

Jan Østergaard
Professor
Institut for Elektroniske Systemer
Det Tekniske Fakultet for IT og Design
Artificial Intelligence and Sound
Machine Learning
AI for the People



Classique - Center for Classical Communication in the Quantum Era

Adressetype: Besøgsadresse.

Fredrik Bajers Vej 7B
B5-210
9220

Aalborg Øst
Danmark

E-mail: jo@es.aau.dk

Telefon: +4599408693

Hjemmeside: <http://kom.aau.dk/~jo>, <http://kom.aau.dk/~jo>, <http://kom.aau.dk/~jo>

Forskningsprofil

Jan Østergaard received the M.Sc.E.E. degree from Aalborg University, Aalborg, Denmark, in 1999 and the PhD.E.E. degree (with cum laude) from Delft University of Technology, Delft, The Netherlands, in 2007. From 1999 to 2002, he worked as an R&D Engineer at ETI A/S, Aalborg, and from 2002 to 2003, he was an R&D Engineer with ETI Inc., VA, USA. Between September 2007 and June 2008, he was a Postdoctoral Researcher at The University of Newcastle, NSW, Australia. He has been a Visiting Researcher at Tel Aviv University, Israel, and at Universidad Técnica Federico Santa María, Valparaíso, Chile.

Dr. Østergaard is a Full Professor in Information Theory and Signal Processing and Head of the Section on AI and Sound in the Department of Electronic Systems. He is also Head of the Centre on Acoustic Signal Processing Research (CASPR), which is partially funded by William Demant Fonden.

He has received a Danish Independent Research Council's Young Researcher's Award, a Best PhD Thesis award by the European Association for Signal Processing (EURASIP), and fellowships from the Danish Independent Research Council, the Villum Foundations Young Investigator Programme, and William Demant Fonden.

His research interests are in the areas of AI and sound, acoustic signal processing, information theory, causality in feedback systems, EEG signal processing, joint source-channel coding, statistical signal processing.

He is an Associate Editor for the IEEE TRANSACTIONS ON INFORMATION THEORY. He is a board member of the Danish Sound Cluster, and AAU's main representative in Sound Hub Denmark. He is also a member of Innovation Fund Denmark's specialist committee for the industrial researcher programme.

Ansættelse

Professor

Professor
Institut for Elektroniske Systemer
Det Tekniske Fakultet for IT og Design
Aalborg, Danmark
1 jun. 2013 → 31 dec. 4712

Professor

Professor
Det Tekniske Fakultet for IT og Design
Aalborg Øst, Danmark
1 jun. 2013 → 31 dec. 4712

Professor

Professor
Artificial Intelligence and Sound
Det Tekniske Fakultet for IT og Design
1 jun. 2013 → 31 dec. 4712

Machine Learning

Det Tekniske Fakultet for IT og Design

1 feb. 2021 → present

AI for the People

Det Tekniske Fakultet for IT og Design

Aalborg, Danmark

1 nov. 2019 → present

Classique - Center for Classical Communication in the Quantum Era

Det Tekniske Fakultet for IT og Design

Aalborg Øst, Danmark

1 feb. 2025 → present

Publikationer

xLSTM-SENet: xLSTM for Single-Channel Speech Enhancement

Kühne, N., Østergaard, J., Jensen, J. & Tan, Z.-H., 21 aug. 2025, *Interspeech 2025*. ISCA, s. 5148-5152 5 s. (INTERSPEECH).

The Parietal Local Connectivity Reflects Impacts of Hearing Aids Noise Reduction on Listening Effort

Baboukani, P. S., Alickovic, E. & Østergaard, J., 11 jul. 2025, *2025 28th International Conference on Information Fusion (FUSION)*. IEEE (Institute of Electrical and Electronics Engineers), 8 s. 11123892

Effects of Reduced Information in the Performance of Low-Frequency Sound Zones

Cadavid, J., Møller, M. B., van Waterschoot, T., Bech, S. & Østergaard, J., 1 jul. 2025, I: *Journal of the Audio Engineering Society*. 73, 7-8, s. 429-445 17 s.

MambaAttention: Mamba with Multi-Head Attention for Generalizable Single-Channel Speech Enhancement

Kühne, N., Jensen, J., Østergaard, J. & Tan, Z.-H., 1 jul. 2025, (Afsendt) 12 s.

Single-microphone deep envelope separation based auditory attention decoding for competing speech and music

Tanveer, M. A., Jensen, J., Tan, Z.-H. & Østergaard, J., jun. 2025, I: *Journal of Neural Engineering*. 22, 3, 16 s., 036006.

Enabling impedance measurements of energised superconducting circuits through differential probing

Christensen, M. B. B., Bednarek, M. J., Koch, P., Podzorny, T., Steckert, J. & Østergaard, J., 28 maj 2025, I: *Journal of Instrumentation*. 20, 5, 35 s., P05042.

Rate-Distortion Under Neural Tracking of Speech: A Directed Redundancy Approach

Østergaard, J., Jayaprakash, S. G. & Ordoñez, R., 21 mar. 2025, *2025 Data Compression Conference (DCC)*. Bilgin, A., Fowler, J. E., Serra-Sagrista, J., Ye, Y. & Storer, J. A. (red.). IEEE (Institute of Electrical and Electronics Engineers), s. 283-292 10 s. 10992553. (IEEE Data Compression Conference (DCC)).

Hearing-Loss Compensation Using Deep Neural Networks: A Framework and Results From a Listening Test

Leer, P., Jensen, J., Carney, L. H., Tan, Z.-H., Østergaard, J. & Bramsløw, L., 30 jan. 2025, I: *IEEE Transactions on Audio, Speech and Language Processing*. 33, s. 828 - 841 15 s., 10858377.

Rate-Distortion under Neural Tracking of Speech: A Directed Redundancy Approach

Østergaard, J., Jayaprakash, S. G. & Ordoñez, R., 28 jan. 2025, arXiv, 10 s.

xLSTM-SENet: xLSTM for Single-Channel Speech Enhancement

Kühne, N. L., Østergaard, J., Jensen, J. & Tan, Z.-H., 10 jan. 2025, arXiv, 5 s.

Noise-Robust Target-Speaker Voice Activity Detection Through Self-Supervised Pretraining

Bovbjerg, H. S., Østergaard, J., Jensen, J. & Tan, Z.-H., 6 jan. 2025, arXiv, 13 s.

Low-Latency Deep Analog Speech Transmission Using Joint Source Channel Coding

Bokaei, M., Jensen, J., Doclo, S. & Østergaard, J., dec. 2024, I: IEEE Journal of Selected Topics in Signal Processing. 18, 8, s. 1401-1413 13 s., 10824931.

Identifying principal attributes for evaluating audio quality of reproduction systems with spatially dynamic program material

Porysek Moreta, P. N., Bech, S., Francombe, J., Østergaard, J. & van de Par, S., 16 sep. 2024, I: Journal of the Audio Engineering Society. 72, 9, s. 552-570 19 s.

The Effect of Training Dataset Size on Discriminative and Diffusion-Based Speech Enhancement Systems

Gonzalez, P., Tan, Z. H., Østergaard, J., Jensen, J., Alstrom, T. S. & May, T., 23 aug. 2024, I: IEEE Signal Processing Letters. 31, s. 2225-2229 5 s., 10645209.

Enabling Real-Time Impedance Measurements of Operational Superconducting Circuits of Accelerator Magnets

Christensen, M. B. B., Bednarek, M., Denz, R., Koch, P., Ludwin, J., Rodriguez-Mateos, F., Podzorny, T., Ravaioli, E., Steckert, J., Verweij, A., Wozniak, M. & Østergaard, J., 1 aug. 2024, I: IEEE Transactions on Applied Superconductivity. 34, 5, s. 1-5 5 s., 4004705.

Joint Far- and Near-end Speech and Listening Enhancement with Minimum Processing

Fuglsig, A. J., Tan, Z.-H., Bertelsen, L. S., Jensen, J., Lindof, J. C. & Østergaard, J., aug. 2024, I: IEEE Access. 12, s. 119983-120004 22 s., 10648686.

Spatial Sampling versus Acquisition Time of Room Impulse Responses for Low-Frequency Sound Zones

Cadavid, J., Møller, M., van Waterschoot, T., Bech, S. & Østergaard, J., 15 jun. 2024, *AES Europe Spring 2024 - 156th Audio Engineering Society Convention 2024*. Audio Engineering Society, 12 s. 10706. (Journal of the Audio Engineering Society).

