

Education

- 2019 **PhD**, *Signal Processing*, Universidad Carlos III de Madrid.
Thesis: Sequential and adaptive Bayesian computation for inference and optimization
Supervisor: Joaquín Míguez.
- 2012 **MSc**, *Communications Engineering*, Istanbul Technical University.
Thesis: A structured sparse decomposition method for audio signals
- 2010 **BSc**, *Communications Engineering*, Istanbul Technical University.
Thesis: Anisotropic diffusion in image processing

Work Experience

- 2019 – **Research Fellow**, University of Warwick, UK.
joint appointment between Dept. of Computer Science and Dept. of Statistics, based at The Alan Turing Institute, London.
- 2015 – 2019 **Research Assistant**, Carlos III University of Madrid, Spain.
within the Signal Processing Group (GTS), Dept. of Signal Theory and Communications.
- June - August 2018 **Visiting Researcher**, The Alan Turing Institute, London, UK.
within the programme Data-Centric Engineering, hosted by Chris Oates
- May - June 2018 **Visiting Research Scientist**, Fraunhofer Heinrich-Hertz Institute (HHI), Berlin, Germany.
within the Signal and Information Processing Group, hosted by Zoran Utkovski.
- Jan. - March 2018 **Visiting Researcher**, Imperial College London, UK.
under the supervision of Dan Crisan, Department of Mathematics.
- August 2017 **Visiting Research Scientist**, Fraunhofer Heinrich-Hertz Institute (HHI), Berlin, Germany.
within the Signal and Information Processing Group, hosted by Zoran Utkovski.
- 2012 – 2015 **Research Assistant**, Boğaziçi University.
under the supervision of A. Taylan Cemgil with Statistical Inference Group.
- 2014 – 2015 **Quantitative Researcher**, algosis inc.
- 2010 – 2012 **Research Assistant**, Istanbul Technical University.
within the Multimedia Signal Processing and Pattern Recognition Group.

Papers

- 2019 **Probabilistic sequential matrix factorization**, Ö. D. Akyildiz, T. Damoulas, M. J. Steel
arXiv:1910.03906.
- 2019 **Nonasymptotic estimates for Stochastic Gradient Langevin Dynamics under local conditions in nonconvex optimization**, Y. Zhang, Ö. D. Akyildiz, T. Damoulas, S. Sabanis, arXiv:1910.02008.
- 2019 **Nudging the particle filter**, Ö. D. Akyildiz, J. Míguez, In *Statistics and Computing*.
- 2019 **A probabilistic incremental gradient method**, Ö. D. Akyildiz, É. Chouzenoux, V. Elvira, J. Miguez, In *IEEE Signal Processing Letters*.

- 2019 **Dictionary filtering: a probabilistic approach to online matrix factorisation**, Ö. D. Akyıldız, J. Miguez, *Signal, Image and Video Processing*, June 2019, 13(4):737-744.
- 2019 **Convergence rates for optimised adaptive importance samplers**, Ö. D. Akyıldız, J. Miguez, *arXiv:1903.12044*.
- 2018 **Parallel sequential Monte Carlo for stochastic gradient-free nonconvex optimization**, Ö. D. Akyıldız, D. Crisan, J. Miguez, *arXiv:1811.09469*, 2018.
- 2018 **The Incremental Proximal Method: A Probabilistic Perspective**, Ö. D. Akyıldız, V. Elvira, J. Miguez, *ICASSP 2018*.
- 2017 **A probabilistic interpretation of replicator-mutator dynamics**, Ö. D. Akyıldız, *arXiv:1712.07879*, 2017.
- 2017 **Adaptive noisy importance sampling for stochastic optimization**, Ö. D. Akyıldız, I. P. Marino, J. Miguez, *IEEE CAMSAP 2017*.
- 2016 **On the Relationship between Online Optimizers and Recursive Filters**, Ö. D. Akyıldız, V. Elvira, J. Fernandez-Bes, J. Miguez, *NIPS Workshop on Optimizing the Optimizers*, Barcelona, Spain, 2016.
- 2015 **Matrix Factorisation with Linear Filters**, Ö. D. Akyıldız, *arXiv:1509.02088*.
- 2015 **Online Matrix Factorization via Broyden Updates**, Ö. D. Akyıldız, Preprint, *arXiv:1506.04389*.
- 2014 **Primal-Dual Algorithms for Audio Decomposition Using Mixed Norms**, İ. Bayram, Ö. D. Akyıldız, *Journal of Signal, Image and Video Processing*, 2014.
- 2012 **An Analysis Prior Based Decomposition Method for Audio Signals**, Ö. D. Akyıldız and İ. Bayram, *EUSIPCO 2012*.

