Cognitive Systems

Department of Applied Mathematics and Computer Science

Organisational unit: Section

Publications:

**Phone-based metric as a predictor for basic personality traits**
Mønsted, B., Mollgaard, A. & Mathiesen, J. 1 Jun 2018 In : Journal of Research in Personality. 74, p. 16-22
Publication: Research - peer-review › Journal article – Annual report year: 2018

**A Diagnostic and Predictive Framework for Wind Turbine Drive Train Monitoring**
Publication: Research › Ph.D. thesis – Annual report year: 2018

**Altered auditory processing and effective connectivity in 22q11.2 deletion syndrome**
Publication: Research - peer-review › Journal article – Annual report year: 2018

**Automatic skull segmentation from MR images for realistic volume conductor models of the head: Assessment of the state-of-the-art**
Publication: Research - peer-review › Journal article – Annual report year: 2018

**Benefits of spatio-temporal modelling for short term wind power forecasting at both individual and aggregated levels**
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**Deep Generative Models for Molecular Science**
Jørgensen, P. B., Schmidt, M. N. & Winther, O. 2018 In : Molecular Informatics. 37, 1-2, 9 p., 1700133
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**Deep Generative Models for Semi-Supervised Machine Learning**
Publication: Research › Ph.D. thesis – Annual report year: 2018

**Deep Latent Variable Models for Sequential Data**
Publication: Research › Ph.D. thesis – Annual report year: 2018

**Deep learning for automated drivetrain fault detection**
Publication: Research - peer-review › Journal article – Annual report year: 2018

**Design process robustness: A bi-partite network analysis reveals the central importance of people**
Piccolo, S., Jørgensen, S. L. & Maier, A. 2018 In : Design Science Journal. 4, e1
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Optimizing targeted vaccination across cyber-physical networks: an empirically based mathematical simulation study
Publication: Research - peer-review › Journal article – Annual report year: 2018

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Publication: Research - peer-review › Journal article – Annual report year: 2017

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Publication: Research › Ph.D. thesis – Annual report year: 2018

Task-Modulated Cortical Representations of Natural Sound Source Categories
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Understanding predictability and exploration in human mobility
Publication: Research - peer-review › Journal article – Annual report year: 2018

How to target inter-regional phase synchronization with dual-site Transcranial Alternating Current Stimulation
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New frontiers of quantified self 3: Exploring understudied categories of users
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Algebraic Varieties and System Design
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A locally adaptive normal distribution
A Note on Powers in Finite Fields

Archetypal Analysis for Modeling Multisubject fMRI Data

Assessing Levels of Attention Using Low Cost Eye Tracking

Assessment of Rotationally-Invariant Clustering Using Streamlet Tractography

A theory of solving TAP equations for Ising models with general invariant random matrices

Autoencoding beyond pixels using a learned similarity metric

Auxiliary Deep Generative Models

Bayesian latent feature modeling for modeling bipartite networks with overlapping groups

Bayesian leave-one-out cross-validation approximations for Gaussian latent variable models

BloodSpot: a database of gene expression profiles and transcriptional programs for healthy and malignant haematopoiesis
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**Independent Vector Analysis for Capturing Common Components in fMRI Group Analysis**
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**Inferring Stop-locations from WiFi**
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**Ladder Variational Autoencoder**
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**Measure of Node Similarity in MultiLayer Networks**
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**Measuring Motion-Induced B0-Fluctuations in the Brain Using Field Probes**
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**Neural Markers of Responsiveness to the Environment in Human Sleep**
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**Obtaining Data on Hearing Experience Through Self-tracking**
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**Open Problem: Kernel methods on manifolds and metric spaces: What is the probability of a positive definite geodesic exponential kernel?**
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The early maximum likelihood estimation model of audiovisual integration in speech perception


Thinking outside of the box or enjoying your 2 seconds of frame?

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Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2014

Disasters in personal informatics: The unpublished stories of failure and lessons learned
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Discovering hierarchical structure in normal relational data
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Down-Regulation of miR-129-5p and the let-7 Family In Neuroendocrine Tumors and Metastases Leads to Up-Regulation of Their Targets Egr1, G3bp1, Hmga2 and Bach1
Publication: Research - peer-review › Journal article – Annual report year: 2014

EEG Source Reconstruction using Sparse Basis Function Representations
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Efficient inference of overlapping communities in complex networks
Publication: Research › Journal article – Annual report year: 2014
Electrophysiological assessment of audiovisual integration in speech perception
Publication: Research › Ph.D. thesis – Annual report year: 2014

Emotional responses as independent components in EEG
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Errata to "Bayesian community detection": [Neural computation, sept. 2012, vol. 24, no. 9:2434-2456]
Publication: Research - peer-review › Journal article – Annual report year: 2014

Fast sampling from a Hidden Markov Model posterior for large data
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

