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AREAS OF INTEREST

- Statistical Modelling and Data analysis, Big Data
- Bayesian statistics, Machine Learning, Time Series Analysis, Scientific Computation
- Graphical Models, Approximate inference, Monte Carlo methods, Distributed Optimization
- Statistical analysis of Networks
- Matrix and Tensor decompositions
- Audio and Music Modelling

EDUCATION

- **PhD**, (2004) Mathematics, Physics and Computer Science
Radboud University Nijmegen, Nijmegen, The Netherlands
Thesis: "Bayesian music transcription"
Advisor: Bert Kappen
- MSc. Computer Engineering (1995)
Boğaziçi University, Istanbul, Turkey
- B.Sc. Computer Engineering (1993)
Boğaziçi University, Istanbul, Turkey

EMPLOYMENT HISTORY

- **Associate Prof.** (04/2012 --)
Computer Engineering, Boğaziçi University
- **Assistant Prof.** (09/2008 – 04/2012)
Computer Engineering, Boğaziçi University
- **Postdoc**, (09/2004 -- 04/2005) and (10/2005--09/2008)
Cambridge University, Signal Processing and Communications Lab.
- **Postdoc**, (02/2003 -- 09/2004) and (04/2005--10/2005)
Amsterdam University, Intelligent and Adaptive Systems
- **Research Assistant**, (02/1998 -- 02/2003)
Nijmegen Radboud University, SNN, Foundation for Neural Networks, the Netherlands
- **Teaching Assistant**, (10/1993 -- 02/1998)
Computer Engineering, Boğaziçi University

PUBLICATIONS

Edited Books

1. Barber, D.; Cemgil, A. T. & Chiappa, S. editors. *Bayesian Time Series Models*, Cambridge University Press. (2011)

Journal Publications

1. Ari, I.; Simsekli, U.; Cemgil, A. T. & Akarun, L. (2014), 'Randomized Matrix Decompositions and Exemplar Selection in Large Dictionaries for Polyphonic Piano Transcription', *Journal of New Music Research* PP, PP.
2. Subakan, Y. C.; Kurt, B.; Cemgil, A. T. & Sankur, B. (2014), 'Probabilistic Sequence Clustering with Spectral Learning', *Digital Signal Processing*.
3. Ermis, B.; Acar, E. & Cemgil, A. T. (2013), 'Link prediction in heterogeneous data via generalized coupled tensor factorization', *Data Mining and Knowledge Discovery*, 1-34.
4. Nielsen, J.; Christensen, M.; Cemgil, A. & Jensen, S. (2014), 'Bayesian Model Comparison with the g-Prior', *Signal Processing, IEEE Transactions on* 62(1), 225 - 238.
5. Demir, C.; Saraçlar, M. & Cemgil, A. T. (2012), 'Single-Channel Speech-Music Separation for Robust ASR With Mixture Models', *IEEE Transactions on Audio, Speech, and Language Processing*. (SCIE)
6. Şimşekli, U.; Sönmez, O.; Kurt, B. & Cemgil, A. T. (2012), 'Combined Perception and Control for Timing in Robotic Music Performances', *EURASIP Journal on Audio, Speech, and Music Processing* **2012**. (SCIE)
7. Yılmaz, Y. K. & Cemgil, A. T. (2011), 'Algorithms for Probabilistic Latent Tensor Factorization', *Signal Processing* **92**(8), 1853 - 1863. (SCIE)
8. Nielsen, J. K.; Christensen, M. G.; Cemgil, A. T.; Godsill, S. J. & Jensen, S. J. (2011), 'Bayesian Interpolation and Parameter Estimation in a Dynamic Sinusoidal Model', *Audio, Speech, and Language Processing, IEEE Transactions on* **19**(7), 1986-1998. (SCIE)
9. Şimşekli, U. & Cemgil, A. T. (2011), 'Probabilistic Models for Real-Time Acoustic Event Detection with Application to Pitch Tracking', *Journal of New Music Research* **40**(2), 175-185. (SCIE,AHCI)
10. Ülker, Y.; Günsel, B. & Cemgil, A. T. (2011), 'Annealed SMC Samplers for Nonparametric Bayesian Mixture Models', *IEEE Signal Processing Letters*. **18**, 3-6. (SCIE)
11. Şimşekli, U.; Jylha, A.; Erkut, C. & Cemgil, A. T. (2011), 'Real-Time Recognition of Percussive Sounds by a Model-Based Method', *EURASIP Journal on Advances in Signal Processing*. (SCIE)
12. Barber, D. & Cemgil, A. T. (2010), 'Graphical Models for Time Series', *IEEE Signal Processing Magazine, Special issue on graphical models* **27**(6), 18-28. (SCI)
13. Yıldırım, S.; Cemgil, A. T.; Aktar, M.; Ozakin, Y. & Ertuzun, A. B. (2010), 'A Bayesian Deconvolution Approach for Receiver Function Analysis', *IEEE Trans. Geoscience and Remote Sensing* **48**(12), 4151 - 4163. (SCI)
14. Dikmen, O. & Cemgil, A. T. (2010), 'Gamma Markov Random Fields for Audio Source Modelling', *IEEE Transactions on Audio, Speech, and Language Processing* **18**(3), 589-601. (SCIE)
15. Peeling, P. H.; Cemgil, A. T. & Godsill, S. J. (2010), 'Generative Spectrogram Factorization Models for Polyphonic Piano Transcription', *IEEE Transactions on Audio, Speech and Language Processing* **18**(3), 519-527. (SCIE)
16. Cemgil, A. T. (2009), 'Bayesian Inference in Non-negative Matrix Factorisation Models', *Computational Intelligence and Neuroscience*(Article ID 785152).
17. Broeke, J. H. P.; Ge, H.; Dijkstra, I. M.; Cemgil, A. T.; Riedl, J. A.; Cornelisse, L. N.; Toonen, R. F.; Verhage, M. & Fitzgerald, W. J. (2009), 'Automated quantification of cellular traffic in living cells', *Journal of Neuroscience Methods* **178**(2), 378 - 384. (SCIE)
18. Zivkovic, Z.; Cemgil, A. T. & Kruse, B. J. A. (2009), 'Approximate Bayesian methods for kernel-based object tracking', *Computer Vision and Image Understanding* **113**(6), 743-749. (SCIE)