Talks

- Oct. 30, 2019 **Proximal methods from a probabilistic perspective**, at *ProbNum 2019*, The Alan Turing Institute.
- Sep. 16, 2019 **Convergence rates for optimised adaptive importance samplers** (Invited), U. of Edinburgh.
- May 10, 2019 **Probabilistic Incremental Optimization** (Invited), University of Warwick.
- Dec. 20, 2018 **Parallel SMC for stochastic optimization**, Bogazici University.
- Sep. 25, 2018 **Nudging the particle filter**, Universidad Carlos III de Madrid.
- Feb. 16, 2018 **Nudging the particle filter** (Invited), Imperial College London.
- Nov. 28, 2017 **Adaptive noisy importance sampling**, Universidad Carlos III de Madrid.

Teaching Experience

- Fall 2018 **Teaching Assistant**, Systems and Signals, in Dept. of Signal Theory and Communications, Universidad Carlos III de Madrid.
- 2013 – 2015 **Teaching Assistant** (Voluntary), Boğaziçi University, Istanbul, Turkey.
 - Monte Carlo methods (graduate course) $\times 3$
 - Bayesian statistics and machine learning (graduate course) $\times 2$

Professional Activities

Reviewed for: *IEEE Transactions on Signal Processing*; *IEEE Signal Processing Letters*; *Digital Signal Processing*, Elsevier; *EURASIP Journal on Image and Video Processing*; *CAMSAP 2017*.

Visits & Workshops

- 16–19/9/19 School of Mathematics, University of Edinburgh, Edinburgh, UK.
- 18–23/8/19 School of Mathematics, University of Edinburgh, Edinburgh, UK.
- 27–31/8/18 Bayesian Computation for High-Dimensional Statistical Models, Singapore.
- 26–28/3/18 BayesComp 2018, Barcelona, Spain.
- 29/8–1/9/17 SMC 2017 Workshop, Uppsala, Sweden (Poster).
- 5–10/12/16 NIPS Conference, Barcelona, Spain.
 - 3–4/12/16 European Workshop on Reinforcement Learning, Barcelona.
- 26–29/6/16 IEEE Workshop on Statistical Signal Processing, Palma, Spain.
- 16–20/5/16 School of Mathematical Sciences, Queen Mary University of London, UK.
 - 1–5/2/16 School of Mathematical Sciences, Queen Mary University of London, UK.
- 14–24/12/15 School of Mathematical Sciences, Queen Mary University of London, UK.
- 21–23/12/15 Sequential Monte Carlo Workshop, Imperial College London, UK.

Graduate Schools

- 19–23/6/17 **Dobbiaco Summer School on Probabilistic Numerics**, Dobbiaco, Italy.
 - 4–8/7/16 **Summer School on Uncertainty Quantification for Applied Problems**, Basque Center for Applied Mathematics, Bilbao, Spain.
- 13–24/7/15 **Machine Learning Summer School**, Max Planck Institute of Intelligent Systems, Tübingen, Germany. (awarded full financial support.)
- 22–26/6/15 **Foundations and Advances in Stochastic Filtering**, Barcelona, Spain.