Effects of Background Noise and Linguistic Violations on Frontal Theta Oscillations During Effortful Listening

Mohammadi, Y., Graversen, C., Manresa, J. B., Østergaard, J. & Andersen, O. K., 1 maj 2024, I: Ear and Hearing. 45, 3, s. 721-729 9 s.

Deep low-latency joint speech transmission and enhancement over a gaussian channel

Bokaei, M., Jensen, J., Doclo, S. & Østergaard, J., 30 apr. 2024, arXiv, 8 s.

Speech Enhancement in Hearing Aids Using Target Speech Presence Estimation Based on a Delayed Remote Microphone Signal

Sathyapriyan, V., Pedersen, M. S., Brookes, M., Østergaard, J., Naylor, P. A. & Jensen, J., 14 apr. 2024, *2024 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. IEEE (Institute of Electrical and Electronics Engineers), s. 1006-1010 5 s. 10446069. (ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings).

Reduced complexity for sound zones with subband block adaptive filters and a loudspeaker line array

Møller, M. B., Martinez, J. & Østergaard, J., 1 apr. 2024, I: Journal of the Acoustical Society of America. 155, 4, s. 2314-2326 13 s.

Cortical linear encoding and decoding of sounds: Similarities and differences between naturalistic speech and music listening

Simon, A., Bech, S., Loquet, G. & Østergaard, J., apr. 2024, I: European Journal of Neuroscience. 59, 8, s. 2059-2074 16 s.

Joint Minimum Processing Beamforming and Near-end Listening Enhancement

Fuglsig, A. J., Jensen, J., Tan, Z.-H., Bertelsen, L. S., Lindof, J. C. & Østergaard, J., apr. 2024, *2024 IEEE International Conference on Acoustics, Speech, and Signal Processing Workshops (ICASSPW)*. Seoul, Korea, Republic of: IEEE (Institute of Electrical and Electronics Engineers), s. 485-489 5 s. 10625905

Comments on "Feedback Capacity of Stationary Gaussian Channels"

Derpich, M. & Østergaard, J., 1 mar. 2024, I: *IEEE Transactions on Information Theory*. 70, 3, s. 1848-1851 4 s.

Performance of low-frequency sound zones with very fast room impulse response measurements

Cadavid, J., Møller, M. B., Pedersen, C. S., Bech, S., van Waterschoot, T. & Østergaard, J., 29 jan. 2024, I: *The Journal of the Acoustical Society of America*. 155, 1, s. 757-768 12 s.

Bayesian Sound Field Estimation Using Uncertain Data

Brunnstrom, J., Moller, M. B., Ostergaard, J. & Moonen, M., 2024, *2024 18th International Workshop on Acoustic Signal Enhancement, IWAENC 2024 - Proceedings*. IEEE (Institute of Electrical and Electronics Engineers), s. 329-333 5 s. 10694068

Channel-Configurable Deep Wireless Speech Transmission

Bokaei, M., Jensen, J., Doclo, S. & Østergaard, J., 2024, *2024 IEEE Wireless Communications and Networking Conference, WCNC 2024 - Proceedings*. IEEE (Institute of Electrical and Electronics Engineers), 10570880. (IEEE Wireless Communications and Networking Conference, WCNC).

Deep Digital Joint Source-Channel Based Wireless Speech Transmission

Bokaei, M., Jensen, J., Doclo, S. & Østergaard, J., 2024, *32nd European Signal Processing Conference, EUSIPCO 2024 - Proceedings*. IEEE (Institute of Electrical and Electronics Engineers), s. 341-345 5 s. (European Signal Processing Conference).

Deep Low-Latency Joint Speech Transmission and Enhancement over A Gaussian Channel

Bokaei, M., Jensen, J., Doclo, S. & Østergaard, J., 2024, *2024 IEEE International Conference on Acoustics, Speech, and Signal Processing Workshops, ICASSPW 2024 - Proceedings*. IEEE (Institute of Electrical and Electronics Engineers), s. 525-529 5 s.

Diffusion-Based Speech Enhancement in Matched and Mismatched Conditions Using a Heun-Based Sampler

Gonzalez, P., Tan, Z. H., Østergaard, J., Jensen, J., Alstrøm, T. S. & May, T., 2024, *2024 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. IEEE (Institute of Electrical and Electronics Engineers), s. 10431-10435 5 s. (ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings).

Directed Redundancy in Time Series

Østergaard, J., 2024, *2024 IEEE International Symposium on Information Theory, ISIT 2024 - Proceedings*. IEEE (Institute of Electrical and Electronics Engineers), s. 1973-1978 6 s. (IEEE International Symposium on Information Theory - Proceedings).

Envelope Based Deep Source Separation and EEG Auditory Attention Decoding for Speech and Music

Asjid Tanveer, M., Jensen, J., Tan, Z. H. & Østergaard, J., 2024, *2024 32nd European Signal Processing Conference (EUSIPCO)*. IEEE (Institute of Electrical and Electronics Engineers), s. 872-876 5 s. 10715250. (European Signal Processing Conference).

How to Train Your Ears: Auditory-Model Emulation for Large-Dynamic-Range Inputs and Mild-to-Severe Hearing Losses

Leer, P., Jensen, J., Tan, Z.-H., Østergaard, J. & Bramsløw, L., 2024, I: *IEEE/ACM Transactions on Audio, Speech, and Language Processing*. 32, s. 2006-2020 15 s., 10473115.

Investigating the Design Space of Diffusion Models for Speech Enhancement

Gonzalez, P., Tan, Z.-H., Østergaard, J., Jensen, J., Alstrøm, T. S. & May, T., 2024, I: *IEEE/ACM Transactions on Audio, Speech, and Language Processing*. 32, s. 4486-4500 15 s.

Near-end listening enhancement using a noise-robust linear time-invariant filter

Villani, F., Chan, W.-Y., Tan, Z.-H., Østergaard, J. & Jensen, J., 2024, *2024 18th International Workshop on Acoustic Signal Enhancement, IWAENC 2024 - Proceedings*. IEEE (Institute of Electrical and Electronics Engineers), s. 444-448 5 s. (International Workshop on Acoustic Signal Enhancement (IWAENC)).

Room Impulse Response Prototyping Using Receiver Distance Estimations for High Quality Room Equalisation Algorithms
Brooks-Park, J., Van De Par, S., Østergaard, J., Bech, S. & Møller, M. B., 2024, *2024 18th International Workshop on Acoustic Signal Enhancement (IWAENC)*. IEEE (Institute of Electrical and Electronics Engineers), s. 314-318 5 s. 10694381. (International Workshop on Acoustic Signal Enhancement (IWAENC)).

Self-supervised Pretraining for Robust Personalized Voice Activity Detection in Adverse Conditions

Bovbjerg, H. S., Jensen, J., Østergaard, J. & Tan, Z.-H., 2024, *2024 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. IEEE (Institute of Electrical and Electronics Engineers), 5 s. 10447653. (Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing).

Synergy and Redundancy Dominated Effects in Time Series via Transfer Entropy Decompositions

Østergaard, J. & Boubakani, P. S., 2024, *2024 IEEE International Symposium on Information Theory Workshops (ISIT-W)*. IEEE (Institute of Electrical and Electronics Engineers), 10591761

Validity and reliability of self-reported and neural measures of listening effort

Mohammadi, Y., Østergaard, J., Graversen, C., Andersen, O. K. & Biurrun Manresa, J., dec. 2023, *I: European Journal of Neuroscience*. 58, 11, s. 4357-4370 14 s.

Enabling Real-Time Impedance Measurements of Operational Superconducting Circuits of Accelerator Magnets

Christensen, M. B. B., Bednarek, M., Denz, R., Koch, P., Ludwin, J., Rodriguez-Mateos, F., Podzorny, T., Ravaioli, E., Steckert, J., Verweij, A., Wozniak, M. & Østergaard, J., 13 sep. 2023.

Robust Sound Zone Filters for Synchronization Errors

Zhou, M., Møller, M. B., Pedersen, C. S., Koeijer, N. E. M. D. & Østergaard, J., 11 sep. 2023, *Proceedings of Forum Acusticum*. European Acoustics Association - EAA, 8 s. (Forum Acusticum).

Sound quality evaluation of packet loss concealment for wireless low-frequency sound zones

Pedersen, C. S., Zhou, M., Møller, M. B., de Koeijer, N. & Østergaard, J., sep. 2023, *Proceedings of Forum Acusticum 2023*. European Acoustics Association - EAA, s. 1-8 8 s. (Forum Acusticum).