19. Cemgil, A. T.; Fevotte, C. & Godsill, S. J. (2007), 'Variational and Stochastic Inference for Bayesian Source Separation', *Digital Signal Processing* **17**(5), 891-913. (SCIE)
20. Cemgil, A. T.; Kappen, H. J. & Barber, D. (2006), 'A generative model for music transcription', *IEEE Transactions on Audio, Speech, and Language Processing* **14**(2), 679--694. (SCIE)
21. Cemgil, A. T. & Kappen, H. J. (2003), 'Monte Carlo Methods for Tempo Tracking and Rhythm Quantization', *Journal of Artificial Intelligence Research* **18**, 45-81. (SCIE)
22. Cemgil, A. T.; Kappen, H. J.; Desain, P. & Honing, H. (2001), 'On Tempo Tracking: Tempogram Representation and Kalman Filtering', *Journal of New Music Research* **28:4**, 259-273. (SCIE,AHCI)
23. Sülün, T.; Cemgil, A. T.; Duc, J. M. P.; Rammelsberg, P. & Jaeger, L. (2001), 'Morphology of the mandibular fossa and inclination of the articular eminence in patients with internal derangement and in symptom-free volunteers', *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontology* **92**, 98-107. (SCIE)
24. Cemgil, A. T.; Desain, P. & Kappen, H. J. (2000), 'Rhythm Quantization for Transcription', *Computer Music Journal* **24:2**, 60-76. (SCIE)

Conference

1. Dikmen, O. & Cemgil, A. T. (2014), Sequential Monte Carlo Samplers for Marginal Likelihood Computation in Multiplicative Exponential Noise Models, in 'IEEE Statistical Signal Processing Workshop (SSP'14)'.
2. Fidaner, I. B. & Cemgil, A. T. (2013), Summary Statistics for Partitionings and Feature Allocations, in C.J.C. Burges; L. Bottou; M. Welling; Z. Ghahramani & K.Q. Weinberger, ed., 'Advances in Neural Information Processing Systems 26', pp. 261--269.
3. Simsekli, U.; Ermis, B.; Cemgil, A. T. & Acar, E. (2013), Optimal weight learning for coupled tensor factorization with mixed divergences, in , EUSIPCO, .
4. Simsekli, U.; Yilmaz, Y. K. & Cemgil, A. T. (2013), Learning the beta-Divergence in Tweedie Compound Poisson Matrix Factorization Models, in Sanjoy Dasgupta & David Mcallester, ed., 'Proceedings of the 30th International Conference on Machine Learning (ICML-13)', JMLR Workshop and Conference Proceedings, , pp. 1409-1417.
5. Basaran, D.; Cemgil, A. T. & Anarim, E. (2013), SMC Samplers for Multiresolution Audio Sequence Alignment, in 'International Conference on Acoustics Speech and Signal Processing ICASSP'.
6. Simsekli, U.; Yilmaz, Y. K. & Cemgil, A. T. (2013), Learning the beta-Divergence in Tweedie Compound Poisson Matrix Factorization Models, in 'International Conference on Machine Learning, ICML'.
7. Arı, .I.; Cemgil, A. T. & Akarun, L. (2012), Probabilistic Interpolative Decomposition, in 'IEEE International Workshop on Machine Learning for Signal Processing (MLSP)'.
8. Ermis, B.; Yilmaz, Y. K.; Acar, E. & Cemgil, A. T. (2012), Variational Inference For Probabilistic Latent Tensor Factorization with KL Divergence, in 'Submitted'.
9. Ermis, B.; Acar, E. & Cemgil, A. T. (2012), Link Prediction via Generalized Coupled Tensor Factorisation, in 'ECML PKDD Colisd Workshop'.
10. Şimşekli, U. & Cemgil, A. T. (2012), Markov Chain Monte Carlo Inference for Probabilistic Latent Tensor Factorization, in 'IEEE International Workshop on Machine Learning for Signal Processing (MLSP)'.
11. Kurt, B.; Cemgil, A.; Mungan, M.; Polat, N.; Ozdogan, A. & Saygun, E. (2012), Network Management without Payload Inspection: Application Classification via Statistical Analysis of Bulk Flow Data, in 'Future Network and MobileSummit 2012 Conference Proceedings,', pp. 1 - 8.
12. Demir, C.; Saraclar, M. & Cemgil, A. T. (2012), Catalog-Based Single-Channel Speech-Music Separation with the Itakura-Saito Divergence, in 'Eusipco'.

