

## EDUCATION

*PhD*, Signal Processing, Carlos III University of Madrid, Spain. Ongoing  
*Thesis*: Computational methods for high dimensional inference and optimisation  
*Supervisor*: Joaquín Míguez.

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

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

## PAPERS

1. *The Incremental Proximal Method: A Probabilistic Perspective*, Ö. D. Akyıldız, V. Elvira, J. Míguez, ICASSP 2018.
2. *A probabilistic interpretation of replicator-mutator dynamics*, Ö. D. Akyıldız, [arXiv:1712.07879](#).
3. *Adaptive noisy importance sampling for stochastic optimization*, Ö. D. Akyıldız, I. P. Marino, J. Míguez, IEEE CAMSAP 2017.
4. *Nudging the particle filter*, Ö. D. Akyıldız, J. Míguez, [arXiv:1708.07801](#).
5. *On the Relationship between Online Optimizers and Recursive Filters*, Ö. D. Akyıldız, V. Elvira, J. Fernandez-Bes, J. Míguez, NIPS Workshop on Optimizing the Optimizers, Barcelona, Spain, 2016.
6. *Matrix Factorisation with Linear Filters*, Ö. D. Akyıldız, Preprint, [arXiv:1509.02088](#), 2015.
7. *Online Matrix Factorization via Broyden Updates*, Ö. D. Akyıldız, Preprint, [arXiv:1506.04389](#), 2015.
8. *Primal-Dual Algorithms for Audio Decomposition Using Mixed Norms*, İ. Bayram, Ö. D. Akyıldız, Journal of Signal, Image and Video Processing, 2014.
9. *An Analysis Prior Based Decomposition Method for Audio Signals*, Ö. D. Akyıldız and İ. Bayram, EUSIPCO 2012.

## WORK EXPERIENCE

Visiting Researcher, Alan Turing Institute, London, UK. June 2018 -  
within the programme Data-Centric Engineering, hosted by Chris Oates.  
on *probabilistic numerics, scalable Bayesian computation, uncertainty quantification*.

Research Assistant, Carlos III University of Madrid, Spain. 2015 –  
with Signal Processing Group (GTS).  
on *stochastic filters; Bayesian inference; Monte Carlo methods; stochastic optimisation*.

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

Visiting Researcher, Imperial College London, UK. Jan. 2018 – 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  
on *convex optimisation; machine learning; signal processing*.

## SKILLS

MATLAB, C, Python, LaTeX.

## VISITS & CONFERENCES

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

## TEACHING EXPERIENCE

*Teaching Assistant* (Voluntarily), Boğaziçi University, Istanbul, Turkey.  
Monte Carlo methods (graduate course)  $\times$  3 2013 – 2015  
in Dept. of Computer Engineering.

Bayesian statistics and machine learning (graduate course)  $\times$  2 2013 – 2014  
in Dept. of Computer Engineering.

## GRADUATE SCHOOLS

*Dobbiaco Summer School on Probabilistic Numerics* 19-23 June 2017  
Dobbiaco, Italy.

*Spring School and Workshop on Volatility Dynamics* 10-13 March 2017  
Bernoulli Center, EPFL, Lausanne, Switzerland.

*Summer School on Uncertainty Quantification for Applied Problems* 4-8 July 2016  
Basque Center for Applied Mathematics, Bilbao, Spain.

*Machine Learning Summer School* 13-24 July 2015  
Max Planck Institute of Intelligent Systems, Tübingen, Germany.  
(accepted with extremely competitive full financial support.)

*Foundations and Advances in Stochastic Filtering* 22-26 June 2015  
Barcelona, Spain.

*Lectures on Large Deviations and Probability Models* 1-8 Sept. 2013  
Nesin Mathematics Village, Şirince, Turkey.

*Applied Mathematics Summer School* 22-29 August 2011  
Nesin Mathematics Village, Şirince, Turkey.

## HONORS

- Protel A.Ş. Graduate Fellowship 2010 – 2012
- Istanbul Metropolitan Municipality Undergraduate Fellowship 2005 – 2008
- Premiership Undergraduate Fellowship 2005 – 2010

## TALKS

- Nudging the particle filter, at Imperial College London Feb. 16, 2018
- Adaptive noisy importance sampling, at UC3M November 28, 2017
- A filtering approach to stochastic optimisation, at UC3M June 6, 2017
- Filtering in high-dimensional spaces, at UC3M November 14, 2016
- Matrix Factorisation with Linear Filters, at UC3M October 22, 2015
- Particle methods for parameter estimation, at Bogazici March 31, 2015
- An online EM algorithm and applications, at Bogazici November 26, 2013
- Stochastic approximations, at Bogazici March 26, 2013
- Learning Linear Dynamical Systems, at Bogazici January 21, 2013

## OTHER

I maintain a research blog: <http://www.almoststochastic.com>.