

Curriculum Vitae

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Contact Information

- Name: Josu Doncel
- Institution: University of the Basque Country (Spain)
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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

2017–Today 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: 6 (google scholar). Number of citations: 147 (google scholar).

Selected publications: [J3], [J4], [J5], [J6], [J9].

Journal Articles

- J12 J. Doncel, N. Gast, B. Gaujal. “A Mean Field Game Analysis of SIR Dynamics with Vaccination”. Accepted in Probability in the Engineering and Informational Sciences. Q1.
- J11 E. Bachmat, J. Doncel, H. Sarfati. “Analysis of the Task Assignment based on Guessing Size policy”. In Performance Evaluation, Volume 142, 2020, 102122. Q1
- J10 J. Doncel. “Performance Balancing Size-Interval Routing Policies”. In INFOR: Information Systems and Operational Research, 2020. Q2.
- J9 J. Doncel, J.M. Fourneau. “Energy Packet Networks with Multiple Energy Packet Requirements”. In Probability in the Engineering and Informational Sciences, 2019. Q1.
- J8 C. Thraves-Caro, J. Doncel, O. Brun. “Optimal Path Discovery Problem with Homogeneous Knowledge”. Theory of Computing Systems 64, pages 227-250 (2020). Q2.
- 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. Q1.
- 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. Q1.
- 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. Q1.
- J4 J. Doncel, U. Ayesta, O. Brun, B. J. Prabhu. “A Resource Sharing Game with Relative Priorities”. Performance Evaluation Volume 79, September 2014. Q1.

- 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). Q1.
- 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). Q1.
- J1 J. Doncel, J. M. Olaso, R. Justo, V. Guijarrubia, A. Perez, M. I. Torres. "Kiosko Basado en Sistema de Dialogo Multimodal." *Procesamiento del Lenguaje Natural* 45 (2010). Q2.

Refereed International Conference Papers

- 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. CORE A.
- 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. Bachmat, 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. CORE A.
- 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. CORE A*.
- 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. CORE A.

- 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. CORE A.

Workshop Papers

- 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. Olaso, 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. Olaso, 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

Students Supervision

PhD Students

2017–2020 Sebastien Samain. Ecole Normale Supérieure (Paris, France). With Ana Busic (Inria Paris).
Expected date of defense: 07/2020.

Master Students

2019–2020 Ly Ming Hoang. CentraleSupélec (France). Co-supervised with M. Assaad.

2019–2020 Fernando Miguez. University of the Basque Country (Spain).

Undergraduate Students

- 2019–2020 Begoña Ispizua. University of the Basque Country (Spain). **Work carried out in collaboration with Inria Grenoble.**
- 2019–2020 Isabel Gallardo. University of the Basque Country (Spain).
- 2018–2019 Luis de la Pisa. University of the Basque Country (Spain). **Work carried out in collaboration with IMDEA Networks.**
- 2018–2019 Iker Resano. University of the Basque Country (Spain)
- 2017–2018 Jokin Labaien. University of the Basque Country (Spain). **Work carried out in collaboration with the Computer Vision group of Tecnalia.**
- 2017–2018 Uxue Aiestaran. University of the Basque Country (Spain).
- 2017–2018 Fernando Miguelez. University of the Basque Country (Spain).
- 2014–2015 Irati Unzurrunzaga. University of the Basque Country (Spain).
- 2014–2014 Anouar Aaboub. INPT (Moroco).
- 2014–2014 Ayoub Maouheb. ENSEEIHT (Toulouse, France).
- 2013–2013 Raouf Harzi. Ecole Nationale des Sciences de l'Informatique (Tunisie).

Teaching Experience

- 2017–Today: First and second year courses at the University of the Basque Country.
- 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 Commission.
PI: Jane Hilston.
- 2013–2015 Panacea
Funded by the European Commission.
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 Pattern 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.