FindZebra - the search engine for difficult medical cases
Winther, O., Svenstrup, D. T., Henningsen, P. P., Kristiásson, R. & Jørgensen, H. L. 2014 In : Orphanet Journal of Rare Diseases. 9, 1, p. 822
Publication: Research - peer-review › Journal article – Annual report year: 2015

Four Data Visualization Heuristics to Facilitate Reflection in Personal Informatics
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Frontal alpha oscillations distinguish leaders from followers: Multivariate decoding of mutually interacting brains
Publication: Research - peer-review › Journal article – Annual report year: 2014

Grassmann Averages for Scalable Robust PCA
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Guest Editorial: Machine Learning for Signal Processing
Publication: Research › Editorial – Annual report year: 2014

Imaging based agglutination measurement of magnetic micro-particles on a Lab-on-a-Disc platform
Publication: Research - peer-review › Poster – Annual report year: 2014

Improving spectral resolution of SERS using moving AG nanopillar substrate
Publication: Research - peer-review › Poster – Annual report year: 2014
Model Transport: Towards Scalable Transfer Learning on Manifolds

Multivariate decoding of mutually interacting brains reveals complementary neural mechanisms in leaders and followers
Konvalinka, I. 2014

Non-linear calibration models for near infrared spectroscopy

Non-negative Tensor Factorization with missing data for the modeling of gene expressions in the Human Brain

Nonparametric Bayesian Clustering of Structural Whole Brain Connectivity in Full Image Resolution

Non-parametric Bayesian graph models reveal community structure in resting state fMRI

Nonparametric statistical structuring of knowledge systems using binary feature matches

On the number of spanning trees in random regular graphs

Probabilistic shortest path tractography in DTI using Gaussian Process ODE solvers

Ranking Entities in Networks via Lefschetz Duality
A Neural Marker of Perceptual Consciousness in Infants
Publication: Research - peer-review › Journal article – Annual report year: 2013

Archetypal analysis of diverse Pseudomonas aeruginosa transcriptomes reveals adaptation in cystic fibrosis airways
Publication: Research - peer-review › Journal article – Annual report year: 2013

Assessing Miniaturized Sensor Performance using Supervised Learning, with Application to Drug and Explosive Detection
Publication: Research › Ph.D. thesis – Annual report year: 2013

Autobiographical Memory in a Fire-Walking Ritual
Publication: Research - peer-review › Journal article – Annual report year: 2014

Believing versus interacting: Behavioural and neural mechanisms underlying interpersonal coordination
Konvalinka, I., Bauer, M., Kilner, J., Roepstorff, A. & Frith, C. D. 2013
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2014

Bounded Gaussian process regression
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Comparing Structural Brain Connectivity by the Infinite Relational Model
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Complementary coordination strategies in a joint Fitts' reciprocal aiming task
Konvalinka, I., Skewes, L., Michael, J. & Skewes, J. C. 2013
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2014

Crowds, Bluetooth and Rock'n'Roll: Understanding Music Festival Participant Behavior
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Crowds, Bluetooth, and Rock'n'Roll: Understanding Music Festival Participant Behavior
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Dimensionality reduction for click-through rate prediction: Dense versus sparse representation
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

EEG Sequence Imaging: A Markov Prior for the Variational Garrote
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013
Efficient individualization of hearing aid processed sound
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Estimating passenger numbers in trains using existing weighing capabilities
Publication: Research - peer-review › Journal article – Annual report year: 2013

Expansion of the Variational Garrote to a Multiple Measurement Vectors Model
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

FindZebra: A search engine for rare diseases
Publication: Research - peer-review › Journal article – Annual report year: 2013

Hearing Aid Personalization
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

How about a Bayesian M/EEG imaging method correcting for incomplete spatio-temporal priors
Publication: Research - peer-review › Conference abstract in journal – Annual report year: 2013

How low can you go: Spatial frequency sensitivity in a patient with pure alexia
Starrfelt, R., Nielsen, S., Habekost, T. & Andersen, T. 2013 In : Brain and Language. 126, 2, p. 188-192
Publication: Research - peer-review › Journal article – Annual report year: 2013

Images from a jointly-arousing collective ritual reveal affective polarization
Publication: Research - peer-review › Journal article – Annual report year: 2014

Kernel Methods for Machine Learning with Life Science Applications
Publication: Research › Ph.D. thesis – Annual report year: 2013

Publication: Research - peer-review › Journal article – Annual report year: 2013

Large scale inference in the Infinite Relational Model: Gibbs sampling is not enough
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013
Large-scale Machine Learning in High-dimensional Datasets
Publication: Research › Ph.D. thesis – Annual report year: 2013

Learning the solution sparsity of an ill-posed linear inverse problem with the Variational Garrote
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Les risques industriels et le prix des logements
Publication: Research - peer-review › Journal article – Annual report year: 2014

