

LIST OF PUBLICATIONS

Heikki Huttunen

[10 most significant publications are highlighted by an arrow: “⇐”]

ARTICLES IN PEER-REVIEWED SCIENTIFIC JOURNALS

1. Tiziana Fanni, Lin Li, Timo Viitanen, Carlo Sau, Renjie Xie, Francesca Palumbo, ⇐
Luigi Raffo, Heikki Huttunen, Jarmo Takala and Shuvra Bhattacharyya, "Hard-
ware Design Methodology using Lightweight Dataflow and Its Integration with
Low Power Techniques," *Journal of Systems Architecture*, 2017 (to appear).
2. Emre Cakir, Giambattista Parascandolo, Toni Heittola, Heikki Huttunen, and ⇐
Tuomas Virtanen, "Convolutional Recurrent Neural Networks for Polyphonic
Sound Event Detection," *IEEE Trans. Audio, Speech and Language Proc.*, 2017.
3. Syeeda Sakira Hassan, Pekka Ruusuvuori, Leena Latonen and Heikki Hut-
tunen, "Flow Cytometry-Based Classification in Cancer Research: A View on
Feature Selection," in *Cancer Informatics*, April 2016.
4. Minnamari Vippola, Masi Valkonen, Essi Sarlin, Mari Honkanen and Heikki
Huttunen, "Insight to Nanoparticle Size Analysis—Novel and Convenient Im-
age Analysis Method Versus Conventional Techniques," *Nanoscale Research Let-
ters*, March 2016.
5. Jussi Tohka, Elaheh Moradi, Heikki Huttunen, Alzheimer’s Disease Neu-
roimaging Initiative, "Comparison of Feature Selection Techniques in Machine
Learning for Anatomical Brain MRI in Dementia," *Neuroinformatics*, Volume 14,
Issue 3, pp 279-296, July 2016.
6. Heikki Huttunen, Jussi Tohka, "Model Selection for Linear Classifiers using ⇐
Bayesian Error Estimation," in *Pattern Recognition*, May 2015.
7. Kaisa Liimatainen, Raimo Heikkilä, Olli Yli-Harja, Heikki Huttunen, Pekka Ru-
usuvuori, "Sparse logistic regression and polynomial modeling for detection
of artificial drainage networks," in *International Journal of Remote Sensing*, April
2015.
8. Elaheh Moradi, Antonietta Pepe, Christian Gaser, Heikki Huttunen and Jussi ⇐
Tohka, "Machine learning framework for early MRI-based Alzheimer’s conver-
sion prediction in MCI subjects," in *NeuroImage*, 104(1) January 2015.

9. Pekka Ruusuvuori, Lassi Paavolainen, Kalle Rutanen, Anita Mäki, Heikki Huttunen, Varpu Marjomäki, "Quantitative analysis of dynamic association in live biological fluorescent samples," in *PLOS ONE*, April 2014.
10. Tapio Manninen, Heikki Huttunen, Pekka Ruusuvuori and Matti Nykter, "Leukemia Prediction Using Sparse Logistic Regression," in *PLOS ONE*, August 2013. ⇐
11. Heikki Huttunen, Tapio Manninen, Jukka-Pekka Kauppi and Jussi Tohka, "Mind Reading with Regularized Multinomial Logistic Regression," in *Machine Vision and Applications*, August 2013. ⇐
12. Sakira Hassan, Muhammad Farhan, Rahul Mangayil, Heikki Huttunen, Tommi Aho, "Bioprocess data mining using regularized regression and random forests," in *BMC Systems Biology*, August 2013.
13. Nima Aghaeepour, Greg Finak, The FlowCAP Consortium¹, The DREAM Consortium, Holger Hoos, Tim R Mosmann, Ryan Brinkman, Raphael Gottardo and Richard H Scheuerman, "Critical Assessment of Automated Flow Cytometry Data Analysis Techniques," in *Nature Methods*, February 2013. ⇐
14. Jarno Mäkelä, Heikki Huttunen, Meenakshi Kandhavelu, Olli Yli-Harja and Andre S. Ribeiro, "Automatic detection of changes in the dynamics of delayed stochastic gene networks and in vivo production of RNA molecules in *Escherichia coli*," *Bioinformatics*, August 2011.
15. Tapio Manninen, Ville Pekkanen, Kalle Rutanen, Pekka Ruusuvuori, Risto Rönkkä, and Heikki Huttunen, "Alignment of Individually Adapted Print Patterns for Inkjet Printed Electronics," *Journal of Imaging Science & Technology*, October 2010.
16. Lamminen, H., Voipio, V., Manninen, T., Huttunen, H., "Effects of latanoprost in iris bioidentification," in *Acta Ophthalmol.*, 87(5), pages 529-531, August 2009.
17. Antti Lehmuusola, Pekka Ruusuvuori, Jyrki Selinummi, Heikki Huttunen, Olli Yli-Harja, "Computational framework for simulating fluorescence microscope images with cell populations," *IEEE Transactions on Medical Imaging*, pp. 1010-1016, July 2007. ⇐
18. Miika Ahdesmäki, Harri Lähdesmäki, Ron Pearson, Heikki Huttunen and Olli Yli-Harja, "Robust detection of periodic time series measured from biological systems," in *BMC Bioinformatics*, vol. 6, num 17, 18 p, May 2005.
19. Harri Lähdesmäki, Tommi Aho, Heikki Huttunen, Marja-Leena Linne, Jari Niemi, Juha Kesseli, Ron Pearson and Olli Yli-Harja, "Estimation and Inversion of the Effects of Cell Population Asynchrony in Gene Expression Time-series," in a special issue on genomic signal processing, *Signal Processing*, vol. 83, pp. 835–858, April 2003.

