CURRICULUM VITAE AND THE LIST OF PUBLICATIONS

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Tampere University (TAU), Tampere, Finland

Hyperlinks in orange

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CONTENTS

1. MAIN SCIENTIFIC RESEARCH INTERESTS

- Biological neuronal networks and interfacing them with ICT
- Biomedical signal processing, esp. *in vitro* neuronal microelectrode array measurement analysis and measurement technologies, and EEG and ECG signal processing
- Signal processing, esp. independent component analysis

2. POSITIONS AT TAMPERE UNIVERSITY (FORMERLY TAMPERE UNIVERSITY OF TECHNOLOGY, TUT)

Associate Professor of Biomedical Signal Processing 1.11.2018 –

Project Manager, Researcher 1.1.2019 –
"**Hybrid Enhanced Regenerative Medicine Systems (HERMES)**" A European Union Horizon 2020 project funded under Future and Emerging Technologies (FET Proactive) scheme. Total funding: 8.4 Me, TAU funding: 818000 e. http://www.hermes-fet.eu/

Principal Investigator, Project Manager 1.1.2016 – 31.12.2019
"**Biological Neuronal Communications and Computing with ICT (NeuCom)**"
A project funded by Jane and Aatos Erkko Foundation. Funding: 445000 e

Affiliate 1.8.2015 – 31.12.2015

Senior Research Fellow 1.7.2013 – 31.7.2015

Project Manager, Member of the Steering Committee, Researcher 1.7.2012 – 30.6.2015
"**Biomimiking the Brain - towards 3D Neuronal Network Dynamics (3DNeuroN)**" A European Union 7th Framework Programme project funded under Future and Emerging Technologies (FET OPEN) scheme, coordinated by TUT, CBIG. Total funding: 4 Me, TUT funding: 930000 e.
http://www.3dneuron.eu/

Postdoctoral Researcher 1.11.2005 – 30.6.2012

3. Other Projects and Professional Appointments

Project Manager, TUT, Dept. of Biomedical Eng. (BME) 1.1.2010 – 30.6.2012
"**Studies on Intelligent Processing Methods for EEG/ECoG Signals in Brain-Computer Interface (BrainCom)**" funded by the Academy of Finland from a joint call of Academy of Finland and National Natural Science Foundation of China, TUT, BME subproject funding: 220000 e

Project Manager, TUT, BME 1.1.2008 –31.12.2012
"**Biomimetic Active Environment for Differentiating and Maturing Functional Neurons and Cardiomyocytes from Stem Cells**," funded by the Academy of Finland, total funding: 912000 e

Project Manager, TUT, BME 31.5.2007 – 30.6.2008
"**Three Dimensional Image Based Characterization and Modeling of Microstructures of Biological and Engineered Materials**" ("**Mikrorakenteen 3D-karakterisointi ja -mallinnus**"), funded by TEKES and industrial partners, total funding: 664000 e

Postdoctoral Researcher 10/2001 – 7/2004
University of Kuopio, Kuopio, Finland
A. I. Virtanen Institute for Molecular Sciences, Dept. of Biomedical NMR, and Dept. of Neurobiology

Research Scientist 11/1998 – 9/2001
Helsinki University of Technology (HUT), Institute of Intelligent Power Electronics

Group Leader/Senior Researcher/Researcher/Research Assistant 3/1994 – 1/2002
HUT, Signal Processing Laboratory (part time 11/1998 – 1/2002)

4. Education

Doctor of Science in Technology (E.E.), Helsinki University of Technology (HUT), Dept. of Electrical and Communications Engineering (ECE), Espoo, Finland
Dissertation: *Polynomial Predictive Filters: Implementation and Applications* Dec. 18, 2000

Licentiate of Technology (E.E.), HUT, ECE Jan. 27, 1998
Major: Signal Processing and Computer Equipment; Minor: Communications Technology

