Multivariate Analysis, Biostatistics, Introduction to Numeric Methods, Applied Statistics, Descriptive Statistics and Advanced Mathematics.

2018-2019: Master 2 course at the University of Versailles.

- Modèles pour les performances des réseaux et l'énergie

2015-2016: First year course at ENSIMAG (Grenoble).

- Introduction to Algorithmic.

2013-2015: Master 2 course at INSA Toulouse.

- Models and algorithms for network planning.

2013-2015: First year course at IUT Blagnac.

- Introduction to C, Static web programming and Introduction to Cloud Computing.

Research Projects Participation

2018-Today Multiscale Inversion of Porous Rock Physics using High-Performance Simulators: Bridging the Gap between Mathematics and Geophysics.

Funded by European Commission.

PI. David Pardo.

2017-Today Electromagnetic Imaging of the Earth's Subsurface using Advanced Galerkin Methods.

Funded by Spanish Ministry of Science.

PI. David Pardo.

- 2015–2017 Quanticol
Funded by the European Comission.
PI: Jane Hilston.
- 2013–2015 Panacea
Funded by the European Comission.
PI: Olivier Brun.
- 2012–2013 think global Services for persOnal comPuters (SOP)
Funded by the French National Research Agency.
PI: Thierry Monteil.
- 2010–2011 Multimodal Interaction in Patter Recognition and Computer Vision (MIPRCV)
Funded by Spanish Ministry of Science.
PI: Paco Casacuberta.

Industrial Research Projects

- 2017–2018 Dimensioning and routing in a multilevel call center.
Industrial partner: Eroski.
- 2017–2018 Optimization and storage management of wheel manufacturing.
Industrial partner: Bridgestone.
- 2017–2018 Modelling and optimization of reinvestments in volatile markets.
Industrial partner: PKF ATTEST.