13. Yildirim, S.; Cemgil, A. T. & Singh, S. S. (2012), An Online Expectation-Maximisation Algorithm for Nonnegative Matrix Factorisation Models, *in* '16th IFAC Symposium on System Identification (SYSID 2012)'.
14. Arı, .I.; Şimşekli, U.; Cemgil, A. T. & Akarun, L. (2012), Large Scale Polyphonic Music Transcription Using Randomized Matrix Decompositions, *in* '20th European Signal Processing Conference (EUSIPCO)', pp. 2020 - 2024.
15. Şimşekli, U. & Cemgil, A. T. (2012), Score Guided Musical Source Separation Using Generalized Coupled Tensor Factorization, *in* '20th European Signal Processing Conference (EUSIPCO)', pp. 2639 - 2643.
16. Şimşekli, U.; Cemgil, A. T. & Yilmaz, Y. K. (2012), Score Guided Audio Restoration via Generalised Coupled Tensor Factorisation, *in* 'International Conference on Acoustics Speech and Signal Processing ICASSP', pp. 5369 - 5372.
17. Yilmaz, K. Y.; Cemgil, A. T. & Şimşekli, U. (2011), Generalized Coupled Tensor Factorization, *in* 'NIPS'.
18. Basaran, D.; Cemgil, A. T. & Anarım, E. (2011), Model Based Multiple Audio Sequence Alignment, *in* 'Proc. IEEE Workshop on Applications of Signal Processing to Audio and Acoustics WASPAA '11', pp. 13-16.
19. Cemgil, A. T.; Şimşekli, U. & Subakan, Y. C. (2011), Probabilistic Latent Tensor Factorization Framework for Audio Modeling, *in* 'Proc. IEEE Workshop on Applications of Signal Processing to Audio and Acoustics WASPAA '11', pp. 137-140.
20. Keskin, C.; Cemgil, A. T. & Akarun, L. (2011), DTW Based Clustering to Improve Hand Gesture Recognition, *in* 'HBU'.
21. Demir, C.; Cemgil, A. T. & Saraclar, M. (2011), Semi-supervised Single-Channel Speech-Music Separation for Automatic Speech Recognition, *in* 'INTERSPEECH'.
22. Demir, C.; Cemgil, A. T. & Saraclar, M. (2011), Catalog-Based Single-Channel Speech-Music Separation for Automatic Speech Recognition, *in* 'Proc. 19th European Signal Processing Conference, EUSIPCO'11'.
23. Fevotte, C.; Cappe, O. & Cemgil, A. T. (2011), Efficient Markov chain Monte Carlo inference in composite models with space alternating data augmentation, *in* 'Proc.~IEEE Workshop on Statistical Signal Processing (SSP)', pp. 221 - 224.
24. Demir, C.; Cemgil, A. T. & Saraclar, M. (2011), Gain Estimation Approaches in Catalog-Based Single-Channel Speech-Music Separation., *in* 'Proceedings of the Automatic Speech Recognition and Understanding Workshop (ASRU)', pp. 185 - 190.
25. Demir, C.; Cemgil, A. T. & Saraclar, M. (2010), Catalog-Based Single-Channel Speech-Music Separation, *in* 'INTERSPEECH'.
26. Yilmaz, K. & Cemgil, A. T. (2010), Probabilistic Latent Tensor factorisation, *in* 'Proc. of International Conference on Latent Variable analysis and Signal Separation', pp. 346-353.
27. Nielsen, J. K.; Christensen, M. G.; Cemgil, A. T.; Godsill, S. J. & Jensen, S. H. (2010), Bayesian Interpolation in a Dynamic Sinusoidal Model with Application to Packet-loss Concealment, *in* 'EUSIPCO 2010'.
28. Kirbiz, S.; Cemgil, A. T. & Günsel, B. (2010), Bayesian Inference for Nonnegative Matrix Factor Deconvolution Models, *in* 'ICPR'10', pp. 2812 - 2815.
29. Ulker, Y.; Günsel, B. & Cemgil, A. T. (2010), Annealed SMC Samplers for Dirichlet Process Mixture Models, *in* 'ICPR'10'.

30. Şimşekli, U. & Cemgil, A. T. (2010), A Comparison of Probabilistic Models for online pitch tracking, *in* 'Proc. of 7th Sound and Music Computing Conference'.
31. Ulker, Y.; Günsel, B. & Cemgil, A. T. (2010), Sequential Monte Carlo Samplers for Dirichlet Process Mixtures, *in* 'AISTATS'10'.
32. Dikmen, O. & Cemgil, A. T. (2009), Unsupervised single-channel source separation using bayesian NMF, *in* 'Proc. IEEE Workshop on Applications of Signal Processing to Audio and Acoustics WASPAA '09', pp. 93--96.
33. Fevotte, C. & Cemgil, A. T. (2009), Nonnegative matrix factorisations as probabilistic inference in composite models, *in* 'Proc. 17th European Signal Processing Conference (EUSIPCO'09)'.
34. Virtanen, T. O. & Cemgil, A. T. (2009), Mixtures of Gamma Priors for Non-Negative Matrix Factorization Based Speech Separation, *in* 'ICA 2009, 7th International Conference on Independent Component Analysis and Signal Separation', pp. 646-653 .
35. Yildirim, S.; Cemgil, A. T. & Ertuzun, A. B. (2009), A hybrid method for deconvolution of Bernoulli-Gaussian processes, *in* 'Proc. IEEE International Conference on Acoustics, Speech and Signal Processing ICASSP 2009', pp. 3417--3420.
36. Cemgil, A. T. & Dikmen, O. (2008), Inference and learning in gamma chains for Bayesian audio processing, *in* 'Proceedings of Acoustics'08', pp. 4055-4060.
37. Virtanen, T.; Cemgil, A. T. & Godsill, S. (2008), Bayesian extensions to non-negative matrix factorisation for audio signal modelling, *in* 'Proc. IEEE International Conference on Acoustics, Speech and Signal Processing ICASSP 2008', pp. 1825--1828.
38. Peeling, P.; Cemgil, A. T. & Godsill, S. (2008), Bayesian hierarchical models and inference for musical audio processing, *in* 'Proc. 3rd International Symposium on Wireless Pervasive Computing ISWPC 2008', pp. 278--282.
39. Cemgil, A. T.; Peeling, P.; Dikmen, O. & Godsill, S. J. (2007), Prior Structures for Time-Frequency Energy Distributions, *in* 'Proc. IEEE Workshop on Applications of Signal Processing to Audio and Acoustics', pp. 151--154.
40. Clark, D.; Cemgil, A. T.; Peeling, P. & Godsill, S. (2007), Multi-Object Tracking of Sinusoidal Components in Audio with the Gaussian Mixture Probability Hypothesis Density Filter, *in* 'Proc. IEEE Workshop on Applications of Signal Processing to Audio and Acoustics', pp. 339--342.
41. Cemgil, A. T. & Dikmen, O. (2007), Conjugate Gamma Markov random fields for modelling nonstationary sources, *in* 'ICA 2007, 7th International Conference on Independent Component Analysis and Signal Separation'.
42. Excell, D.; Cemgil, A. T. & Fitzgerald, W. J. (2007), Generative Model for Human Motion Recognition, *in* 'Proc. 5th International Symposium on Image and Signal Processing and Analysis ISPA 2007', pp. 423--428.
43. Peeling, P.; Cemgil, A. T. & Godsill, S. J. (2007), A Probabilistic Framework for Matching Music Representations, *in* 'Proceedings of International Conference on Music Information Retrieval'.
44. Cemgil, A. T. (2007), Strategies for Sequential Inference in Factorial Switching State Space Models, *in* 'Proc. IEEE International Conference on Acoustics, Speech and Signal Processing ICASSP 2007', pp. II-513--II-516.
45. Godsill, S.; Cemgil, A.; Fevotte, C. & Wolfe, P. (2007), Bayesian computational methods for sparse audio and music processing, *in* '15th European Signal Processing Conference'.
46. Whiteley, N.; Cemgil, A. T. & Godsill, S. (2007), Sequential Inference of Rhythmic Structure in Musical Audio, *in* 'Proc. IEEE International Conference on Acoustics, Speech and Signal Processing ICASSP 2007', pp. IV-1321--IV-1324.