Phase-locking of Neural Activity to the Envelope of Speech in the Delta Frequency Band Reflects Differences between Word Lists and Sentences

Mohammadi, Y., Graversen, C., Østergaard, J., Andersen, O. K. & Reichenbach, T., aug. 2023, *I: Journal of Cognitive Neuroscience*. 35, 8, s. 1301-1311 11 s.

The Internet of Sounds: Convergent Trends, Insights and Future Directions

Turchet, L., Lagrange, M., Rottondi, C., Fazekas, G., Peters, N., Østergaard, J., Font, F., Backstrom, T. & Fischione, C., 1 jul. 2023, *I: IEEE Internet of Things Journal*. 10, 13, s. 11264-11292 29 s., 10061604.

Minimum Processing Near-End Listening Enhancement

Fuglsig, A. J., Jensen, J., Tan, Z. H., Bertelsen, L. S., Lindof, J. C. & Østergaard, J., 5 jun. 2023, *I: IEEE/ACM Transactions on Audio, Speech, and Language Processing*. 31, s. 2233-2245 13 s.

Phase-locking of neural activity to the envelope of speech in the delta frequency band reflects differences between word lists and sentences

Mohammadi, Y., Graversen, C., Østergaard, J., Andersen, O. K. & Reichenbach, T., 1 jun. 2023, *bioRxiv*, 30 s.

Distributed Adaptive Norm Estimation for Blind System Identification in Wireless Sensor Networks

Blochberger, M., Elvander, F., Ali, R., Østergaard, J., Jensen, J., Moonen, M. & van Waterschoot, T., jun. 2023, *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*. IEEE Signal Processing Society, 5 s. 10096574. (International Conference on Acoustics Speech and Signal Processing (ICASSP)).

AR model for low latency packet loss concealment for wireless sound zones at low frequencies

Pedersen, C. S., Zhou, M., Møller, M. B., de Koeijer, N., Evert Marius, N. & Østergaard, J., maj 2023, *Audio Engineering Society 154th Convention*. Helsinki, Finland: Audio Engineering Society, s. 1-10 10 s. 10651

Validity and reliability of self-reported and neural measures of listening effort

Mohammadi, Y., Østergaard, J., Graversen, C., Andersen, O. & Manresa, J. B., 11 mar. 2023, Authorea, 13 s.

Adaptive Coding in Wireless Acoustic Sensor Networks for Distributed Blind System Identification

Blochberger, M., Østergaard, J., Ali, R., Moonen, M., Elvander, F., Jensen, J. & Van Waterschoot, T., 2023, *Conference Record of the 57th Asilomar Conference on Signals, Systems and Computers, ACSSC 2023*. Matthews, M. B. (red.). IEEE Computer Society Press, s. 1420-1424 5 s. (Conference Record - Asilomar Conference on Signals, Systems and Computers).

A family of split kernel adaptive filtering algorithms for nonlinear stereophonic acoustic echo cancellation

Burra, S., Sankar, S., Kar, A. & Østergaard, J., 2023, I: *Journal of Ambient Intelligence and Humanized Computing*. 14, 8, s. 9907-9924 18 s.

Cortical Auditory Attention Decoding During Music and Speech Listening

Simon, A., Loquet, G., Østergaard, J. & Bech, S., 2023, I: *IEEE Transactions on Neural Systems and Rehabilitation Engineering*. 31, s. 2903-2911 9 s.

Deep Joint Source-Channel Analog Coding for Low-Latency Speech Transmission over Gaussian Channels

Bokaei, M., Jensen, J., Doclo, S. & Østergaard, J., 2023, *31st European Signal Processing Conference, EUSIPCO 2023 - Proceedings*. IEEE (Institute of Electrical and Electronics Engineers), s. 426-430 5 s. 10290056. (European Signal Processing Conference).

Head Orientation Estimation with Distributed Microphones Using Speech Radiation Patterns

Muller, K., Cakmak, B., Didier, P., Doclo, S., Østergaard, J. & Wolff, T., 2023, *Conference Record of the 57th Asilomar Conference on Signals, Systems and Computers, ACSSC 2023*. Matthews, M. B. (red.). IEEE Computer Society Press, s. 1404-1409 6 s. (Conference Record - Asilomar Conference on Signals, Systems and Computers).

Interpretable Nonnegative Incoherent Deep Dictionary Learning for FMRI Data Analysis

Morante, M., Østergaard, J. & Theodoridis, S., 2023, *ICASSP 2023 - 2023 IEEE International Conference on Acoustics, Speech and Signal Processing, Proceedings*. IEEE Signal Processing Society, 5 s. 10095297. (ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings, Bind 2023-June).

Multiple Description Audio Coding for Wireless Low-Frequency Sound Zones

Østergaard, J., Pedersen, C., Zhou, M., Koeijer, N. D. & Møller, M., 2023, *2023 Data Compression Conference, DCC Proceedings*. Bilgin, A., Marcellin, M. W., Serra-Sagrista, J. & Storer, J. A. (red.). IEEE Signal Processing Society, s. 140-149 10 s. 10125401. (Data Compression Conference Proceedings, Bind 2023-March).

Robust Fir Filters for Wireless Low-Frequency Sound Zones

Zhou, M., Møller, M. B., Pedersen, C. S. & Østergaard, J., 2023, *ICASSP 2023 - 2023 IEEE International Conference on Acoustics, Speech and Signal Processing, Proceedings*. IEEE Signal Processing Society, 5 s. 10095256. (ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings, Bind 2023-June).

Speech enhancement using binary estimator selection applied to hearing aids with a remote microphone

Sathyapriyan, V., Pedersen, M. S., Brookes, M., Østergaard, J., Naylor, P. & Jensen, J., 2023, *2023 8th International Conference on Frontiers of Signal Processing (ICFSP 2023)*. IEEE (Institute of Electrical and Electronics Engineers), s. 38-42 5 s. 10372902

Stabilizing Error Correction Codes for Control over Erasure Channels

Østergaard, J., dec. 2022, I: *IEEE Transactions on Control of Network Systems*. 9, 4, s. 1828-1839 12 s.

Incremental Refinements and Multiple Descriptions with Feedback

Østergaard, J., Erez, U. & Zamir, R., 1 okt. 2022, I: *IEEE Transactions on Information Theory*. 68, 10, s. 6915-6940 26 s.

Correction to "A Framework for Control System Design Subject to Average Data-Rate Constraints"

Derpich, M. S. & Østergaard, J., okt. 2022, I: IEEE Transactions on Automatic Control. 67, 10, s. 5677 - 5679 3 s.

Performance of Low Frequency Sound Zones Based on Truncated Room Impulse Responses

Cadavid, J., Møller, M., Bech, S., van Waterschoot, T. & Østergaard, J., 6 sep. 2022, *Proceedings of the 17th International Audio Mostly Conference: What You Hear is What You See? Perspectives on Modalities in Sound and Music Interaction, AM 2022*. St. Pölten, Austria: Association for Computing Machinery (ACM), s. 239-245 7 s.

A linear MMSE filter using delayed remote microphone signals for speech enhancement in hearing aid applications

Sathyapriyan, V., Pedersen, M. S., Østergaard, J., Brooks, M., Naylor, P. & Jensen, J., 5 sep. 2022, *2022 International Workshop on Acoustic Signal Enhancement (IWAENC)*. IEEE (Institute of Electrical and Electronics Engineers), 9914711

Distributed Cross-Relation-Based Frequency-Domain Blind System Identification using Online-ADMM

Blochberger, M., Elvander, F., Ali, R., Moonen, M., van Waterschoot, T., Østergaard, J. & Jensen, J., sep. 2022, *International Workshop on Acoustic Signal Enhancement, IWAENC 2022 - Proceedings*. IEEE (Institute of Electrical and Electronics Engineers), 9914714

Model-Based Estimation of In-Car-Communication Feedback Applied to Speech Zone Detection

Muller, K., Doclo, S., Østergaard, J. & Wolf, T., sep. 2022, *International Workshop on Acoustic Signal Enhancement (IWAENC)*. IEEE (Institute of Electrical and Electronics Engineers), s. 1-5 5 s. 9914770

Speech to noise ratio improvement induces nonlinear parietal phase synchrony in hearing aid users

Shahsavari Baboukani, P., Graversen, C., Alickovic, E. & Østergaard, J., 9 aug. 2022, I: *Frontiers in Neuroscience*. 16, 932959.

Effect of Wireless Transmission Errors on Sound Zone Performance at Low Frequencies

Pedersen, C. S., Møller, M. B. & Østergaard, J., maj 2022, *Conference Proceedings of the Euroregio / BNAM 2022 Joint Acoustic Conference*. Christensen, F. & Ordonez, R. (red.). Aalborg: The European Acoustics Association (EAA), s. 115-124 10 s. (Joint Baltic-Nordic Acoustics Meeting (BNAM), Proceedings).