Master of Science, HUT June 6, 1995
Study program: Technical Physics
Major: Information Science; Minor: Nuclear Engineering and Advanced Power Systems

High School Graduate, Hollolan lukio, Hollola, Finland May 31, 1988

High School Graduate, Orleans High, Orleans, Nebraska, USA 1986

5. Other Training

Immediate Supervisor Training (free translation of "TAHTO-lähiesimiesvalmenus"), Tampere University of Technology 2009 – 2010

Open Entrepreneur Course (free translation of "Avoin yrittäjäkurssi"), Institute of Marketing, Helsinki, Finland 9 – 10/2004

Competence course for scientists using experimental animals (Eläinkokeiden suunnittelu, suorittaminen ja johtaminen), National Laboratory Animal Center, University of Kuopio 1/2002

6. Professional Organization Involvement

Member of the IEEE European Public Policy Committee Working Group on ICT 7/2014 –

The Working Group has been formed to increase IEEE's presence and visibility on EU issues relating to ICT and provide the technical know-how to be integrated into EU policy. The overall objective of the Working Group is to contribute to the rational formulation of related legislation, regulation and policy in the Europe through the provision of sound technical and professional counsel, based upon the best resources that the IEEE can bring to bear upon the issues. The Working Group shall constitute a central focal point for presenting the sound technical and professional views of the IEEE membership to the EU. It shall work to provide balanced, technically sound and neutral information on relevant-related matters to the EU IEEE Membership.
https://www.ieee.org/about/ieee-europe/europe-ict.html

7. Administrative Duties

Vice Member of the Faculty Council of Faculty of Biomedical Sciences and Engineering, TUT 1/2017 – 12/2017

Design of select CBIG laboratories in the Arvo building in Tampere 8/2014 – 6/2015

Vice Member of the Board of Information Management (free translation of "tietohallinnon johtoryhmän varajäsen"), participated as a regular member, University of Kuopio 1/2002 – 6/2004

8. Memberships

IEEE, member 2003 –
- IEEE European Public Policy Committee Working Group on ICT, member 2014 –
- IEEE Signal Processing Society, member 2003 –
- IEEE Engineering in Medicine and Biology Society, member 2011 –
- IEEE Computational Intelligence Society, member 2016 –
- IEEE Communications Society, member 2004, 2007, 2009, 2011, 2013 – 2018

European Association for Signal Processing (EURASIP), member 2016 –
Physics Alumni of Aalto University, Finland, founding member 2004 –
Academic Engineers and Architects in Finland TEK, member 1995 –
The Finnish Society of Information Technology and Electronics (TiES), Finland, member

9. Participation in Industry Related Research Projects

The projects below were funded by the National Technology Agency (currently: the Finnish Funding Agency for Innovation) (TEKES) and usually three industrial partners.

Project: **System Technology for Future Wireless Telecommunications**
Subproject: Coordinated Radio Resource Management of Third Generation Communication Systems with Intelligent Techniques
Senior Researcher, HUT, Signal Processing Laboratory (SIG) 1/2000 – 1/2002 (part time)

Project: **Radio Interface and Network Planning Techniques for 3rd Generation Cellular Systems**
Subproject: Radio Resource Management in WCDMA Networks
Group Leader, HUT, SIG 1/1998 – 12/1999 (part time 11/1998 – 12/1999)

Project: **System Techniques for Next Generation Cellular Systems**
Secretary of the Steering Committee
Subproject: Modern Power Control Methods and Power Saving Algorithms
Researcher, HUT, SIG 1/1996 – 12/1997

Project: **Communications System Simulation and Signal Processing**
Subproject: Predictive Power Control and Channel Estimation for Cellular Mobile Applications
Researcher / Research Assistant, HUT, SIG 3/1994 – 12/1995

10. Personal Research Grants

Biological Neuronal Communications and Computing with ICT (EUR 445000) 1/2016 – 12/2019
Jane and Aatos Erkko Foundation, Finland (funding period)