47. van Kasteren, T.; Krose, B. & Cemgil, A. T. (2007), Realtime Simultaneous Tempo Tracking and Rhythm Quantization in Music, *in* 'Proceedings of Belgian-Dutch Conference on Artificial Intelligence (BNAIC)'.
48. Whiteley, N.; Cemgil, A. T. & Godsill, S. J. (2006), Bayesian Modelling of Temporal Structure in Musical Audio, *in* 'Proceedings of International Conference on Music Information Retrieval'.
49. Cemgil, A. T. (2006), Sequential Inference for Factorial Changepoint Models, *in* 'Proc. IEEE Nonlinear Statistical Signal Processing Workshop', pp. 203--206.
50. Zajdel, W.; Cemgil, A. & Kruse, B. (2006), Dynamic Bayesian networks for visual surveillance with distributed cameras, *in* '1st European Conference on Smart Sensing and Context (EuroSSC)', Springer, , pp. 240-243.
51. Cemgil, A. T. & Godsill, S. J. (2005), Probabilistic Phase Vocoder and its application to Interpolation of Missing Values in Audio Signals, *in* '13th European Signal Processing Conference'.
52. Cemgil, A. T.; Fevotte, C. & Godsill, S. J. (2005), Blind Separation of Sparse Sources using Variational EM, *in* '13th European Signal Processing Conference'.
53. Cemgil, A. T. & Godsill, S. J. (2005), Efficient Variational Inference for the Dynamic Harmonic Model, *in* 'Proc. of IEEE Workshop on Applications of Signal Processing to Audio and Acoustics', pp. 271-274.
54. Cemgil, A. T.; Zajdel, W. & Krose, B. J. A. (2005), A hybrid graphical model for robust feature extraction from video, *in* C. Schmid; S. Soatto & C. Tomasi, ed., 'Proc. IEEE Computer Society Conference on Computer Vision and Pattern Recognition CVPR 2005', pp. 1158--1165.
55. Krose, B.; Cemgil, T. & Zajdel, W. (2004), Tracking humans, *in* R Jacquart, ed., '18th World Computer Congress', pp. 751-752.
56. Zajdel, W.; Cemgil, A. T. & Krose, B. J. A. (2004), Online multicamera tracking with a switching state-space model, *in* 'Proc. 17th International Conference on Pattern Recognition ICPR 2004', pp. 339--343 Vol.4.
57. Cemgil, A. T. (2004), Polyphonic Pitch Identification and Bayesian Inference, *in* 'Proceedings of the International Computer Music Conference'.
58. Cemgil, A. T.; Kappen, B. & Barber, D. (2003), Generative model based polyphonic music transcription, *in* 'Proc. IEEE Workshop on Applications of Signal Processing to Audio and Acoustics', pp. 181--184.
59. Cemgil, A.; Barber, D. & Kappen, H. J. (2003), A Dynamical Bayesian Network for Tempo and Polyphonic Pitch Tracking, *in* 'Proceedings of ICANN'.
60. Cemgil, A. & Kappen, H. J. (2002), Integrating Tempo Tracking and Quantization using Particle filtering, *in* 'Proceedings of the 2002 International Computer Music Conference', pp. 419-422.
61. Cemgil, A. T. & Kappen, H. J. (2002), Tempo Tracking and Rhythm Quantization by Sequential Monte Carlo, *in* Thomas G. Dietterich; Sue Becker & Zoubin Ghahramani, ed., 'Advances in Neural Information Processing Systems 14', MIT Press, , pp. 1361-1368.
62. Cemgil, A. & Kappen, H. J. (2001), Bayesian Real-time Adaptation for Interactive Performance Systems, *in* 'Proceedings of the 2001 International Computer Music Conference', pp. 147-150.
63. Cemgil, A. & Kappen, H. J. (2001), A Dynamic Belief Network Implementation for Realtime Music Transcription, *in* 'Proceedings of the Belgian-Dutch Conference on Artificial Intelligence 2001'.
64. Cemgil, A.; Kappen, H. J.; Desain, P. & Honing, H. (2000), On tempo tracking: Tempogram Representation and Kalman filtering, *in* Ioannis Zannos, ed., 'Proceedings of the 2000

International Computer Music Conference', The Berliner Kulturveranstaltungs GmbH, Berlin, pp. 352-355.

