

EDUCATION *PhD*, Signal Processing, Carlos III University of Madrid. Ongoing
Thesis: Sequential and adaptive Bayesian computation for inference and optimization
Supervisor: Joaquín Míguez.

MSc, Communications Engineering, Istanbul Technical University. 2012
Thesis Title: A structured sparse decomposition method for audio signals

BSc, Communications Engineering, Istanbul Technical University. 2010
Thesis Title: Anisotropic diffusion in image processing

WORK EXPERIENCE *Research Fellow*, University of Warwick, UK. Jan. 2019 –
joint appointment between Dept. of Computer Science and Dept. of Statistics.
Based at The Alan Turing Institute, London.

Research Assistant, Carlos III University of Madrid, Spain. Oct. 2015 – Jan. 2019
within Signal Processing Group (GTS), Dept. of Signal Theory and Communications.
on *stochastic filters*; *Bayesian inference*; *Monte Carlo methods*; *stochastic optimisation*.

Visiting Researcher, The Alan Turing Institute, London, UK. June – August 2018
within the programme Data-Centric Engineering, hosted by Chris Oates.
on *Bayesian inference*; *variational methods*; *probabilistic numerics*.

Visiting Research Scientist, Fraunhofer HHI, Berlin, Germany. May – June 2018
within Signal and Information Processing Group.
on *machine learning applied to vehicular communications*.

Visiting Researcher, Imperial College London, UK. January – March 2018
under the supervision of Dan Crisan, Department of Mathematics.
on *stochastic filtering and optimisation*.

Visiting Research Scientist, Fraunhofer HHI, Berlin, Germany. August 2017
on *proximal forward-backward splitting methods*; *sparse dictionary learning*.

Research Assistant, Boğaziçi University, Istanbul, Turkey. 2012 – 2015
under the supervision of A. Taylan Cemgil with Statistical Inference Group.
on *Bayesian statistics*; *machine learning*; *probabilistic inference*.

Quantitative Researcher, algosis inc. 2014 – 2015
on *financial time series analysis*; *portfolio optimisation*; *algorithmic trading*.

Research Assistant, Istanbul Technical University, Turkey. 2010 – 2012
within Multimedia Signal Processing and Pattern Recognition Group
on *convex optimisation*; *machine learning*; *signal processing*.

PAPERS

1. *Dictionary filtering: a probabilistic approach to online matrix factorisation*, Ö. D. Akyıldız, J. Míguez, Signal, Image and Video Processing, 1-8, 2018.
2. *A probabilistic incremental proximal gradient method*, Ö. D. Akyıldız, É. Chouzenoux, V. Elvira, J. Míguez, [arXiv:1812.01655](https://arxiv.org/abs/1812.01655), 2018.

3. *Parallel sequential Monte Carlo for stochastic optimization*, Ö. D. Akyıldız, D. Crisan, J. Miguez, [arXiv:1811.09469](#), 2018.
4. *The Incremental Proximal Method: A Probabilistic Perspective*, Ö. D. Akyıldız, V. Elvira, J. Miguez, ICASSP 2018.
5. *A probabilistic interpretation of replicator-mutator dynamics*, Ö. D. Akyıldız, [arXiv:1712.07879](#), 2017.
6. *Adaptive noisy importance sampling for stochastic optimization*, Ö. D. Akyıldız, I. P. Marino, J. Miguez, IEEE CAMSAP 2017.
7. *Nudging the particle filter*, Ö. D. Akyıldız, J. Miguez, [arXiv:1708.07801](#), 2017.
8. *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.
9. *Matrix Factorisation with Linear Filters*, Ö. D. Akyıldız, Preprint, [arXiv:1509.02088](#), 2015.
10. *Online Matrix Factorization via Broyden Updates*, Ö. D. Akyıldız, Preprint, [arXiv:1506.04389](#), 2015.
11. *Primal-Dual Algorithms for Audio Decomposition Using Mixed Norms*, İ. Bayram, Ö. D. Akyıldız, Journal of Signal, Image and Video Processing, 2014.
12. *An Analysis Prior Based Decomposition Method for Audio Signals*, Ö. D. Akyıldız and İ. Bayram, EUSIPCO 2012.

TEACHING EXPERIENCE

<i>Teaching Assistant</i> , Universidad Carlos III, Madrid, Spain. Systems and Signals in Dept. of Signal Theory and Communications.	Fall 2018
<i>Teaching Assistant</i> (Voluntarily), Boğaziçi University, Istanbul, Turkey. Monte Carlo methods (graduate course) $\times 3$ in Dept. of Computer Engineering.	2013 – 2015
Bayesian statistics and machine learning (graduate course) $\times 2$ in Dept. of Computer Engineering.	2013 – 2014

PROFESSIONAL ACTIVITIES

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

SKILLS

MATLAB, C, Python, LaTeX.

VISITS & CONFERENCES

Bayesian Comp. for High-Dimensional Stat. Models, Singapore.	27-31 Aug. 2018
BayesComp 2018, Barcelona, Spain.	26-28 March 2018
Bayes Data Science for Health, Warwick University, UK	21 March 2018
SMC 2017 Workshop, Uppsala, Sweden.	29 August – 1 September 2017
NIPS Conference, Barcelona, Spain.	5-10 December 2016
European Workshop on Reinforcement Learning, Barcelona.	3-4 December 2016

	IEEE Workshop on Statistical Signal Processing, Palma, Spain.	26-29 June 2016
	School of Mathematical Sciences, Queen Mary University of London, UK. • 14-24 Dec. 2015 — 1-5 Feb. 2016 — 16-20 May 2016	
	Sequential Monte Carlo Workshop, Imperial College London, UK.	21-23 Dec. 2015
GRADUATE SCHOOLS	<i>Dobbiaco Summer School on Probabilistic Numerics</i> Dobbiaco, Italy.	19-23 June 2017
	<i>Summer School on Uncertainty Quantification for Applied Problems</i> Basque Center for Applied Mathematics, Bilbao, Spain.	4-8 July 2016
	<i>Machine Learning Summer School</i> Max Planck Institute of Intelligent Systems, Tübingen, Germany. (accepted with extremely competitive full financial support.)	13-24 July 2015
	<i>Foundations and Advances in Stochastic Filtering</i> Barcelona, Spain.	22-26 June 2015
	<i>Lectures on Large Deviations and Probability Models</i> Nesin Mathematics Village, Şirince, Turkey.	1-8 Sept. 2013
HONORS	<ul style="list-style-type: none"> • Protel A.Ş. Graduate Fellowship • Istanbul Metropolitan Municipality Undergraduate Fellowship • Premiership Undergraduate Fellowship 	2010 – 2012 2005 – 2008 2005 – 2010
TALKS	<ul style="list-style-type: none"> • Parallel SMC for stochastic optimization, at Bogazici, • Nudging the particle filter, at UC3M • Nudging the particle filter, at Imperial College London • Adaptive noisy importance sampling, at UC3M • A filtering approach to stochastic optimisation, at UC3M • Filtering in high-dimensional spaces, at UC3M • Matrix Factorisation with Linear Filters, at UC3M • Particle methods for parameter estimation, at Bogazici • An online EM algorithm and applications, at Bogazici • Stochastic approximations, at Bogazici • Learning Linear Dynamical Systems, at Bogazici 	Dec. 20, 2018 Sept. 25, 2018 Feb. 16, 2018 November 28, 2017 June 6, 2017 November 14, 2016 October 22, 2015 March 31, 2015 November 26, 2013 March 26, 2013 January 21, 2013