Postdoctoral researcher position (EUR 88560) 8/2002 – 12/2004
Granted as a personal appropriation by Academy of Finland (decision no 80323) (funding period)

Research expense funding (EUR 16000) for the postdoctoral research 2/2004 – 12/2004
Academy of Finland (decision no 202466) (funding period)

11. Duties as a Scientific Expert and with Scientific Conferences

Program Committee Co-chair, European Medical and Biological Engineering Conference (EMBEC) and the Nordic-Baltic Conference on Biomedical Engineering and Medical Physics (NBC), Tampere, Finland, June 11-15, 2017.

Co-organizer, Satellite Workshop no. 8, "In vitro neuronal networks from 2D to 3D" of the Bernstein Conference, Heidelberg, Germany, Sept. 14, 2015. **http://www.nncn.de/de/bernstein-conference/past-conferences/2015/satellite-workshops/in-vitro-neuronal-networks-from-2d-to-3d**

Technical Chair, 6th Nordic Signal Processing Symposium - NORSIG 2004, Espoo, Finland, June 2004. The person responsible for the scientific program, the setup and work of the Technical Committee, publications, and IEEE contracts. **http://legacy.spa.aalto.fi/sig-legacy/norsig2004/**

Organizing Chair, 2001 Finnish Signal Processing Symposium, Espoo, Finland, June 2001. **http://legacy.spa.aalto.fi/sig-legacy/finsig01/**

Program Co-chair, 5th Online World Conference on Soft Computing in Industrial Applications, On the Internet, Sept. 2000

Member of Technical, **Program** or **Review Committee**, or **Scientific Board**, or **Reviewer**

- 9th Int. IEEE EMBS Neural Engineering Conf., San Francisco, CA, USA, Mar. 2019
- 40th Ann. Int. Conf. IEEE Engineering in Medicine and Biology Society, Honolulu, HI, USA, July 2018
- 39th Ann. Int. Conf. IEEE Engineering in Medicine and Biology Society, Jeju Island, Korea, July 2017
- 50th IEEE Int. Symp. Circuits and Systems, Baltimore, MD, USA, May 2017
- 8th Int. IEEE EMBS Neural Engineering Conf., Shanghai, China, May 2017
- 38th Ann. Int. Conf. of IEEE Engineering in Medicine and Biology Society, Orlando, FL, USA, Aug. 2016
- 37th Ann. Int. Conf. of IEEE Engineering in Medicine and Biology Society, Milan, Italy, Aug. 2015
- 7th Int. IEEE EMBS Neural Engineering Conf., Montpellier, France, Apr. 2015
- 14th Baltic Electronics Conf., Tallinn, Estonia, Oct. 2014
- 24th Int. Conf. on Artificial Neural Networks, Hamburg, Germany, Sept. 2014
- 35th Ann. Int. Conf. of IEEE Engineering in Medicine and Biology Society, Osaka, Japan, July 2013
- 9th Int. Conf. on Computer Intelligence and Security, Sichuan Province, China, Dec. 2013
- 13th Baltic Electronics Conf., Tallinn, Estonia, Oct. 2012
- 2011 European Signal Processing Conf., Barcelona, Spain, Aug./Sept. 2011
- 2010 European Signal Processing Conf., Aalborg, Denmark, Aug. 2010
- 2009 Symp. on Microelectrode Arrays in Tissue Engineering, Tampere, Finland, June 2009
- 2009 European Signal Processing Conf., Glasgow, Scotland, Aug. 2009
- 2008 European Signal Processing Conf., Lausanne, Switzerland, Aug. 2008
- 5th Tissue Engineering Symp., Tampere, Finland, Apr. 2008
- 2007 European Signal Processing Conf., Poznań, Poland, Sept. 2007
- 7th Nordic Signal Processing Symp., Reykjavik, Iceland, June 2006
- 2005 Finnish Signal Processing Symp., Kuopio, Finland, Aug. 2005
- 4th Int. Conf. on Hybrid Intelligent Systems, Kitakyushu, Japan, Dec. 2004
- 2003 IEEE Int. Symposium on Industrial Electronics, Rio de Janeiro, Brazil, June 2003
- 3rd Int. Conf. on Hybrid Intelligent Systems, Melbourne, Australia, Dec. 2003
- Second Int. Conf. on Hybrid Intelligent Systems, Santiago, Chile, Dec. 2002
- 6th Online World Conf. on Soft Computing in Industrial Applications, On the Internet, Sept. 2001