Sensory evaluation of spatially dynamic audiovisual soundscapes: a review

Porysek Moreta, P. N., Bech, S., Francombe, J., Østergaard, J., van de Par, S. & Kaplanis, N., maj 2022, *AES Europe Spring 2022 - 152nd Audio Engineering Society Convention 2022*. Audio Engineering Society, 10 s. 10594

The Effect of Fixed-point Arithmetic on Low Frequency Sound Zone Control

Koch, P. & Østergaard, J., maj 2022, *Conference Proceedings of the Euroregio / BNAM 2022 Joint Acoustic Conference*. Aalborg: The European Acoustics Association (EAA), s. 125-134 10 s. (Joint Baltic-Nordic Acoustics Meeting (BNAM), Proceedings).

Performance Analysis of Low Complexity Fully Connected Neural Networks for Monaural Speech Enhancement

Reddy, H., Kar, A. & Østergaard, J., 15 mar. 2022, I: *Applied Acoustics*. 190, 108627.

A family of adaptive Volterra filters based on maximum correntropy criterion for improved active control of impulsive noise

Guttikonda, G., Burra, S., Kar, A., Østergaard, J., Sooraksa, P., Mladenovic, V. & Haddad, D. B., feb. 2022, I: *Circuits, Systems and Signal Processing*. 41, 2, s. 1019–1037 19 s.

Stabilizing Error Correction Codes for Controlling LTI Systems over Erasure Channels

Østergaard, J., 14 jan. 2022.

The Effect of Time Delay on the Average Data Rate and Performance in Networked Control Systems

Barforooshan, M., Derpich, M., Stavrou, P. A. & Østergaard, J., jan. 2022, I: *IEEE Transactions on Automatic Control*. 67, 1, s. 16-31 16 s.

A Stimuli-Relevant Directed Dependency Index for Time Series

Baboukani, P. S., Theodoridis, S. & Østergaard, J., 2022, *2022 IEEE International Conference on Acoustics, Speech, and Signal Processing, ICASSP 2022 - Proceedings*. IEEE Signal Processing Society, s. 5812-5816 5 s. (ICASSP, IEEE

International Conference on Acoustics, Speech and Signal Processing - Proceedings, Bind 2022-May).

Electrodes selection for cortical auditory attention decoding with EEG during speech and music listening

Simon, A., Bech, S., Loquet, G. & Østergaard, J., 2022, *2022 25th International Conference on Information Fusion, FUSION 2022*. IEEE Signal Processing Society, 9841365

Error Reduced Carry Prediction in Approximate Addition for Low-Frequency Sound Zones

Koch, P. & Østergaard, J., 2022, *2022 18th Biennial Baltic Electronics Conference, BEC 2022*. IEEE (Institute of Electrical and Electronics Engineers), 9935613. (International Biennale Baltic Electronics Conference.).

Feedback Stabilization Robust Against Communication Constraints for Disturbed Linear Plants via Sparse Packetized Predictive Control

Barforooshan, M., Østergaard, J. & Nagahara, M., 2022, I: *IFAC-PapersOnLine*. 55, 25, s. 247-252 6 s.

Joint Far- and Near-End Speech Intelligibility Enhancement Based on the Approximated Speech Intelligibility Index

Fuglsig, A. J., Østergaard, J., Jensen, J., Søndergaard Bertelsen, L., Mariager, P. B. & Tan, Z.-H., 2022, *ICASSP 2022 - 2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. Singapore: IEEE (Institute of Electrical and Electronics Engineers), s. 7752-7756 5 s. 9746170. (I E E E International Conference on Acoustics, Speech and Signal Processing. Proceedings).

On Numerical Robustness of Bi-quad Structures using Fixed-Point Approximate Multiplication

Koch, P., Østergaard, J. & Andersen, O. K., 2022, *Proc. 2022 25th International Symposium on Wireless Personal Multimedia Communications (WPMC): 5G Way Forward to 6G*. IEEE (Institute of Electrical and Electronics Engineers), 6 s. 10014781. (Proceedings of the Wireless Personal Multimedia Communications Symposia).

Optimal time lags for linear cortical auditory attention detection: differences between speech and music listening

Simon, A. M. D., Østergaard, J., Bech, S. & Loquet, G. S. J. M., 2022, *Proceedings 19th International Symposium on Hearing: Psychoacoustics, Physiology of Hearing, and Auditory Modelling, from the Ear to the Brain (ISH2022)*, Lyon, France.. Zenodo, 11 s.

Sensory evaluation of spatially dynamic audiovisual sound scenes: a review

Porysek Moreta, P. N., Bech, S., Francombe, J., Østergaard, J., van de Par, S. & Kaplanis, N., 2022, *AES Europe Spring 2022 - 152nd Audio Engineering Society Convention 2022*. Audio Engineering Society, s. 431-440 10 s. 10594

Stimuli Dependent Synergy and Redundancy Dominated Causal Effects in Time Series

Østergaard, J. & Baboukani, P. S., 2022, arXiv, 6 s.

Multiple Sub Filter Based Proportionate Filtering for Nonlinear Acoustic Echo Cancellation

Burra, V., Kar, A. & Østergaard, J., nov. 2021, I: *Applied Acoustics*. 182, 108215.

Compression of dnns using magnitude pruning and nonlinear information bottleneck training

Nielsen, M. Ø., Østergaard, J., Jensen, J. & Tan, Z.-H., okt. 2021, *2021 IEEE 31st International Workshop on Machine Learning for Signal Processing (MLSP)*. IEEE (Institute of Electrical and Electronics Engineers), s. 1-6 6 s. 9596128. (IEEE Workshop on Machine Learning for Signal Processing).

EEG Phase Synchrony Reflects SNR Levels During Continuous Speech-In-Noise Tasks

Baboukani, P. S., Graversen, C., Alickovic, E. & Østergaard, J., okt. 2021, *43rd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)* . IEEE (Institute of Electrical and Electronics Engineers), s. 531-534 4 s. 9630139. (Proceedings of the Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS).

Sparse Packetized Predictive Control of Disturbed Plants Over Channels with Data Loss

Barforooshan, M., Nagahara, M. & Østergaard, J., 19 aug. 2021, arXiv, 8 s.

The Entropy Gain of Linear Systems and Some of Its Implications

Derpich, M. S., Müller, M. & Østergaard, J., 24 jul. 2021, I: *Entropy*. 23, 8, 46 s., 947.

An Orthogonality Principle for Select-Maximum Estimation of Exponential Variables

Erez, U., Østergaard, J. & Zamir, R., 20 jul. 2021, *IEEE International Symposium on Information Theory (ISIT)*. IEEE (Institute of Electrical and Electronics Engineers), s. 3162-3166 5 s.

Auditory attention decoding during naturalistic music listening: A pilot study

Simon, A. M. D., Bech, S., Loquet, G. S. J. M. & Østergaard, J., jul. 2021, *16th International Conference on Music Perception and Cognition*.

Directed Data-Processing Inequalities for Systems with Feedback

Derpich, M. & Østergaard, J., 26 apr. 2021, I: *Entropy*. 23, 5, 23 s., 533.

Comments on "A Framework for Control System Design Subject to Average Data-Rate Constraints"

Derpich, M. S. & Østergaard, J., 23 mar. 2021, arXiv, 7 s.

Deep Sound Field Reconstruction in Real Rooms: Introducing the ISOBEL Sound Field Dataset

Kristoffersen, M. S., Møller, M. B., Martínez-Nuevo, P. & Østergaard, J., 12 feb. 2021, arXiv, 11 s.

Estimation of Directed Dependencies in Time Series Using Conditional Mutual Information and Non-linear Prediction

Baboukani, P. S., Graversen, C. & Østergaard, J., 2021, *2020 28th European Signal Processing Conference (EUSIPCO)*. IEEE (Institute of Electrical and Electronics Engineers), s. 2388-2392 5 s. 9287592. (European Signal Processing Conference (EUSIPCO)).

Low Delay Robust Audio Coding by Noise Shaping, Fractional Sampling, and Source Prediction

Østergaard, J., 2021, *Proceedings - DCC 2021: 2021 Data Compression Conference*. Bilgin, A., Marcellin, M. W., Serra-Sagrista, J. & Storer, J. A. (red.). IEEE Signal Processing Society, s. 273-282 10 s. 9418676. (Data Compression Conference. Proceedings).

