Ömer Deniz Akyıldız

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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. Miguez, Signal, Image and Video Processing, 1-8, 2018.

2. *A probabilistic incremental proximal gradient method*, Ö. D. Akyıldız, É. Chouzenoux, V. Elvira, J. Miguez, arXiv: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	*Teaching Assistant*, Universidad Carlos III, Madrid, Spain. Systems and Signals in Dept. of Signal Theory and Communications.	Fall 2018
	Teaching Assistant (Voluntarily), Boğaziçi University, Istanbul, Turkey. Monte Carlo methods (graduate course) × 3 in Dept. of Computer Engineering.	2013 – 2015
	Bayesian statistics and machine learning (graduate course) × 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

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

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.

HONORS

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

TALKS

- Parallel SMC for stochastic optimization, at Bogazici,   Dec. 20, 2018
- Nudging the particle filter, at UC3M   Sept. 25, 2018
- 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