Organizing Committee Member three conferences, 1996 – 2009

Reviewer for Funding Application, The French National Research Agency one application, 2013

Reviewer for International Scientific Journals: BioMedical Engineering OnLine; Computers in Biology and Medicine; EURASIP Journal on Applied Signal Processing; IEEE Signal Processing Letters; IEEE Transactions on Signal Processing; IEEE Transactions on Systems, Man, and Cybernetics; Integration, the VLSI Journal; Journal of Neuroscience Methods; Medical & Biological Engineering & Computing; Swarm and Evolutionary Computation; Communications in Statistics - Theory and Methods

12. Teaching and Instructing Activities

Doctoral Student Instructor, M.Sc. A. Ahtiainen, TAU
Doctoral Research Topic: *Establishing Neuron-neuron and Neuron-astrocyte Connections, and Electrochemical Activity in 3D to Assess the Effects of Neurostimulation on Neuronal Cells* 2019 –

Doctoral Student Instructor, M.Sc. H. Kaisvuo, TAU
Doctoral Research Topic: *Training Neuroconnectivity Using Neuromodulation* 2019 –

Doctoral Student Instructor, M.Sc. Emre F. Kapucu, TUT
Doctoral Dissertation: *Methods to Enhance Information Extraction from Microelectrode Array Measurements of Neuronal Networks* http://urn.fi/URN:ISBN:978-952-15-3862-9 Graduated 2016

Reviewer of a Doctoral Dissertation, Lic.Tech. Niina Päivinen, University of Kuopio,
Scale-free Clustering: A Quest for the Hidden Knowledge http://urn.fi/URN:ISBN:978-951-27-0106-3 2007

External Examiner of a Licentiate Thesis, M.Sc. Niina Päivinen, University of Kuopio,
From Measurements to Information: A Travel Guide through the Phase Space 2005

Master's Thesis Instructor/Examiner

Ms. Annika Ahtiainen,

Ms. Heidi Kaisvuo,

Mr. Ville Raatikainen, Faculty of Computing and Electrical Engineering, TUT,
Connectivity Analysis for in Vitro Neuronal Cell Networks 2013

Mr. Mikko Koski, Faculty of Computing and Electrical Engineering, TUT,
Development of a Novel High Resolution Optical Neuroimaging Method 2010

Mr. Antti Ahola, Faculty of Computing and Electrical Engineering, TUT,
A Programmable Long Term Electrical Stimulation System for Cell Cultures on Microelectrode Arrays 2010

Mr. Lauri Lehto, Faculty of Computing and Electrical Engineering, TUT,
Comparisons of Two MRI Sequences for Simultaneous FMRI and Electrophysiological Field Potential Measurements 2008

Ms. Han Yan, Ragnar Granit Institute, TUT,
Reconstruction of a 3D Model from Differently Focused Phase Contrast Microscope Images 2007

Mr. J. Martikainen, HUT,
Feasibility Study of a Link Level UMTS System Simulator Using Parallel Computing 2002

Courses Lectured as the Responsible Teacher

LTT-4106, BME-2626	Processing of Physiological Signals*, BME, TUT	2011, 2012
LTT-6306	Neuroinformatics*, BME, TUT	2006, 2007, 2008, 2010
S-88.119	Moniprosessorijärjestelmät (free translation: multiprocessor systems), Signal Processing Laboratory, HUT	spring 1997

* Personally redesigned the entire course.