Minimum Processing Beamforming

Zahedi, A., Pedersen, M., Østergaard, J., Christiansen, T., Bramsløw, L. & Jensen, J., 2021, I: *IEEE/ACM Transactions on Audio, Speech, and Language Processing*. 29, s. 2710-2724 15 s., 9332253.

Estimating conditional transfer entropy in time series using mutual information and nonlinear prediction

Baboukani, P. S., Graversen, C., Alickovic, E. & Østergaard, J., okt. 2020, I: *Entropy*. 22, 10, s. 1-21 21 s., 1124.

Bounds on the Sum-Rate of MIMO Causal Source Coding Systems with Memory under Spatio-Temporal Distortion Constraints

Stavrou, P. A., Østergaard, J. & Skoglund, M., 30 jul. 2020, I: *Entropy*. 22, 8, 32 s., 842.

A Constrained Maximum Likelihood Estimator of Speech and Noise Spectra with Application to Multi-Microphone Noise Reduction

Zahedi, A., Pedersen, M., Østergaard, J., Bramsløw, L., Christiansen, T. & Jensen, J., maj 2020, *ICASSP 2020 - 2020 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. IEEE (Institute of Electrical and Electronics Engineers), s. 6944-6948 5 s. 9053077. (ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings).

Sparse Packetized Predictive Control Over Communication Networks with Packet Dropouts and Time Delays

Barforooshan, M., Nagahara, M. & Østergaard, J., 12 mar. 2020, *2019 IEEE 58th Conference on Decision and Control (CDC)*. IEEE (Institute of Electrical and Electronics Engineers), s. 8272-8277 6 s. 9030023. (I E E E Conference on Decision and Control. Proceedings).

The Exponential Distribution in Rate Distortion Theory: The Case of Compression with Independent Encodings

Erez, U., Østergaard, J. & Zamir, R., mar. 2020, *Proceedings - DCC 2020: Data Compression Conference*. Bilgin, A., Marcellin, M. W., Serra-Sagrista, J. & Storer, J. A. (red.). IEEE Signal Processing Society, s. 323-331 9 s. 9105702. (Data

Compression Conference).

A Moving Horizon Framework for Sound Zones

Møller, M. B. & Østergaard, J., jan. 2020, I: IEEE/ACM Transactions on Audio, Speech, and Language Processing. 28, s. 256-265 10 s., 8892633.

Zero-Delay Multiple Descriptions of Stationary Scalar Gauss-Markov Sources

Fuglsig, A. J. & Østergaard, J., dec. 2019, I: Entropy. 21, 12, 32 s., 1185.

Sound Quality Improvement for Hearing Aids in Presence of Multiple Inputs

Kar, D. A., Anand, A., Østergaard, J., Jensen, S. H. & Swamy, M. N. S., 15 aug. 2019, I: Circuits, Systems and Signal Processing. 38, 8, s. 3591-3615 25 s.

Mean Square Performance Evaluation in Frequency Domain for an Improved Adaptive Feedback Cancellation in Hearing Aids

Kar, A., Anand, A., Østergaard, J., Jensen, S. H. & Swamy, M. N. S., 1 apr. 2019, I: Signal Processing. 157, s. 45-61 17 s.

Information Loss in the Human Auditory System

Jahromi, M. Z., Zahedi, A., Jensen, J. & Østergaard, J., mar. 2019, I: IEEE/ACM Transactions on Audio, Speech, and Language Processing. 27, 3, s. 472-481 10 s., 8579632.

Zero-Delay Rate Distortion via Filtering for Vector-Valued Gaussian Sources

Stavrou, P., Østergaard, J. & Charalambous, C. D., okt. 2018, I: IEEE Journal on Selected Topics in Signal Processing. 12, 5, s. 841-856 16 s., 8409938.

On Superregular Matrices and Convolutional Codes with Finite Decoder Memory

Hansen, J., Østergaard, J., Kudahl, J. & Madsen, J., 20 jul. 2018, *2018 IEEE 87th Vehicular Technology Conference (VTC Spring)*. IEEE (Institute of Electrical and Electronics Engineers), s. 1-5 5 s. (IEEE VTS Vehicular Technology Conference. Proceedings).

Fixed-Rate Zero-Delay Source Coding for Stationary Vector-Valued Gauss-Markov Sources

Stavrou, F. & Østergaard, J., 19 jul. 2018, *Proceedings - DCC 2018: 2018 Data Compression Conference*. Bilgin, A., Storer, J. A., Serra-Sagrista, J. & Marcellin, M. W. (red.). IEEE (Institute of Electrical and Electronics Engineers), s. 257-266 10 s. (IEEE Data Compression Conference (DCC)).

Estimation of the second heart sound split using windowed sinusoidal models

Sæderup, R. G., Hoang, P., Winther, S., Bøttcher, M., Struijk, J. J., Schmidt, S. & Østergaard, J., jul. 2018, I: Biomedical Signal Processing and Control. 44, s. 229-236 8 s.

On Zero-delay Source Coding of LTI Gauss-Markov Systems with Covariance Matrix Distortion Constraints

Stavrou, P., Østergaard, J. & Skoglund, M., jun. 2018, *2018 European Control Conference (ECC)*. IEEE (Institute of Electrical and Electronics Engineers), s. 3083-3088 6 s.

Sequential use of Block Codes and Convolutional Codes in a Real-Time Multi-hop Network

Hansen, J., Østergaard, J., Kudahl, J. & Madsen, J., jun. 2018, *2018 IEEE 87th Vehicular Technology Conference, VTC Spring 2018 - Proceedings*. s. 1-5 5 s. (IEEE VTS Vehicular Technology Conference. Proceedings).

When are erasure correcting block codes better than convolutional codes in a multi-hop network?

Hansen, J., Østergaard, J., Kudahl, J. & Madsen, J., dec. 2017, *International Conference on Signal Processing and Communication Systems (ICSPCS) 11th*. IEEE (Institute of Electrical and Electronics Engineers), s. 1-5

Humans do not maximize the probability of correct decision when recognizing DANTALE words in noise

Jahromi, M. Z., Østergaard, J. & Jensen, J., aug. 2017, *Proc. Interspeech 2017*. International Speech Communication Association, s. 1163-1167 5 s. (INTERSPEECH).

An Upper Bound to Zero-Delay Rate Distortion via Kalman Filtering for Vector Gaussian Sources

Stavrou, P. A., Østergaard, J., Charalambous, C. & Derpich, M., 21 jul. 2017, *IEEE Information Theory Workshop 2017*. Kaohsiung, Taiwan: IEEE (Institute of Electrical and Electronics Engineers), s. 534-538 5 s. (IEEE Information Theory Workshop).

Superregular Lower Triangular Toeplitz Matrices for Low Delay Wireless Streaming

Hansen, J., Østergaard, J., Kudahl, J. & Madsen, J., 6 jun. 2017, I: *IEEE Transactions on Communications*. 65, 9, s. 4027 - 4038

A lower bound on causal and zero-delay rate distortion for scalar Gaussian autoregressive sources

Stavrou, P. A. & Østergaard, J., 11 maj 2017, *Proceedings of the 2017 Symposium on Information Theory and Signal Processing in the Benelux*. Heusdens, R. & Weber, J. H. (red.). Delft, The Netherlands: Delft University of Technology, s. 207-214 8 s. (Symposium on Information Theory and Signal Processing in the Benelux (SITB), Bind 2017).

Interplay Between Transmission Delay, Average Data Rate, and Performance in Output Feedback Control over Digital Communication Channels

Barforooshan, M., Østergaard, J. & Derpich, M., maj 2017, *2017 American Control Conference (ACC)*. IEEE (Institute of Electrical and Electronics Engineers), s. 1691-1696 (American Control Conference).

An Asymmetric Difference Multiple Description Gaussian Noise Channel

Østergaard, J., Kochman, Y. & Zamir, R., mar. 2017, *2017 Data Compression Conference (DCC)*. IEEE Signal Processing Society, s. 360-369 (Proceedings Data Compression Conference).

Delay Minimization in Real-Time Communications with Joint Buffering and Coding

Sørensen, J. H., Popovski, P. & Østergaard, J., jan. 2017, I: *IEEE Communications Letters*. 21, 1, s. 52-55

Achievable Performance of Zero-Delay Variable-Rate Coding in Rate-Constrained Networked Control Systems with Channel Delay

Barforooshan, M., Østergaard, J. & Stavrou, F., 2017, *56th IEEE Conference on Decision and Control*. Melbourne, Australia: IEEE (Institute of Electrical and Electronics Engineers), s. 5991-5996 6 s. (IEEE Conference on Decision and Control. Proceedings).