¹Heikki Huttunen is member of the FlowCAP Consortium.

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21. Pertti Koivisto, Pauli Kuosmanen, Heikki Huttunen, and Jaakko Astola: Comments on "Analysis of the Properties of Soft Morphological Filtering Using Threshold Decomposition," in *IEEE Transactions on Signal Processing*, vol. 44, p. 2350, September 1996.
22. Pertti Koivisto, Heikki Huttunen, Pauli Kuosmanen: "Training based optimization of soft morphological filters," in *Journal of Electronic Imaging*, vol. 5, pp. 300–322, July 1996.
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25. Lingyu Zhu, Juha Kesseli, Matti Nykter and Heikki Huttunen, "Predicting Gene Expression Levels from Histone Modification Signals with Convolutional Recurrent Neural Networks," *European Medical and Biological Engineering Conference (EMBEC)*, Tampere, Finland, June 2017.
26. Ville Lehtola, Heikki Huttunen, Francois Christophe and Tommi Mikkonen, "Evaluation of Visual Tracking Algorithms for Embedded Devices," *Proc. Scandinavian Conf. on Image Analysis SCIA*, Tromsø, Norway, June 2017.
27. Mizuki Murayama, Daisuke Oguro, Hisakazu Kikuchi, Heikki Huttunen, Yo-Sung Ho and Jaeho Shin, "Color-distribution similarity by information theoretic divergence for color images," *Proc. Asia-Pacific Signal and Information Processing Association Annual Summit and Conference, APSIPA*, Jeju, Korea, Dec. 2016.
28. Lin Li, Tiziana Fanni, Timo Viitanen, Renjie Xie, Francesca Palumbo, Luigi Raffo, Heikki Huttunen, Jarmo Takala and Shuvra Bhattacharyya, "Low Power Design Methodology for Signal Processing Systems using Lightweight Dataflow Techniques", *Design & Architectures for Signal & Image Processing*, Rennes, France, October 12-14, 2016.
29. Renjie Xie, Heikki Huttunen, Shuoxin Lin, Shuvra S. Bhattacharyya, Jarmo Takala, "Resource-Constrained Implementation and Optimization of a Deep Neural Network for Vehicle Classification," *EUSIPCO 2016*, Sept. 2016.

30. Heikki Huttunen, Fatemeh Shokrollahi Yancheshmeh, Ke Chen, "Car Type Recognition with Deep Neural Networks," *IEEE Intelligent Vehicles Symposium*, June 2016. ⇐
31. Andrei Cramariuc, Heikki Huttunen and Simona Lohan, "Clustering benefits in mobile-centric WiFi positioning in multi-floor buildings," *ICL-GNSS*, June 2016
32. Kaisa Liimatainen, Pekka Ruusuvuori, Leena Latonen and Heikki Huttunen, "Supervised Method for Cell Counting from Bright Field Focus Stacks," *IEEE ISBI*, April 2016.
33. Giambattista Parascandolo, Heikki Huttunen, Tuomas Virtanen, "Recurrent Neural Networks for Polyphonic Sound Event Detection in Real Life Recordings," *IEEE ICASSP 2016*, March 2016. ⇐
34. Tuomas Tikkanen, Pekka Ruusuvuori, Leena Latonen, and Heikki Huttunen, "Training based cell detection from bright-field microscope images," *9th International Symposium on Image and Signal Processing and Analysis (ISPA)*, Sept. 2015.
35. Emre Cakir, Toni Heittola, Heikki Huttunen and Tuomas Virtanen, "Multi-Label vs. Combined Single-label Sound Event Detection with Deep Neural Networks," *EUSIPCO 2015*, August 2015.
36. Emre Cakir, Toni Heittola, Heikki Huttunen and Tuomas Virtanen, "Polyphonic Sound Event Detection Using Multi Label Deep Neural Networks," in *International Joint Conference on Neural Networks*, July 2015.
37. Heikki Huttunen, Ke Chen, Abhishek Thakur, Artus Krohn-Grimberghe, Oguzhan Gencoglu, Xingyang Ni, Mohammed Al-Musawi, Lei Xu, Hendrik Jacob van Veen, "Computer Vision for Head Pose Estimation: Review of a Competition", in *Scandinavian Conference on Image Analysis (SCIA2015)*, June 2015.
38. Oguzhan Gencoglu, Tuomas Virtanen, Heikki Huttunen, "Recognition of Acoustic Events Using Deep Neural Networks," in *EUSIPCO 2014*, September 2014.
39. Hisakazu Kikuchi, Satoshi Kataoka, Shogo Muramatsu, Heikki Huttunen, "Color-tone Similarity of Digital Images," in *Proc. IEEE ICIP*, Melbourne, Australia, September 2013.
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41. Heikki Huttunen, Tapio Manninen and Jussi Tohka, "Bayesian Error Estimation and Model Selection in Sparse Logistic Regression," in *Proc. IEEE MLSP*, Southampton, UK, September 2013.