Course Assistant

LTT-4100	Processing of Physiological Signals, TUT	spring 2006
S-81.260	Sähkökäyttöjen ohjelmistotekniikka, HUT (free translation: software technology of electric drives)	springs 2000 and 2001
S-81.250	Sähkökäyttöjen ohjauselektroniikka, HUT (free translation: control electronics of electric drives)	springs 2000 and 2001
S-88.155	Signaalinkäsittelyn erikoistyö, HUT (free translation: individual special assignment in signal processing)	one special assignment during 2001
S-81.210	Teollisuuselektroniikan signaalinkäsittelymenetelmät, HUT (free translation: signal processing methods in industrial electronics)	fall 2000
S-81.240	Teollisuuselektroniikan liityntätekniikka, HUT (free translation: connecting technology in industrial electronics)	spring 1999
S-81.230	Teollisuuselektroniikan signaaliprosessorit, HUT (free translation: signal processors in industrial electronics)	spring 1999

S-88.116	Digitaaliset signaalinkäsittelyjärjestelmät, HUT (free translation: digital signal processing systems)	fall 1998
S-88.168	Adaptiiviset signaalinkäsittelyjärjestelmät, HUT (free translation: adaptive signal processing systems)	spring 1998
S-88.117	Multiprocessor Systems, HUT	spring 1996
S-38.212	Telecommunications Signal Processing II, HUT	spring 1996

Teaching Recognitions

Received a bonus for good teaching work based on student feedback, HUT 5/2000, 8/2001, 6/2002

13. Invention Disclosures

9 invention disclosures submitted to TUT 1/2012 –
Rights of 4 inventions disclosures acquired by TUT. Rights of 5 invention disclosures returned to the inventors.

14. Personal Business

Firm Name	**Blond Art**
WWW	http://www.blondart.com/
Date of Registration	24.7.2007
VAT Number	FI21288461
Field of Business	Artistic creation; Photography Blond Art is also a publisher (978-952-67543) registered in Finland.
Auxiliary Firm Names	Signal Models Stem Cell Art

15. Artistic Publishing and Photography

Book: Jarno M. A. Tanskanen, *Cars of Geneva 2011*
Blond Art, Nokia, Finland, Sept. 2014
ISBN 978-952-67543-1-4 (hardcover)
978-952-67543-4-5 (PDF)
Hardcover on Amazon (hardcover): http://amzn.com/952675431X
Electronic on Blurb (PDF): http://blur.by/1uB1wrQ

Accredited author and photographer at the following events

- IAA Commercial Vehicles 2014, Hannover, Germany, 9-10/2014
- 65th IAA Cars 2013, Frankfurt, Germany, 9/2013
- 81st International Motor Show, Geneva, Switzerland, 3/2011
- 80th International Motor Show, Geneva, Switzerland, 3/2010

Photographs accepted to the exhibitions of the following international contests

- Al-Thani Award for Photography 2008, Qatar
- 1. World of Images Circuit – MOTIVA 2005, Austria
- 4. Special Themes Circuit 2005, Austria
- 13. Austrian Super Circuit 2004, Austria
- 3. Special Themes Circuit 2004, Austria

16. SCIENTIFIC PUBLICATIONS

Theses

[1] **J. M. A. Tanskanen**, ***Polynomial Predictive Filters: Implementation and Applications.*** Doctoral Dissertation, Helsinki University of Technology Institute of Intelligent Power Electronics Publications, Publication 5, Helsinki University of Technology, Espoo, Finland, Nov. 2000. http://urn.fi/urn:nbn:fi:tkk-002586

[2] **J. Tanskanen**, ***Multiuser CDMA Power Control Simulator — Effects of Simple Prediction***. Licentiate of Technology Thesis, Helsinki University of Technology, Espoo, Finland, Jan. 1998. http://legacy.spa.aalto.fi/sig-legacy/RAVE/C/Tanskanen_Jarno_publication_07.html

[3] **J. Tanskanen**, ***Prediction of Received Signal Power in CDMA Cellular Systems***. Master of Science Thesis, Helsinki University of Technology, Espoo, Finland, May 1995.