Source Coding in Networks with Covariance Distortion Constraints

Zahedi, A., Østergaard, J., Jensen, S. H., Naylor, P. & Bech, S., nov. 2016, I: *IEEE Transactions on Signal Processing*. 64, 22, s. 5943-5958 16 s.

Two Asymmetric Descriptions from Many Symmetric Descriptions

Mashiach, A., Kochman, Y., Østergaard, J. & Zamir, R., nov. 2016, *Science of Electrical Engineering (ICSEE), IEEE International Conference on the*. IEEE (Institute of Electrical and Electronics Engineers), 5 s.

Colored Gaussian Multiple Descriptions: Spectral and Time-Domain Forms

Østergaard, J., Kochman, Y. & Zamir, R., okt. 2016, I: *IEEE Transactions on Information Theory*. 62, 10, s. 5465 - 5483 19 s.

Validating Function Arguments in Python Signal Processing Applications

Pedersen, P. S., Oxvig, C. S., Østergaard, J. & Larsen, T., 29 aug. 2016, *Proceedings of the 15th Python in science conference (SciPy 2016)*. Python in Science, s. 106-113 8 s. (SciPy Scientific Computing with Python. Proceedings.).

A Characterization of the Minimal Average Data Rate that Guarantees a Given Closed-Loop Performance Level

Silva, E., Derpich, M., Østergaard, J. & Encina, M., aug. 2016, I: *IEEE Transactions on Automatic Control*. 61, 8, s. 2171 - 2186 16 s.

Detection of Spoken Words in Noise: Comparison of Human Performance to Maximum Likelihood Detection

Jahromi, M. Z., Østergaard, J. & Jensen, J., aug. 2016, *2016 IEEE Global Conference on Signal and Information Processing (GlobalSIP)*. IEEE (Institute of Electrical and Electronics Engineers), s. 45-49

A Recursive Kinematic Random Forest and Alpha Beta Filter Classifier for 2D Radar Tracks

Jochumsen, L. W., Østergaard, J., Jensen, S. H., Clemente, C. & Pedersen, M., jul. 2016, I: *Eurasip Journal on Advances in Signal Processing*. 2016, 82, 12 s.

On the Construction of Jointly Superregular Lower Triangular Toeplitz Matrices

Hansen, J., Østergaard, J., Kudahl, J. & Madsen, J., jul. 2016, *2016 IEEE International Symposium on Information Theory (ISIT)*. IEEE (Institute of Electrical and Electronics Engineers), s. 1954-1958 (I E E E International Symposium on Information Theory. Proceedings).

Discrete-time Hands-off Control by Sparse Optimization

Nagahara, M., Østergaard, J. & Quevedo, D., jun. 2016, I: *Eurasip Journal on Advances in Signal Processing*. 2016, 76, 8 s.

Modelling Reconstruction Quality of Lissajous Undersampled Atomic Force Microscopy Images

Pedersen, P. S., Østergaard, J. & Larsen, T., 13 apr. 2016, *2016 IEEE 13th International Symposium on Biomedical Imaging (ISBI)*. IEEE Signal Processing Society, s. 245-248 (IEEE International Symposium on Biomedical Imaging (ISBI). Proceedings.).

Multiple descriptions for packetized predictive control

Østergaard, J. & Quevedo, D., 11 apr. 2016, I: *Eurasip Journal on Advances in Signal Processing*. 2016, 16 s., 45.

Dereverberation and reverberation of audio, music, and speech

Stefan Goetze, L. R., Gerkmann, T., Spriet, A., Østergaard, J., Niemiro-Sznajder, A., Van Waterschoot, T., De Sena, E. & Doclo, S., 1 mar. 2016, I: *AES: Journal of the Audio Engineering Society*. 64, 3, s. 150-154 5 s.

Reconstruction Algorithms in Undersampled AFM Imaging

Arildsen, T., Oxvig, C. S., Pedersen, P. S., Østergaard, J. & Larsen, T., 1 feb. 2016, I: *I E E E Journal on Selected Topics in Signal Processing*. 10, 1, s. 31-46

Shaped Gaussian Dictionaries for Quantized Networked Control Systems with Correlated Dropouts

Peters, E., Quevedo, D. & Østergaard, J., jan. 2016, I: *I E E E Transactions on Signal Processing*. 64, 1, s. 203 - 213

On perceptual audio compression with side information at the decoder

Zahedi, A., Østergaard, J., Jensen, S. H., Naylor, P. & Bech, S., 2016, *Data Compression Conference (DCC), 2016*. IEEE (Institute of Electrical and Electronics Engineers), s. 456-465

Predicting Reconstruction Quality Within Compressive Sensing for Atomic Force Microscopy

Pedersen, P. S., Østergaard, J. & Larsen, T., 14 dec. 2015, *2015 IEEE Global Conference on Signal and Information Processing (GlobalSIP)*. IEEE Signal Processing Society, s. 418 - 422 (IEEE Global Conference on Signal and Information Processing (GlobalSIP). Proceedings).

Coding and Enhancement in Wireless Acoustic Sensor Networks

Zahedi, A., Østergaard, J., Jensen, S. H., Naylor, P. & Bech, S., apr. 2015, *Data Compression Conference (DCC), 2015*. IEEE Press, s. 293 - 302 10 s. (Data Compression Conference. Proceedings).

Audio coding in wireless acoustic sensor networks

Zahedi, A., Østergaard, J., Jensen, S. H., Bech, S. & Naylor, P., 2015, I: *Signal Processing*. 107, s. 141-152 12 s.

Online Estimation of wind turbine blade deflection with UWB signals

Jensen, T. L., Jakobsen, M. L., Østergaard, J., Nielsen, J. K., Byskov, C., Bæk, P. & Jensen, S. H., 2015, *23rd European Signal Processing Conference (EUSIPCO)*. IEEE Press, s. 1187-1191 (Proceedings of the European Signal Processing Conference).

Using Position Uncertainty in Recursive Automatic Target Classification of Radar Tracks

Jochumsen, L. W., Nielsen, E., Østergaard, J., Jensen, S. H. & Pedersen, M., 2015, *IEEE Radar Conference (RadarCon), 2015*. IEEE Press, s. 0168 - 0173 (International Radar Conference. Proceedings).

Magni: A Python Package for Compressive Sampling and Reconstruction of Atomic Force Microscopy Images

Oxvig, C. S., Pedersen, P. S., Arildsen, T., Østergaard, J. & Larsen, T., 7 okt. 2014, I: *Journal of Open Research Software*. 2, 1

Recursive Bayesian Classification of Surveillance Radar Tracks based on Kinematic with Temporal Dynamics and Static Features

Jochumsen, L. W., Pedersen, M., Hansen, K., Jensen, S. H. & Østergaard, J., okt. 2014, *International Radar Conference*. IEEE (Institute of Electrical and Electronics Engineers), s. 1-6 (International Radar Conference. Proceedings).

Modelling Temporal Variations by Polynomial Regression for Classification of Radar Tracks

Jochumsen, L. W., Østergaard, J., Jensen, S. H. & Pedersen, M., sep. 2014, *Signal Processing Conference (EUSIPCO), 2014 Proceedings of the 22nd European*. EURASIP, s. 1412-1416 (Proceedings of the European Signal Processing Conference).

Sparse Packetized Predictive Control for Networked Control over Erasure Channels

Nagahara, M., Quevedo, D. E. & Østergaard, J., jul. 2014, I: *IEEE Transactions on Automatic Control*. 59, 7, s. 1899-1905

Distributed Remote Vector Gaussian Source Coding with Covariance Distortion Constraints

Zahedi, A., Østergaard, J., Jensen, S. H., Naylor, P. & Bech, S., jun. 2014, *Information Theory (ISIT), 2014 IEEE International Symposium on*. IEEE (Institute of Electrical and Electronics Engineers), s. 586-590 (IEEE International Symposium on Information Theory. Proceedings).

Innovations-based state estimation with wireless sensor networks

Quevedo, D. E., Ahlen, A., Østergaard, J. & Goodwin, G. C., 26 mar. 2014, *2009 European Control Conference, ECC 2009*. IEEE (Institute of Electrical and Electronics Engineers), s. 4858-4864 7 s. 7075169

Distributed Remote Vector Gaussian Source Coding for Wireless Acoustic Sensor Networks

Zahedi, A., Østergaard, J., Jensen, S. H., Naylor, P. & Bech, S., mar. 2014, *Data Compression Conference (DCC), 2014*. IEEE Press, s. 263-272 10 s. (Data Compression Conference. Proceedings).