Measuring Personalization of Web Search
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Mobile real-time EEG imaging Bayesian inference with sparse, temporally smooth source priors
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Modeling Temporal Evolution and Multiscale Structure in Networks
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Modelling auditory attention: Insights from the Theory of Visual Attention (TVA)
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2013

Mouth reversal extinguishes mismatch negativity induced by the McGurk illusion
Eskelund, K. & Andersen, T. 2013 In : Multisensory Research. 26, 0, p. 133–134
Publication: Research - peer-review › Conference abstract in journal – Annual report year: 2013

Multiple sclerosis impairs regional functional connectivity in the cerebellum
Publication: Research - peer-review › Journal article – Annual report year: 2013

Nanomechanical recognition of prognostic biomarker suPAR with DVD-ROM optical technology
Publication: Research - peer-review › Journal article – Annual report year: 2013

Nonparametric Bayesian Modeling of Complex Networks: An Introduction
Publication: Research - peer-review › Journal article – Annual report year: 2013

Participatory Bluetooth Sensing: A Method for Acquiring Spatio-Temporal Data about Participant Mobility and Interactions at Large Scale Events
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013
Personal Informatics in the Wild: Hacking Habits for Health & Happiness
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Personalized Audio Systems - a Bayesian Approach
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Perturbative corrections for approximate inference in gaussian latent variable models
Publication: Research - peer-review › Journal article – Annual report year: 2013

Pointing to oneself: active versus passive proprioception revisited and implications for internal models of motor system function
Publication: Research - peer-review › Journal article – Annual report year: 2013

Population Structure
Publication: Research › Report – Annual report year: 2013

PorkCAD: Case study of the design of a pork product prototyper
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Predictive Modeling of Expressed Emotions in Music Using Pairwise Comparisons
Madsen, J., Jensen, B. S. & Larsen, J. 2013 In : Lecture Notes in Computer Science. 7900, p. 253-277
Publication: Research - peer-review › Journal article – Annual report year: 2013

Process optimization of ultrasonic spray coating of polymer films
Publication: Research - peer-review › Journal article – Annual report year: 2013

QS Spiral: Visualizing Periodic Quantified Self Data
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Sequential collaboration network with sentiment coloring
Nielsen, F. Á. 2013
Publication: Research › Conference abstract for conference – Annual report year: 2015

Sparse Source EEG Imaging with the Variational Garrote
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Spatio temporal media components for neurofeedback
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013
Surface-Enhanced Raman Spectroscopy Based Quantitative Bioassay on Aptamer-Functionalized Nanopillars Using Large-Area Raman Mapping
Publication: Research - peer-review › Journal article – Annual report year: 2013

Towards a universal representation for audio information retrieval and analysis
Publication: Research - peer-review › Conference article – Annual report year: 2013

Unsupervised knowledge structuring Application of Infinite Relational Models to the FCA visualization
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Variance inflation in high dimensional Support Vector Machines
Abrahamsen, T. J. & Hansen, L. K. 2013 In : Pattern Recognition Letters. 34, 16, p. 2173-2180
Publication: Research - peer-review › Journal article – Annual report year: 2013

How Low Can You Go: Spatial Frequency Sensitivity in Pure Alexia
Starrfelt, R., Nielsen, S., Habekost, T. & Andersen, T. 2012
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2013

Integration of top-down and bottom-up information for audio organization and retrieval
Publication: Research › Ph.D. thesis – Annual report year: 2013

Joint Modelling of Structural and Functional Brain Networks
Publication: Research - peer-review › Paper – Annual report year: 2012

Link prediction in weighted networks
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Multi-colorimetric sensor array for detection of illegal materials
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Semi-supervised Eigenvectors for Locally-biased Learning
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

String matching with variable length gaps
Publication: Research - peer-review › Journal article – Annual report year: 2012
Demonstration: A smartphone 3D functional brain scanner
Publication: Research › Conference abstract for conference – Annual report year: 2011

Projects:

Reducing the rate and duration of re-admission among patients with unipolar and bipolar disorder using smartphone-based monitoring and treatment
Bardram, J. E. & Winther, O.
01/03/2016 → 01/09/2019
Project

Computational methods for wind-energy forecasting
Guillot, G., Pinson, P. & Bezzera, E.
01/02/2015 → 29/02/2016
Project

Non-Linear Temporal Machine Learning Models for Conditioning Monitoring in Large-Scale Solar Energy Systems
Maaløe, L. & Winther, O.
15/12/2014 → 15/12/2017
Project

Benchmarking and extending models of real estate price prediction, under financial regulation requirements
Guillot, G., Katrossky, A., Thygesen, U. H. & Dalhoff, J.
01/09/2014 → 01/10/2017
Project