65. Cemgil, A. T.; Desain, P. & Kappen, H. J. (1999), Rhythm Quantization for Transcription, *in* 'Proceedings of the AISB'99 Symposium on Musical Creativity', pp. 140-146.
66. Cemgil, A. & Erkut, C. (1997), Calibration of Physical Models using Artificial Neural Networks with Application to Plucked String Instruments, *in* 'Proceedings of ISMA97, International Symposium on Musical Acoustics'.
67. Cemgil, A. T.; Caglar, H. & Anarım, E. (1995), Comparison of Wavelet Filters for Pitch Detection of Monophonic Music Signals, *in* 'Proceedings of European Conference on Circuit Theory and Design, (ECCTD95)'.

National conferences

1. Arı, .I.; Cemgil, A. T. & Akarun, L. (2013), Çok-öbekli Veri için Aradeğerlemeci Ayrışım, *in* 'Signal Processing and Communications Applications Conference, IEEE 21th'. (En iyi makale ödülü)
2. Basaran, D.; Cemgil, A. T. & Anarım, E. (2013), Belirlenimci Benzerlik Yöntemlerine Dayalı Model Tabanlı Ses Dizisi Hizalaması (Model Based Audio Sequence Alignment Based on Deterministic Similarity Methods), *in* 'Signal Processing and Communications Applications Conference, IEEE 21th'.
3. Ermis, B.; Acar, E. & Cemgil, A. T. (2013), Bağlantı Tahmini İçin Bağlaşımlı Simetrik Tensör Ayrışım Modelleri, *in* 'Signal Processing and Communications Applications Conference, IEEE 21th'.
4. Guldaz, H. & Cemgil, A. T. (2013), Rasgele Örneklemeye ile Düşük Rank Matris Tamamlama (Low Rank Matrix Completion via Random Sampling), *in* 'IEEE Signal Proc. and Communications Applications Conference'.
5. Kavaklioglu, C. & Cemgil, A. T. (2013), İkiden Fazla Tensörün En Verimli Daraltma Sırası (Optimal Contraction Order of Multiple Tensors), *in* 'IEEE Signal Proc. and Communications Applications Conference'.
6. Simsekli, U.; Birdal, T.; Koc, E. & Cemgil, A. T. (2013), Çevrimiçi Servisler için Ayrışım Tabanlı Tavsiye Sistemi, *in* 'Signal Processing and Communications Applications Conference, IEEE 21th'.
7. Sönmez, O. & Cemgil, A. T. (2013), Modele Dayalı Pekiştirme ile Öğrenme için Ardışık Monte Carlo Örnekleyicileri, *in* 'Signal Processing and Communications Applications Conference, IEEE 21th'.
8. Subakan, Y. C.; Celiktutan, O.; Cemgil, A. T. & Sankur, B. (2013), Saklı Markov Model Karışımları için Spektral Öğrenme, *in* 'Signal Processing and Communications Applications Conference, IEEE 21th'.
9. Arı, .I.; Şimşekli, U.; Cemgil, A. T. & Akarun, L. (2012), TDA-tabanlı Çoksesli Müzik Notalandırma (SVD-based Polyphonic Music Transcription), *in* 'IEEE Signal Proc. and Communications Applications Conference'.
10. Fidaner, I. B. & Cemgil, A. T. (2012), Infinite mixture of piecewise linear sequences, *in* 'Signal Processing and Communications Applications Conference, 2012. SIU 2012. IEEE 20th'.
11. Kavaklioglu, C. & Cemgil, A. T. (2012), Paralel Genelleştirilmiş Tensor Çarpımı (Parallel Generalized Tensor Multiplication), *in* 'Signal Processing and Communications Applications (SIU), 2012 IEEE 20th Conference on'.
12. Şimşekli, U.; Yilmaz, Y. K. & Cemgil, A. T. (2012), Çoksesli Müzik Notalandırması için Bağlaşımlı Tensör Ayrışım Modelleri, *in* '20. IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı'.