Ripple Design of LT Codes for BIAWGN Channels

Sørensen, J. H., Koike-Akino, T., Orlik, P., Østergaard, J. & Popovski, P., feb. 2014, I: *IEEE Transactions on Communications*. 62, 2, s. 434-441

Magni

Oxvig, C. S. (Udvikler), Pedersen, P. S. (Udvikler), Østergaard, J., Arildsen, T., Jensen, T. L. & Larsen, T., 2014

Power Control and Coding Formulation for State Estimation with Wireless Sensors

Quevedo, D., Østergaard, J. & Ahlen, A., 2014, I: *IEEE Transactions on Control Systems Technology*. 22, 2, s. 413-427

Practical Design of Delta-Sigma Multiple Description Audio Coding

Leegaard, J. H., Østergaard, J., Jensen, S. H. & Zamir, R., 2014, I: *Eurasip Journal on Audio, Speech, and Music Processing*. 2014, 16

Reconstruction of Undersampled Atomic Force Microscopy Images: Interpolation versus Basis Pursuit

Jensen, T. L., Arildsen, T., Østergaard, J. & Larsen, T., dec. 2013, *The 9th International Conference on Signal Image Technology and Internet Based Systems*. IEEE Computer Society Press, s. 130 - 135

Sampling versus Random Binning for Multiple Descriptions of a Bandlimited Source

Mashiach, A., Østergaard, J. & Zamir, R., 9 sep. 2013, *2013 IEEE Information Theory Workshop*. IEEE (Institute of Electrical and Electronics Engineers), 5 s.

UEP LT Codes with Intermediate Feedback

Sørensen, J. H., Popovski, P. & Østergaard, J., aug. 2013, *IEEE Communications Letters*. 17, 8, s. 1636 - 1639

Correction to: Packetized Predictive Control of Stochastic Systems over Bit-rate Limited Channels with Packet Loss

Quevedo, D., Østergaard, J., Silva, E. & Nesic, D., jul. 2013, *IEEE Transactions on Automatic Control*. 58, 7, s. 1869 - 1872

Sequential Error Concealment for Video/Images by Sparse Linear Prediction

Koloda, J., Østergaard, J., Jensen, S. H., Sanchez, V. & Peinado, A., jun. 2013, *IEEE Transactions on Multimedia*. 15, 4, s. 957-969

Multiple Description Coding for Closed Loop Systems over Erasure Channels

Østergaard, J. & Quevedo, D., mar. 2013, *IEEE Data Compression Conference DCC: DCC*. IEEE Press, s. 311-320 10 s. (Data Compression Conference. Proceedings).

Rate-distortion in Closed-Loop LTI Systems

Silva, E., Derpich, M. & Østergaard, J., feb. 2013, *2013 Information Theory and Applications (ITA): ITA*. IEEE Press, s. 1-2 2 s.

Packetized Predictive Control for Rate-Limited Networks via Sparse Representation

Nagahara, M., Quevedo, D. & Østergaard, J., dec. 2012, *51st IEEE Conference on Decision and Control (CDC)*. IEEE (Institute of Electrical and Electronics Engineers), s. 1362-1367 6 s. (IEEE Conference on Decision and Control. Proceedings).

Sequential Remote Source Coding in Wireless Acoustic Sensor Networks

Østergaard, J. & Derpich, M., aug. 2012, *2012 Proceedings of the 20th European Signal Processing Conference (Eusipco)*. IEEE (Institute of Electrical and Electronics Engineers), s. 1269-1273 5 s. (European Signal Processing Conference (EUSIPCO)).

Sparsely-Packetized Predictive Control by Orthogonal Matching Pursuit

Nagahara, M., Quevedo, D. & Østergaard, J., jul. 2012, *20th International Symposium on Mathematical Theory of Networks and Systems*. 3 s.

Improved Upper Bounds to the Causal Quadratic Rate-Distortion Function for Gaussian Stationary Sources

Derpich, M. & Østergaard, J., maj 2012, *IEEE Transactions on Information Theory*. 58, 5, s. 3131 - 3152

Sequential error concealment for video/images by weighted template matching

Koloda, J., Østergaard, J., Jensen, S. H., Peinado, A. & Sanchez, V., apr. 2012, *IEEE Data Compression Conference (DCC)*. IEEE Computer Society Press, s. 159-168 10 s. (Data Compression Conference. Proceedings).

Incremental Refinement using a Gaussian Test Channel and MSE Distortion

Østergaard, J. & Zamir, R., feb. 2012, *Information Theory and Applications (ITA)*. 1 s.

Design and Analysis of LT Codes with Decreasing Ripple Size

Sørensen, J. H., Popovski, P. & Østergaard, J., 2012, *IEEE Transactions on Communications*. 60, 11, s. 3191 - 3197

Feedback in LT codes for prioritized and non-prioritized data

Sørensen, J. H., Popovski, P. & Østergaard, J., 2012, *Vehicular Technology Conference (VTC Fall), 2012 IEEE*. IEEE Press, 5 s. (IEEE VTS Vehicular Technology Conference. Proceedings).

Ripple design of LT codes for AWGN channel

Sørensen, J. H., Koike-Akino, T., Orlik, P., Østergaard, J. & Popovski, P., 2012, *Proceedings of 2012 IEEE Symposium on Information Theory (ISIT)*. IEEE Press, s. 1757 - 1761 5 s. (Proceedings of the IEEE International Symposium on Information Theory).

Multiple Descriptions for Packetized Predictive Control over Erasure Channels

Østergaard, J. & Quevedo, D., dec. 2011, *IEEE International Conference on Control & Automation*. IEEE Press, 6 s. (IEEE International Conference on Control and Automation).

Packetized Predictive Control of Stochastic Systems over Bit-rate Limited Channels with Packet Loss

Quevedo, D., Østergaard, J. & Nesic, D., dec. 2011, I: I E E E Transactions on Automatic Control. 56, 12, s. 2854-2868

Real-Time Perceptual Moving-Horizon Multiple-Description Audio Coding

Østergaard, J., Quevedo, D. & Jensen, J., sep. 2011, I: I E E E Transactions on Signal Processing. 59, 9, s. 4286-4299

A Framework for Control System Design Subject to Average Data-Rate Constraints

Silva, E., Derpich, M. & Østergaard, J., aug. 2011, I: I E E E Transactions on Automatic Control. 56, 8, s. 1886 - 1899 14 s.

An Achievable Data-Rate Region Subject to a Stationary Performance Constraint for LTI Plants

Silva, E., Derpich, M. & Østergaard, J., aug. 2011, I: I E E E Transactions on Automatic Control. 56, 8, s. 1968-1973 6 s.

Incremental Refinement using a Gaussian Test Channel

Østergaard, J. & Zamir, R., aug. 2011, *Proceedings of the IEEE International Symposium on Information Theory (ISIT 2011)*. IEEE Press, s. 2233-2237 5 s.

Multiple-Description I1-Compression

Jensen, T. L., Østergaard, J., Dahl, J. & Jensen, S. H., aug. 2011, I: I E E E Transactions on Signal Processing. 59, 8, s. 3699 - 3711 13 s.

High-Rate Analysis of Symmetric L-Channel Multiple Description Coding

Zhang, G., Østergaard, J., Klejsa, J. & Kleijn, B., jul. 2011, I: I E E E Transactions on Communications. 59, 7, s. 1846 - 1856

On LT codes with decreasing ripple size

Sørensen, J. H., Popovski, P. & Østergaard, J., jan. 2011. 2 s.

Sparse Command Generator for Remote Control

Nagahara, M., Quevedo, D., Østergaard, J., Matsuda, T. & Hayashi, K., 2011, *International Conference on Control & Automation*. IEEE Press, s. 1055-1059 6 s. (International Conference on Control & Automation).

The High-Resolution Rate-Distortion Function under the Structural Similarity Index

Østergaard, J., Derpich, M. & Channappayya, S., 2011, I: Eurasip Journal on Advances in Signal Processing. 2011, 7 s.

n-Channel Asymmetric Entropy-Constrained Multiple-Description Lattice Vector Quantization

Østergaard, J., Jensen, J. & Heusdens, R., 1 dec. 2010, I: I E E E Transactions on Information Theory. 56, 12, s. 6354 - 6375

Energy Efficient State Estimation With Wireless Sensors Through the Use of Predictive Power Control and Coding

Quevedo, D. E., Ahlen, A. & Østergaard, J., 1 sep. 2010, I: IEEE Transactions on Signal Processing. 58, 9, s. 4811-4823

Predictive Power Control for Dynamic State Estimation over Wireless Sensor Networks with Relays

Østergaard, J., Quevedo, D. E. & Ahlen, A., aug. 2010, I: Proceedings of the European Signal Processing Conference. 2010, s. 194-198

Improved upper bounds to the causal quadratic rate-distortion function for Gaussian stationary sources

Derpich, M. & Østergaard, J., 1 jul. 2010, *2010 IEEE International Symposium on Information Theory Proceedings, ISIT 2010*. Austin, Texas: IEEE Press, s. 76 - 80

Bounding the Rate Region of Vector Gaussian Multiple Descriptions with Individual and Central Receivers

Zhang, G., Kleijn, B. & Østergaard, J., 1 mar. 2010, *IEEE Data Compression Conference (DCC 2010)*. IEEE Press, s. 13 - 19 (Data Compression Conference).