42. Satoshi Kataoka, Hisakazu Kikuchi, Heikki Huttunen, Junghyeun Hwang, Shogo Muramatsu, and Jaeho Shin, "Color-Tone Similarity Evaluation in Image Quality Assessment", ITC-CSCC conference, Yeosu, Korea, June 2013.
43. Hisakazu Kikuchi, Heikki Huttunen, Junghyeun Hwang, Masahiro Yukawa, Shogo Muramatsu, and Jaeho Shin, "Color-tone Similarity on Digital Images", in *Proc. Asia-Pacific Signal and Information Processing Association Summit*, Hollywood, USA, December 2012.
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46. Heikki Huttunen, Hannu Oinonen, Jyrki Selinummi, Pekka Ruusuvuori, and V. Voipio, "Polynomial Pulp Fiber Modeling," in *Proc. European Signal Processing Conference; EUSIPCO*, Bucharest, Romania, August 27-31, Aug. 2012.
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48. Heikki Huttunen, Jukka-Pekka Kauppi, Jussi Tohka, "Regularized logistic regression for mind reading with parallel validation," *Proc. of MEG challenge of the International Conference on Artificial Neural Networks*, p. 20-24, July 2011.
49. Jukka-Pekka Kauppi, Heikki Huttunen, Heikki Korkala, Iiro Jääskeläinen, Mikko Sams and Jussi Tohka, "Face Prediction from fMRI Data During Movie Stimulus: Strategies for Feature Selection," *Proc. International Conference on Artificial Neural Networks*, June 2011.
50. Heikki Huttunen, Jari-Pekka Ryyänen, Heikki Forsvik, Ville Voipio and Hisakazu Kikuchi, "Kernel Fisher Discriminant and Elliptic Shape Model for Automatic Measurement of Allergic Reactions," *Proc. Scandinavian Conference on Image Analysis*, Ystad, Sweden, May 2011.
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52. Heikki Huttunen, Mikko Valkama, Jukka Talvitie and Merja Laaksonen, "Motivating the Mathematics Studies by Real-life Examples of Signal Processing and Communications Engineering," in *Proc. IEEE DSP Education Workshop*, Sedona, Arizona, Jan. 2011.

53. Hannu Oinonen, Heikki Forsvik, Pekka Ruusuvuori, Olli Yli-Harja, Ville Voipio and Heikki Huttunen, "Identity Verification Based on Vessel Matching from Fundus Images," *IEEE International Conference on Image Processing (ICIP)*, Hong Kong, September 2010.
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59. Jyrki Selinummi, Pekka Ruusuvuori, Antti Lehmussola, Heikki Huttunen, Olli Yli-Harja, and Riitta Miettinen, "Three-dimensional digital image analysis of immunostained neurons in thick tissue sections," in *Proceedings of the 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBC*, pp. 4783-4786, New York City, USA, Sep. 2006
60. Vladislav I. Uzunov, Atanas P. Gotchev, Heikki J. Huttunen, Karen O. Egiazarian and Jaakko T. Astola, "Character recognition by best anisotropic local bases and neural networks," in *Proc. SPIE Vol. 5672, Image Processing: Algorithms and Systems IV*, pp. 151-160, San Jose, USA, Jan. 2005.
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 66. Ronald Pearson, Harri Lähdesmäki, Heikki Huttunen and Olli Yli-Harja, "Detecting Periodicity in Nonideal Datasets," in *Proceedings of the Third SIAM International Conference on Data Mining*, San Francisco, USA, May 2003, 5 p.
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 72. Karen Egiazarian, Radomir Stanković, Jaakko Astola and Heikki Huttunen, "Decision Diagram Representations for Fitness and Average Fitness Functions in Analysis of Genetic Algorithms," in *Proceedings of 2001 WSES International Conference on Evolutionary Computations (EC'01)*, pp. 290–292, Canary Islands, Spain, February 2001.

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82. Jaakko Astola, Karen Egiazarian, Heikki Huttunen, "Wavelet packets and genetic algorithms," in *Proceedings of ICASSP 97*, pp. 2117–2120, Munich, Germany, April 1997.
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PUBLISHED MONOGRAPHS

98. Pro Gradu for M.Sc. degree (Mathematics), "Diskreeteistä ortogonaalimuunnoksista," Department of Mathematical Sciences, University of Tampere, December 1994, *eximia cum laude approbatur*.
99. Doctoral thesis (Signal processing), "Training Based Optimization of Nonlinear Digital Filters: Case Studies," Signal Processing Laboratory, Tampere University of Technology, Tampere, June 1999.

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