13. Sönmez, O. & Cemgil, A. T. (2012), Modele dayal Pekiştirme ile Öğrenme için Önem Örneklemesi (Importance Sampling for Model-Based Reinforcement Learning), *in* 'IEEE Signal Proc. and Communications Applications Conference'.
14. Basaran, D.; Cemgil, A. & Anarım, E. (2011), Model Tabanlı Ses Dizisi Hizalanması (Model based audio sequence alignment), *in* 'Signal Processing and Communications Applications (SIU), 2011 IEEE 19th Conference on', pp. 606 -609.
15. Demir, C.; Doğan, M. U.; Cemgil, A. T. & Saraçlar, M. (2011), Konusma Tanıma için NOMA ile Tek-Kanalda Konusma-Muzik Ayrıştırma (Single-channel speech-music separation using NMF for automatic speech recognition), *in* 'Signal Processing and Communications Applications (SIU), 2011 IEEE 19th Conference on', pp. 486 -489.
16. Dikmen, O. & Cemgil, A. (2011), Gizli Degiskenler iceren Modellerde Skor Esleme (Score matching for models with latent variables), *in* 'Signal Processing and Communications Applications (SIU), 2011 IEEE 19th Conference on', pp. 801 -804.
17. Keskin, C.; Cemgil, A. & Akarun, L. (2011), Belirli Sure Modelleri ile . Izole El Hareketi Tanıma (Explicit duration models for isolated hand gesture recognition), *in* 'Signal Processing and Communications Applications (SIU), 2011 IEEE 19th Conference on', pp. 1169 -1172.
18. Kurt, B. & Cemgil, A. (2011), Rastlantısal obek çizge modelleri için Bayesci model secimi (Bayesian model selection of Stochastic Blockmodels for random graphs), *in* 'Signal Processing and Communications Applications (SIU), 2011 IEEE 19th Conference on', pp. 1089 -1092.
19. Şimşekli, U.; Subakan, Y. & Cemgil, A. (2011), Negatif Olmayan Evrisik Modeller için Saklı Tensor Ayrışımı Çerçevesi (A latent tensor factorization framework for non-negative convolutive models), *in* 'Signal Processing and Communications Applications (SIU), 2011 IEEE 19th Conference on', pp. 762 -765.
20. Yıldırım, S. & Cemgil, A. (2011), Gauss Dogrusal Durum-Uzay Modellerinde ileri Dogru Duzlestirme ve Aninda Beklenti-En Buyutme Algoritmasi (Forward smoothing and online expectation-maximisation in Gaussian linear state-space models), *in* 'Signal Processing and Communications Applications (SIU), 2011 IEEE 19th Conference on', pp. 530 -533.
21. Dikmen, O.; Cemgil, A. T. & Akarun, L. (2009), Gamma Markov Random fields for audio source modelling, *in* 'Proc. IEEE 17th Signal Processing and Communications Applications Conference SIU 2009', pp. 369--372.
22. Cemgil, A. T. (2009), Variational Nonnegative Matrix Factorisation, *in* 'Proc. IEEE 17th Signal Processing and Communications Applications Conference SIU 2009', pp. 680--683.
Cemgil, A. & Gürgen, F. (1997), Classification of Musical Instrument Sounds using Artificial Neural Networks, *in* 'Proceedings of SIU97'.

Book Chapters

1. Cemgil, A. T. (2012), A Tutorial Introduction to Monte Carlo methods, Markov Chain Monte Carlo and Particle Filtering, Elsevier Major Reference Works.
2. Barber, D.; Cemgil, A. T. & Chiappa, S. (2011), Bayesian Time Series Models, Cambridge University Press, chapter Inference and Estimation in Probabilistic Time-Series Models.
3. Cemgil, A. T.; Godsill, S. J.; Peeling, P. H. & Whiteley, N. (2010), The Oxford Handbook of Applied Bayesian Analysis, Oxford University Press, chapter Bayesian Statistical Methods for Audio and Music Processing.

Patents

- Patent: EP1596334-A1; WO2005114579-A1; EP1751716-A1
"Multiple objects/individuals tracking method e.g. for car in airport, involves defining probabilistic dependency between labels and observation of objects, and estimating number of distinct objects from posterior probability distribution"

RESEARCH GRANTS

- TUBITAK 113M492, (Co-investigator) (**PAVERA**), **Advanced Parallel Optimization Algorithms for Big Data Analysis Using Machine Learning** Starting October 2013-2016, **180K TL** (PI İlker Birbil, Sabancı U.)
- FP7-PEOPLE-2012-IEF 328379, **Rhythmus: A generic framework for analyzing temporal structure in music** (Postdoc: Andre Holzapfel), 2 Yıl, Mayıs 2013-Mayıs 2015, 173K EUR (Started)
- BAP 6882, **Sosyal Sistem Verilerinden Bayesci Tensor ayrıştırma yöntemleri ile bilgi çıkarımı**. "Information extraction from social interactions with Bayesian Tensor Factorizations", 1 Yıl, Ekim 2012-Ekim 2013, 34 KTL (Started)
- TUBITAK 110E292, **Durağan Olmayan Çok Boyutlu Zaman Serileri İçin Hızlı Bayesci Matris ve Tensör Ayrıştırma Yöntemleri (BAYTEN)** "Fast Bayesian Matrix and Tensor factorisation methods for nonstationary multivariate time series analysis", 2 Yıl, Nisan 2011- Nisan 2013, 150K TL, European Bilateral project with CNRS, Telecom ParisTech France (Finished)
- BAP 5723, **Ağ yapılarının tensör ayrıştırma ile istatistiksel modellenmesi**. "Statistical Modelling of Networks via Tensor Factorisations", Years, Jan 2011 - June 2012, 30K TL (Finished)
- BAP 1875, **Bayesci Negatif Olmayan Matris ve Tensor Ayrışımını ile Ses ve Müzik Verisi İşleme Uygulamaları**. "Bayesian matrix and tensor factorisations for audio and music processing" Ocak 2010 - Ocak 2011, 20K TL (Finished)
- TUBITAK 107E050, (Danışman) Zaman serileri ile Bayesci kaynak ayrıştırma. "Bayesian Source Separation with time series models", 2007-2009, 160K TL (PI Aysin Ertuzun, Bogazici) (Finished)
- EPSRC EPD03261X 1, (Named Researcher) Probabilistic Modelling of Musical Audio for Machine Listening, 3 Years, 17.10.2005-17.10.2008, University of Cambridge (PI, Simon Godsill) (Finished)

Consultancy

- Estimation of Flow size Distributions, with Avea, (2014-)
- Predictive Dialling System for Call centers, Alotech, (2013)
- Probabilistic Expert Systems for plant diseases, Doktor, (Finished)
- Statistical techniques for Application classification Network packet data without Deep Packet Inspection (DPI), Ericsson Türkiye, Istanbul (FP7 Mevico) (Finished)
- Statistical Models for Teletraffic trend Prediction, P1M1, Istanbul, Turkey (Finished)
- Multitrack Audio matching, for a Canada based company (Finished)
- Fraud detection in transaction data, for FeatureSpace, Cambridge (Finished)
- Audio processing and source separation, CEDAR audio, Cambridge (Finished)
- Inertial Navigation and GPS integration using particle filtering, for a Cambridge, UK, based company (Finished)
- Tracking of vesicles in axons and dendrites from video sequences, for Center for Neurogenomics and Cognitive Research (CNCR), VU, Amsterdam (Finished)