Fixed-Lag Smoothing for Low-Delay Predictive Coding with Noise Shaping for Lossy Networks

Arildsen, T., Østergaard, J., Murthi, M., Andersen, S. V. & Jensen, S. H., 2010, *Data Compression Conference*. Storer, J. & Marcellin, M. (red.). Snowbird, UT : IEEE Computer Society Press, s. 279-287 9 s.

Independent Source Coding for Control over Noiseless Channels

da Silva, E., Derpich, M. & Østergaard, J., 2010, *Information Theory and Applications Workshop (ITA), 2010: Proceedings*. IEEE Press, s. 1-2

Iterated smoothing for accelerated gradient convex minimization in signal processing

Jensen, T. L., Østergaard, J. & Jensen, S. H., 2010, I: I E E E International Conference on Acoustics, Speech and Signal Processing. Proceedings. 2010, s. 774 - 777

Multiple Description Coding with Feedback Based Network Compression

Sørensen, J. H., Østergaard, J., Popovski, P. & Chakareski, J., 2010, I: Globecom. I E E E Global Telecommunications Conference. 2010

Multiple Description Delta-Sigma Quantization with Individual and Central Receivers

Mashiach, A., Zamir, R. & Østergaard, J., 2010, *2010 IEEE 26th Convention of Electrical and Electronics Engineers in Israel*. IEEE Press, s. 000942-000946

Multiple Description Image/Video Compression using Oversampling and Noise Shaping in the DCT-domain

Palgy, M., Østergaard, J. & Zamir, R., 2010, *2010 IEEE 26th Convention of Electrical and Electronics Engineers in Israel (IEEEI)*. IEEE Press, s. 000965-000969

Multiple Descriptions Using Sparse Decompositions

Jensen, T. L., Østergaard, J., Dahl, J. & Jensen, S. H., 2010, I: Proceedings of the European Signal Processing Conference. 2010, s. 110-114

On the Minimal Average Data-Rate that Guarantees a Given Closed Loop Performance Level

da Silva, E., Østergaard, J. & Derpich, M., 2010, I: I F A C Workshop Series. 6 s.

A First-Order Method for the Multiple-Description I1-Compression Problem

Jensen, T. L., Østergaard, J., Dahl, J. & Jensen, S. H., 2009, *SPARS'09 - Signal Processing with Adaptive Sparse Structured Representations (2009)*. s. 6

An efficient first-order method for I1 compression of images

Dahl, J., Østergaard, J., Jensen, T. L. & Jensen, S. H., 2009, I: I E E E International Conference on Acoustics, Speech and Signal Processing. Proceedings. 2009, s. 1009-1012 4 s.

A Vector Quantization Approach to Scenario Generation for Stochastic NMPC

C. Goodwin, G., Østergaard, J., E. Quevedo, D. & Feuer, A., 2009, I: Lecture Notes in Computer Science. 384, s. 235-248

11 Compression of Image Sequences using the Structural Similarity Index Measure

Dahl, J., Østergaard, J., Jensen, T. L. & Jensen, S. H., 2009, *Proceedings - 2009 Data Compression Conference, DCC 2009*. 0 udg. IEEE (Institute of Electrical and Electronics Engineers), s. 133-142 10 s. 4976457

Innovation-Based State Estimation with Wireless Sensor Networks

E. Quevedo, D., Ahlen, A., Østergaard, J. & C. Goodwin, G., 2009.

Low Delay Moving-Horizon Multiple-Description Audio Coding for Wireless Hearing Aids

Østergaard, J., E. Quevedo, D. & Jensen, J., 2009, I: I E E E International Conference on Acoustics, Speech and Signal Processing. Proceedings. 2009, s. 21-24

Multiple-Description Coding by Dithered Delta-Sigma Quantization

Østergaard, J. & Zamir, R., 2009, I: IEEE Transactions on Information Theory. 55, 10, s. 4661 - 4675 15 s.

On Compressed Sensing and Its Application to Speech and Audio Signals

Christensen, M. G., Østergaard, J. & Jensen, S. H., 2009, I: Proc. of Asilomar Conference on Signals, Systems, and Computers. 5 s.

Predictive Power Control and Multiple-Description Coding for Wireless Sensor Networks

Østergaard, J., E. Quevedo, D. & Ahlen, A., 2009, I: I E E E International Conference on Acoustics, Speech and Signal Processing. Proceedings. 2009, s. 2785-2788

Quantized Predictive Control over Erasure Channels

E. Quevedo, D. & Østergaard, J., 2009, *Proceedings of the 48th IEEE Conference on Decision and Control, 2009 held jointly with the 2009 28th Chinese Control Conference. CDC/CCC 2009*. IEEE (Institute of Electrical and Electronics Engineers), s. 2076-2081 5 s.

Noise-Shaped Predictive Coding for Multiple Descriptions of a Colored Gaussian Source

Kochman, Y., Østergaard, J. & Zamir, R., 2008, I: Proceedings Data Compression Conference. s. 362-371

Simple Coding for Achieving Mean Square Stability over Bit-rate Limited Channels

da Silva, E., Derpich, M., Østergaard, J. & Quevedo, D., 2008, *Proceedings of the 47th IEEE Conference on Decision and Control (CDC)*. IEEE (Institute of Electrical and Electronics Engineers), s. 2698 - 2703

The Quadratic Gaussian Rate Distortion Function for Source Uncorrelated Distortions

Derpich, M., Østergaard, J. & Goodwin, G., 2008, I: Proceedings Data Compression Conference. s. 73-82

Multiple-Description Coding by Dithered Delta Sigma Quantization

Østergaard, J. & Zamir, R., 1 mar. 2007, *IEEE Data Compression Conference (DCC)*. s. 63 10 s.

The Rate Loss in Practical Multiple-Description Coding

Østergaard, J. & Heusdens, R., 1 mar. 2007, *IEEE Benelux/DSP Valley Signal Processing Symposium*. s. 211-214 4 s.

Source-Channel Erasure Codes With Lattice Codebooks for Multiple Description Coding

Østergaard, J., Heusdens, R. & Jensen, J., jul. 2006, *IEEE Int. Symposium on Information Theory (ISIT)*. s. 2324-2328 5 s.

n-Channel Entropy-Constrained Multiple-Description Lattice Vector Quantization

Østergaard, J., Jensen, J. & Heusdens, R., maj 2006, I: I E E E Transactions on Information Theory. 52, 5, s. 1956-1973

Perceptual Audio Coding using n-Channel Lattice Vector Quantization

Østergaard, J., Niamut, O. A., Jensen, J. & Heusdens, R., maj 2006, *IEEE Int. Conference on Audio, Speech and Signal Processing (ICASSP)*. s. 197-200 4 s.

On the Rate Loss in Perceptual Audio Coding

Østergaard, J., Heusdens, R. & Jensen, J., mar. 2006, *IEEE Benelux/DSP Valley Signal Processing Symposium*. s. 27-30 4 s.

n-Channel Asymmetric Multiple-Description Lattice Vector Quantization

Østergaard, J., Heusdens, R. & Jensen, J., sep. 2005, *IEEE Int. Symposium on Information Theory (ISIT)*. s. 1793-1797 5 s.

On the Bit Distribution in Asymmetric Multiple-Description Coding

Østergaard, J., Heusdens, R. & Jensen, J., maj 2005, *26th Symposium on Information Theory in the Benelux*. s. 81-88

n-Channel Symmetric Multiple-Description Lattice Vector Quantization

Østergaard, J., Jensen, J. & Heusdens, R., mar. 2005, *IEEE Data Compression Conference (DCC)*. s. 378-387 4 s.

Entropy Constrained Multiple Description Lattice Vector Quantization

Østergaard, J., Jensen, J. & Heusdens, R., maj 2004, *IEEE Int. Conference on Audio, Speech and Signal Processing (ICASSP)*. s. 601-604 4 s.