Chapters in Books

[4] L. Ylä-Outinen, **J. M. A. Tanskanen**, F. E. Kapucu, A. Hyysalo, J. A. K. Hyttinen, and S. Narkilahti, "**Advances in human stem cell-derived neuronal cell culturing and analysis**," in *In Vitro Neuronal Networks - From Culturing Methods to Neuro-Technological Applications* (Advances in Neurobiology, Vol. 22), M. Chiappalone, V. Pasquale, and M. Frega, Eds., Cham, Switzerland: Springer, 2019, pp. 299–329. https://doi.org/10.1007/978-3-030-11135-9_13

[5] **J. M. A. Tanskanen** and J. J. Viik, "**Independent component analysis in ECG signal processing**," in *Advances in Electrocardiograms - Methods and Analysis*, R. M. Millis, Ed. Rijeka, Croatia: InTech, 2012, pp. 349–372. http://dx.doi.org/10.5772/22719

Articles in International Scientific Journals

[6] **J. M. A. Tanskanen**, A. Ahtiainen, and J. A. K. Hyttinen, "**Towards closed-loop electrical stimulation of neuronal systems – A review**," *Bioelectricity*, Nov. 2020. https://doi.org/10.1089/bioe.2020.0028

[7] M. Böttrich, **J. M. A. Tanskanen**, and J. Hyttinen "**Lead field theory provides a powerful tool for designing microelectrode array impedance measurements for biological cell detection and observation**," *BioMedical Engineering OnLine*, 16:85, 17 pages, June 2017. http://dx.doi.org/10.1186/s12938-017-0372-5

[8] F. E. Kapucu, I. Vornanen, J. E. Mikkonen, C. Leone, K. Lenk, **J. M. A. Tanskanen**, and J. Hyttinen, "**Spectral entropy based neuronal network synchronization analysis based on microelectrode array measurements**," *Frontiers in Computational Neuroscience*, Vol. 10, Article 112, 19 pages, Oct. 2016. http://dx.doi.org/10.3389/fncom.2016.00112

[9] F. E. Kapucu, M. E.-L. Mäkinen, **J. M. A. Tanskanen**, L. Ylä-Outinen, S. Narkilahti, and J. A. K. Hyttinen, "**Joint analysis of extracellular spike waveforms and neuronal network bursts**," *Journal of Neuroscience Methods*, Vol. 259, pp. 143–155, Feb. 2016. http://dx.doi.org/10.1016/j.jneumeth.2015.11.022

[10] X.-Z. Gao, J. Wang, **J. M. A. Tanskanen**, R. Bie, X. Wang, P. Guo, and K. Zenger, "**Optimal classification of epileptic EEG signals using neural networks and harmony search methods**," *Journal of Software*, Vol. 9, No. 1, pp. 230–239, Jan. 2014. http://www.jsoftware.us/show-50-496-1.html

[11] F. E. Kapucu, **J. M. A. Tanskanen**, J. E. Mikkonen, L. Ylä-Outinen, S. Narkilahti, J. A. K. Hyttinen, "**Burst analysis tool for developing neuronal networks exhibiting highly varying action potential dynamics**," *Frontiers in Computational Neuroscience*, Vol. 6, Article 38, 14 pages, June 2012. http://dx.doi.org/10.3389/fncom.2012.00038

[12] T. Ryynänen, L. Ylä-Outinen, S. Narkilahti, **J. M. A. Tanskanen**, J. Hyttinen, J. Hämäläinen, M. Leskelä, and J. Lekkala, **"Atomic layer deposited iridium oxide thin film as microelectrode coating in stem cell applications**," *Journal of Vacuum Science and Technology A*, Vol. 30, No. 4, pp. 041501-1–041501-5, July/Aug. 2012. http://dx.doi.org/10.1116/1.4709447