TEACHING EXPERIENCE

CMPE 250, Data Structures and Algorithms (F10, S11, F11, S12, F12, S13, F13, F14)
CMPE 362, Signal Processing for Computer Engineering (F08, F09)
CMPE 482, Numerical Linear Algebra, (S14)
CMPE 547 (was 58K), Bayesian Statistics and Machine Learning (F08, F09, F10, F11, F12, F13, F14)
CMPE 548 (was 58N), Monte Carlo Computation (S09, F09, S11, S12, S13, S14)
CMPE 58P, Machine Listening (S09, S10)
CMPE 58R, Statistical Data Analysis (with William Fitzgerald) (Su11)
SWE 546, Data Mining (S12, S13, S14)
FE 587, C/C++ Programming for Finance (F10, F11, F12, F13, F14)

Guided Theses

PhD - finished

(Advisor)

1. Kenan Yilmaz (2009-2012), Bayesian Matrix and Tensor Factorisations,
2. Onur Dikmen (2006-2009), Bayesian Source Modelling for Single-Channel Audio Separation

(Co-advisor)

1. Cemil Demir (2009-2014, with Murat Saraclar, EE), Speech Music Separation
2. Cem Keskin (2009-2012), (with Lale Akarun, CMPE), Activity Recognition with Dynamic models
3. Paul Peeling (2006-2008, with Simon Godsill), Polyphonic Music Transcription
4. Nick Whiteley (2005-2006, with Simon Godsill), Sequential Monte Carlo Methods for Filtering
5. Wojciech Zajdel (2003-2004, UvA, with Ben Krose), Multi Camera, Multi object tracking and recognition

PhD (In progress)

1. Işık Barış Fidaner (2010-), (With Betül Kırdar) Bayesian Nonparametrics, Bioinformatics
2. Can Kavaklıoğlu (2011-), Tensor Factorisation algorithms for parallel architectures
3. Barış Kurt (2010-), Statistical Analysis of Internet Traffic
4. Orhan Sönmez (2010-), Monte Carlo Methods for Stochastic Control
5. Onur Güngör (2011-) (With Suzan Üsküdarlı), Statistical Models for Networked Data
6. Umut Şimşekli (2010-), Audio Processing, Interactive Performance systems, Music Transcription
7. Beyza Ermiş (2012-) (with Evrim Acar), Coupled Tensor Factorisations
8. Ömer Deniz Akyıldız (2012-), (with Burak Acar)
9. Ertuğ Karamatli (2012-), Nearest Neighbor Search using Locality Sensitive Hashing

(Co-advisor)

10. Doğaç Başaran (2008-) (Emin Anarim, EE), Multichannel Source Separation and Audio matching

MSc

1. Cem Sübakan (2011-), (with Bulent Sankur), Sequence Classification with Nonparametric Bayesian and Spectral Methods
2. Türkan Hamzaoglu (2010-2012), Statistical Analysis of Networks, Finansbank
3. Beyza Ermiş (2011-2012), (with Evrim Acar) Matrix and Tensor Factorisations for Link Prediction,
4. Safiye Çelik (2011-2012), Nonparametric Bayesian Biclustering
5. Umut Şimşekli (2010), Real time pitch tracking with Bayesian changepoint models,
6. Sinan Yıldırım (2008-2009, with Aysin Ertüzün, EE), Bayesian Deconvolution of seismic signals
7. Tim van Kasteren (2004-2005), (Amsterdam University) Real time tempo tracking for interactive music performance systems

EDITORIAL

- Associate editor, Digital Signal Processing, Elsevier (2011-2014)

- Associate editor, IEEE Signal Processing Letters (2011-)
- Invited Guest Editor, Special Issue 'Informed Source Separation', EURASIP Journal on Advances in Signal Processing (2013)
- Guest Editor, Special Issue 'Bayesian Signal Processing', Elsevier, Digital Signal Processing (2014)
- IEEE MLSP (Machine Learning for Signal Processing) technical committee (2011-2013)

REFeree

Project proposals

- TUBITAK TEYDEB
- TUBITAK 1001 Panels
- Finnish Funding Agency for Technology and Innovation
- Research Foundation – Flanders Belgium (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO)
- Dutch Research Foundation (NWO – Nederlands Wetenschappelijk Onderzoek)
- EPSRC (Engineering and Physical Sciences Research Council) UK

Journal

- IEEE Transactions on Signal Processing,
- IEEE Transactions on Neural Networks,
- IEEE Transactions on Audio, Speech and Language Processing,
- IEEE Transactions on Image Processing,
- IEEE Transactions on Aerospace and Electronic Systems,
- IEEE Transactions on Systems, Man and Cybernetics
- IEEE Signal processing Letters,
- Bayesian Statistics,
- Journal of New Music Research
- Cognitive Science,
- Neurocomputing,
- Machine Learning,
- Digital Signal Processing Journal,
- Signal Image and Video Processing,
- Journal of American Statistical Association,
- Biometrika

Conferences

- NIPS (Neural Information Processing Systems),
- ICML (International Conference of Machine Learning)
- ICMC (International Computer Music Conference),
- ISMIR (International Conference on Music Information Retrieval),
- EUSIPCO (European Signal Processing Conference),
- IEEE ICASSP (International Conference on Acoustics, Speech and Signal Processing),
- IEEE MLSP (Machine Learning for Signal Processing),

- AISTATS (International Conference on Artificial Intelligence and Statistics)

