

**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*, 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  
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.

## 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

## TEACHING EXPERIENCE

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

Bayesian statistics and machine learning (graduate course) $\times$ 2 in Dept. of Computer Engineering.	2013 – 2014
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<b>PROFESSIONAL ACTIVITIES</b>	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.
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<b>GRADUATE SCHOOLS</b>	<i>Dobbiaco Summer School on Probabilistic Numerics</i> Dobbiaco, Italy.	19-23 June 2017
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<i>Summer School on Uncertainty Quantification for Applied Problems</i> Basque Center for Applied Mathematics, Bilbao, Spain.	4-8 July 2016
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<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
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<i>Foundations and Advances in Stochastic Filtering</i> Barcelona, Spain.	22-26 June 2015
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<i>Lectures on Large Deviations and Probability Models</i> Nesin Mathematics Village, Şirince, Turkey.	1-8 Sept. 2013
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<b>HONORS</b>	<ul style="list-style-type: none"> <li>• Protel A.Ş. Graduate Fellowship <span style="float: right;">2010 – 2012</span></li> <li>• Istanbul Metropolitan Municipality Undergraduate Fellowship <span style="float: right;">2005 – 2008</span></li> <li>• Premiership Undergraduate Fellowship <span style="float: right;">2005 – 2010</span></li> </ul>
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<b>TALKS</b>	<ul style="list-style-type: none"> <li>• Parallel SMC for stochastic optimization, at Bogazici, <span style="float: right;">Dec. 20, 2018</span></li> <li>• Nudging the particle filter, at UC3M <span style="float: right;">Sept. 25, 2018</span></li> <li>• Nudging the particle filter, at Imperial College London <span style="float: right;">Feb. 16, 2018</span></li> <li>• Adaptive noisy importance sampling, at UC3M <span style="float: right;">November 28, 2017</span></li> <li>• A filtering approach to stochastic optimisation, at UC3M <span style="float: right;">June 6, 2017</span></li> <li>• Filtering in high-dimensional spaces, at UC3M <span style="float: right;">November 14, 2016</span></li> <li>• Matrix Factorisation with Linear Filters, at UC3M <span style="float: right;">October 22, 2015</span></li> <li>• Particle methods for parameter estimation, at Bogazici <span style="float: right;">March 31, 2015</span></li> <li>• An online EM algorithm and applications, at Bogazici <span style="float: right;">November 26, 2013</span></li> <li>• Stochastic approximations, at Bogazici <span style="float: right;">March 26, 2013</span></li> <li>• Learning Linear Dynamical Systems, at Bogazici <span style="float: right;">January 21, 2013</span></li> </ul>
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