[13] T. Ryynänen, V. Kujala, L. Ylä-Outinen, I. Korhonen, **J. M. A. Tanskanen**, P. Kauppinen, K. Aalto-Setälä, J. Hyttinen, E. Kerkelä, S. Narkilahti, and J. Lekkala, "**All titanium microelectrode array for field potential measurements from neurons and cardiomyocytes – a feasibility study**," *Micromachines*, Vol. 2, No. 4, pp. 394–409, Dec. 2011. http://dx.doi.org/10.3390/mi2040394

[14] V. J. Kujala, Z. C. Jimenez, J. Väisänen, **J. M. A. Tanskanen**, E. Kerkelä, J. Hyttinen, and K. Aalto-Setälä, "**Averaging in vitro cardiac field potential recordings obtained with microelectrode arrays**," *Computer Methods and Programs in Biomedicine*, Vol. 104, No. 2, pp. 199–205, Nov. 2011. http://dx.doi.org/10.1016/j.cmpb.2011.04.001

[15] T. J. Heikkilä, L. Ylä-Outinen, **J. M. A. Tanskanen**, R. S. Lappalainen, H. Skottman, R. Suuronen, J. E. Mikkonen, J. A. K. Hyttinen, and S. Narkilahti, "**Human embryonic stem cell-derived neuronal cells form spontaneously active neuronal networks in vitro**," *Experimental Neurology*, vol. 218, pp. 109–116, July 2009. http://dx.doi.org/10.1016/j.expneurol.2009.04.011

[16] M. Pekkanen-Mattila, E. Kerkelä, **J. M. A. Tanskanen**, M. Pietilä, M. Pelto-Huikko, J. Hyttinen, H. Skottman, R. Suuronen, and K. Aalto-Setälä, "**Substantial variation in the cardiac differentiation of human embryonic stem cell lines derived and propagated under the same conditions - a comparison of multiple cell lines**," *Annals of Medicine*, vol. 41, pp. 360–370, 2009. http://dx.doi.org/10.1080/07853890802609542

[17] **J. M. A. Tanskanen**, J. E. Mikkonen, and M. Penttonen, "**Independent component analysis of neural populations from multielectrode field potential measurements**," *Journal of Neuroscience Methods*, vol. 145 pp. 213–232, June 2005. http://dx.doi.org/10.1016/j.jneumeth.2005.01.004

[18] **J. M. A. Tanskanen** and V. S. Dimitrov, "**Round-off error-free fixed-point design of polynomial FIR predictors and predictive FIR differentiators**," *Digital Signal Processing, A Review Journal*, vol. 13, pp. 42–57, Jan. 2003. http://dx.doi.org/10.1016/S1051-2004(02)00006-4

[19] X. M. Gao, X. Z. Gao, **J. M. A. Tanskanen**, and S. J. Ovaska, "**Power prediction in mobile communication systems using an optimal neural-network structure**," *IEEE Transactions on Neural Networks*, vol. 8, pp. 1446–1455, Nov. 1997. http://dx.doi.org/10.1109/72.641467

Articles in International Scientific Conference Proceedings

[20] **J. M. A. Tanskanen**, A. Ahtiainen, and J. A. K. Hyttinen, "**Extracellular electrical stimulation-based in vitro neuroscience - a minireview of methods and a paradigm shift proposal**," in *Proc. 26th IEEE International Conference on Electronics Circuits and Systems*, Genova, Italy, Nov. 2019, pp. 883–886. https://doi.org/10.1109/ICECS46596.2019.8964854