WORKSHOP ORGANIZATIONS

- Neural Information Processing Systems (NIPS) Workshops, Whistler, Canada,
 - Advances in Models for Acoustic Processing, Dec 2006, (with David Barber)
 - Music Information Processing Systems, Dec 2004, (with Doug Eck and Daniel Ellis)
- In IEEE ISPA, Int'l Symposium on Image and Signal Processing and Analysis, Istanbul, Turkey,
 - Special Session on Bayesian Signal Processing, Sept 2007
- Isaac Newton Institute for Mathematical Sciences, Cambridge, UK 18, 19, 20 Haziran 2008, Cambridge, UK
 - Workshop on Inference and Estimation in Probabilistic Time-Series Models (David Barber ve Silvia Chiappa ile)
- In European Signal Processing Conference (EUSIPCO'09), Aug 2009, Glasgow,
 - Special Session on Nonnegative Matrix and Tensor Factorisations: Statistical Methods and Applications (Cedric Fevotte)
- SIAM Conference on Computational Science and Engineering (CSE13) mini symposia on Tensor factorizations and information fusion, Feb 2013, Boston (with Evrim Acar, Rasmus Bro)

PhD Thesis Jury

- Sept 2014, Aalto University, Helsinki, Finland, Opponent (He Zhang, Dissertation: "Advances in NMF decomposition with applications to Cluster analysis")
- Oct 2013, Ecole Polytechnique, Paris, France, Jury Member (Olivier Schwander, Dissertation: Information Geometric methods for mixture models)
- Oct 2013, Bogazici University, Istanbul, Turkey (Nese Alyuz, Dissertation: Three Dimensional Face Recognition Under Occlusion Variance)
- June 2013, Sabanci University, Istanbul, Turkey, Jury Member (Emad Monuir Grais,)
- March 2013, Technical University of Denmark (DTU), Jury Member, (Bjørn Sans Jensen, Dissertation: Integration of top-down and bottom-up information for audio organization and retrieval)
- Nov 2012, ParisTech, Paris, France, Jury Member, (Antoine Liutkus, Dissertation: Processus gaussiens pour la séparation de sources et le codage informé – Gaussian Processes for informed Source Separation and Coding)
- May 2012, Catholic University of Leuven, Leuven, Belgium, Jury member, (Joris Driesen, Dissertation: Discovering Words in Speech using Matrix Factorization)
- June 2012, University of Cambridge, UK, External Examiner (Liam Lang, Dissertation: Kinematics in Conformal Geometric Algebra with Applications in Strapdown Inertial Navigation.)
- July 2008, University of Cambridge, Internal Examiner (Ji Won Yoon)
- June 2008, University of Cambridge, Internal Examiner (Haifeng Ge)

Invited Seminars

Tutorials

- May 2014, Avea, Istanbul, Turkey
- May 2013, Kuveyt Turkish Bank, Istanbul, Turkey

- December 2012, Istanbul Chamber of Commerce, Istanbul, Turkey
- June 2012 The 19th Istanbul Statistical Physics Meeting, Istanbul, Turkey
- August 2010 Turunc Summer School on Complex Systems, Mugla, Turkey
- March 2009, International Federation of Classification Societies (IFCS) 2009 Conference, Dresden, Germany
- June 2008, IEEE International Conference on Multimedia and Expo, Hannover, Germany
- September 2007, ACM Multimedia Conference, Augsburg, Germany
- June 2007, Birkbeck College, University of London
- October 2006, International Conference on Music Information Retrieval, Victoria, Canada
- February 2006, Eylül 2006, Bogazici University, Istanbul
- March 2006. IEE Professional Development Course on Adaptive Signal Processing, Birmingham, UK.
- April 2003 and July 2005, ASCI (Advanced School for Computing and Imaging) Summer school on Advanced Issues in Neurocomputing, Amsterdam, the Netherlands

Araştırma Seminerleri

- University of Karlsruhe, 2000
- University of Edinburgh, 2002
- University of Cambridge, 2004,
- University of Massachusetts, 2004
- Indiana University Bloomington, 2005
- University of Lille, 2005
- University College London - Gatsby Neuroscience Unit, 2007
- University of London - Queen Mary, 2005
- Radboud University Nijmegen, 2007
- University of Amsterdam, 2002, 2007
- Free University of Amsterdam (VU) - CNCR, 2007
- Sabanci University, Ocak 2007, Mart 2009
- Microsoft Research Cambridge, Aug 2007
- NIPS 2007 Workshop on Music, Brain and Cognition, December 2007
- Istituto di Scienza e Tecnologie dell'Informazione "A. Faedo", Pisa, May 2008
- 154'th meeting of Acoustical Society, Paris, July 2008
- Istanbul Technical University, Subat 2009
- Telecom ParisTech, Paris, June 2011
- University of Cambridge, June 2011
- Google Research, New York, October 2011
- NIPS 2011 Workshop on Machine Learning and Music, December 2011
- Xerox Research Center Europe, XRCE, Grenoble, April 2012
- Koç University, April 2012
- Katholieke Universiteit Leuven - ESAT, May 2012
- University of Cambridge, October 2012
- Microsoft Research Cambridge, October 2012
- Télécom ParisTech, Paris, November 2012

- Bilkent University, Industrial Eng., December 2012
- Mitsubishi Electric Research Labs (MERL), Boston, February, 2013
- Analog Devices Inc. ,Boston, February 2013
- ECML/PKDD Workshop: Tensor Methods for Machine Learning, Prague, September 2013,
- Aalto University, Finland, Sept 2014

Citation Statistics

Web of Science (Thomson Reuters)- Sept 2014

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Google Scholar

(<http://scholar.google.com/citations?user=X3ZFZ7AAAAAJ&hl=en>) 23.09.2014

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Citations	1546	1065
h-index	20	18
i10-index	30	25