Ömer Deniz Akyıldız

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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. Miguez, 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. Miguez, IEEE CAMSAP 2017.

4. *Nudging the particle filter*, Ö. D. Akyıldız, J. Miguez, arXiv:1708.07801.

5. *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.

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

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 Researcher, Alan Turing Institute, London, UK.   June 2018 - Aug. 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 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

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

Teaching Assistant, Universidad Carlos III, Madrid, Spain.
Systems and Signals Fall 2018
in Dept. of Signal Theory and Communications.

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	
Nesin Mathematics Village, Şirince, Turkey.	22-29 August 2011

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`.