Computational Landscape Genomics
Guillot, G., Storfer, A., Poss, M. & Antolin, M.
01/10/2013 → …
Project

Population structure
Guillot, G. & Orlando, L.
01/07/2013 → …
Project

Deep Belief Nets for Topic Modeling
Maaløe, L. & Winther, O.
01/02/2013 → 01/03/2014
Project

Activities:

Integration of Nanopillar SERS Substrates in a Microfluidic Platform for Analyte Separation and Quantitative Sensing
Durucan, O. (Guest lecturer), Morelli, L. (Guest lecturer), Wu, K. (Guest lecturer), Viehrig, M. (Guest lecturer), Ilchenko, O. (Guest lecturer), Zor, K. (Guest lecturer), Matteucci, M. (Guest lecturer), Alstrøm, T. S. (Guest lecturer), Rindzevicius, T. (Guest lecturer), Schmidt, M. S. (Guest lecturer), Boisen, A. (Guest lecturer)
11 Jun 2017 → 17 Jun 2017
Activity: Talks and presentations › Conference presentations

WikiCite 2016
Nielsen, F. Á. (Participant)
25 May 2016 → 26 May 2016
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.
An Introduction to Multisensory Perception
Andersen, T. (Lecturer)
8 Sep 2015
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

ICES
Guillot, G. (Participant)
9 Jun 2015
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Member of PhD committee (External organisation)
Guillot, G. (Participant)
May 2015
Activity: Membership › Membership in review committee

Model and inference algorithm to combine genetic, phenotypic and geographic information
Guillot, G. (Invited speaker)
29 Apr 2015
Activity: Talks and presentations › Conference presentations

Combining text mining and coordinate-based meta-analysis
Nielsen, F. Å. (Invited speaker)
21 Apr 2015
Activity: Talks and presentations › Conference presentations

Models and Modes of Audiovisual integration
Andersen, T. (Lecturer)
18 Feb 2015
Activity: Talks and presentations › Conference presentations

10th Danish-French workshop in Spatial Statistics
Guillot, G. (Invited speaker)
2014
Activity: Talks and presentations › Conference presentations

Assessment committee PhD Scholarships, DTU compute (External organisation)
Guillot, G. (Participant)
10 Nov 2014
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Modeling categorial audiovisual perception: pitfalls and solutions
Andersen, T. (Lecturer)
7 Nov 2014
Activity: Talks and presentations › Conference presentations

Workshop on effects of global change on species' range fluctuations using intra-specific genetic variation in both phenotypic and molecular data
Guillot, G. (Invited speaker)
Activity: Talks and presentations › Conference presentations

An Introduction to Multisensory Perception
Andersen, T. (Lecturer)
2 Sep 2014
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities
Early Maximum-Likelihood Estimation as a model of audiovisual integration of speech
Andersen, T. (Lecturer)
11 Jun 2014
Activity: Talks and presentations › Conference presentations

Lecture
Guillot, G. (Lecturer)
Apr 2014
Activity: Talks and presentations › Conference presentations

Seminar of the Department of Biology
Guillot, G. (Participant)
Apr 2014
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

17th International Conference on Artificial Intelligence and Statistics
Hansen, S. T. (Participant)
22 Apr 2014 → 25 Apr 2014
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Computational Models of Attention and Perception
Andersen, T. (Lecturer)
28 Jan 2014
Activity: Talks and presentations › Conference presentations

Journal of the Royal Statistical Society (Journal)
Guillot, G. (Editor)
1 Jan 2014 → 31 Dec 2014
Activity: Research › Journal editor

Member of the Editorial Board Population Ecology (External organisation)
Guillot, G. (Participant)
1 Jan 2014 → 31 Dec 2014
Activity: Membership › Board duties in companies, associations, or public organisations

Arieties of cross-modal interactions and multi-sensory integration effects: Invited lecture at Otto-von-Guericke-Universität Magdeburg, Germany
Andersen, T. (Lecturer)
29 Nov 2013
Activity: Talks and presentations › Conference presentations

An Introduction to Multisensory Perception
Andersen, T. (Guest lecturer)
9 Sep 2013
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Estimating the phylogenetic history for two related populations A Hidden Markov Model approach to finding phylogenetic trees:
A Hidden Markov Model approach to finding phylogenetic trees
Guillot, G. (Internal examiner)
Jul 2013
Activity: Examinations and supervision › Internal examination

Journal of the Royal Statistical Society, series A (Journal)
Guillot, G. (Editor)
2012 → 2014
Prizes:

**Molecular Ecology best reviewer 2013**
Gilles Guillot (Recipient), Jan 2013
Prize: Prizes, scholarships, distinctions

Press clippings:

**Banksy in Boston? Nope, just bots in Copenhagen**
Sune Lehmann Jørgensen
04/12/2013
1 media contribution
Press / Media