[21] M. Hannula, J. A. K. Hyttinen, and **J. M. A. Tanskanen**, "**Enhancing CT 3D images by independent component analysis of projection images**," in J. Henriques, N. Neves., and P. de Carvalho (eds.) *XV Mediterranean Conference on Medical and Biological Engineering and Computing – MEDICON 2019, Coimbra, Portugal, Sept. 2019. IFMBE Proceedings*, vol 76. Springer, Cham, pp. 381–389. https://doi.org/10.1007/978-3-030-31635-8_46

[22] F. E. Kapucu, I. Välkki, F. Christophe, **J. M. A. Tanskanen**, J. Johansson, T. Mikkonen, and J. A. K. Hyttinen, "**On electrophysiological signal complexity during biological neuronal network development and maturation**," in *Proc. 39th Annual International Conference of the IEEE Engineering in Medicine & Biology Society*, JeJu Island, South Korea, July 2017, pp. 3333–3338. https://doi.org/10.1109/EMBC.2017.8037570

[23] F. E. Kapucu, **J. M. A. Tanskanen**, F. Christophe, T. Mikkonen, and J. Hyttinen, "**Evaluation of the effective and functional connectivity estimators for microelectrode array recordings during in vitro neuronal network maturation**," in *Proc. Joint Conference of the European Medical and Biological Engineering Conference and the Nordic-Baltic Conference on Biomedical Engineering*, Tampere, Finland, June 2017, pp. 1105–1108. http://dx.doi.org/10.1007/978-981-10-5122-7_276

[24] **J. M. A. Tanskanen**, F. E. Kapucu, I. Vornanen, and J. Hyttinen, "**Automatic objective thresholding to detect neuronal action potentials**," in *Proc. 24th European Signal Processing Conference*, Budapest, Hungary, Aug.-Sept. 2016, pp. 662–666. http://dx.doi.org/10.1109/EUSIPCO.2016.7760331

[25] F. E. Kapucu, **J. M. A. Tanskanen**, J. E. Mikkonen, and J. Hyttinen, "**Analyzing the feasibility of time correlated spectral entropy for the assessment of neuronal synchrony**," in *Proc. 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society of the IEEE Engineering in Medicine and Biology Society*, Orlando, FL, USA, Aug. 2016, pp. 1595–1598. http://dx.doi.org/10.1109/EMBC.2016.7591017

[26] F. E. Kapucu, **J. M. A. Tanskanen**, Y. Yuting, J. A. K. Hyttinen, "**A fast stimulability screening protocol for neuronal cultures on microelectrode arrays**," in *Proc. 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society of the IEEE Engineering in Medicine and Biology Society*, Milano, Italy, Aug. 2015, pp. 3440–3443. http://dx.doi.org/10.1109/EMBC.2015.7319132

[27] F. E. Kapucu, J. E. Mikkonen, **J. M. A. Tanskanen**, J. Hyttinen, "**Quantification and automatized adaptive detection of in vivo and in vitro neuronal bursts based on signal complexity**," in *Proc. 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society of the IEEE Engineering in Medicine and Biology Society*, Milano, Italy, Aug. 2015, pp. 4729–4732. http://dx.doi.org/10.1109/EMBC.2015.7319450

[28] **J. M. A. Tanskanen**, F. E. Kapucu, and J. A. K. Hyttinen, "**On the threshold based neuronal spike detection, and an objective criterion for setting the threshold**," in *Proc. 7th Annual International IEEE EMBS Conference on Neural Engineering*, Montpellier, France, Apr. 2015, pp. 1016–1019. http://dx.doi.org/10.1109/NER.2015.7146799

[29] **J. M. A. Tanskanen**, X. Z. Gao, J. Wang, P. Guo, J. A. K. Hyttinen, and V. S. Dimitrov, "**Experimental comparison of geometric, arithmetic and harmonic means for EEG event related potential detection**," in *Proc. 8th International Conference on Computational Intelligence and Security*, Guangzhou, China, Nov. 2012, pp. 112–116. http://dx.doi.org/10.1109/CIS.2012.33

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