

Rasmus Larsen, Professor

Born 14 March 1966 in Brørup; Age 43; M.Sc.Eng. (1991); Ph.D. (1994).

Positions

Assistant Professor, DTU Informatics	1994-1997
Expert Statistician, Novo Nordisk A/S	1998-1999
Associate professor of medical image analysis, DTU informatics	2000-2007
Professor of image analysis, DTU informatics	2008-present

Scientific qualifications and research areas

He has extensive experience in PhD education, having served as teacher in 3 graduate school programs, as a supervisor of 24 PhD students (past and present), and as chairman for the PhD committee for the Faculty of Mathematics, Physics, and Informatics. He has held management positions at DTU Informatics from 2001 as elected member of the dept. board, as appointed division head, and presently as head of the section for image analysis and computer graphics (10 faculty, 30 post docs and PhD students). He has been principal investigator or work package leader for a series of research projects granted by the free and strategic research councils, EU, private companies, and other agencies. He has a widespread international network and has had research stays at University of Linköping (1993, 2mth), UCSD (1995, 6mth), and Stanford University (2003-04, 10mth). His publication contains 20 entries in peer reviewed journals as well as more than 80 full papers in internationally peer reviewed conferences with published proceedings in the past 10 years. He received the Statoil prize for internationally recognized research 2008.

His main research interest is in extracting relevant information from multivariate image data and relating this to external parameters. This is an ill-posed problem due to the dimensionality of the input spaces usually exceeding the number of samples. Furthermore, such image based data often have high correlation between variables. Classical solutions rely on regularization, subspace projection, and variable selection. He has worked with methods that move seamlessly between these classical techniques and utilizes smart algorithms and computational power. His research is motivated by solving real world problems. He has applied his work to applications in food technology, medical image analysis, and remote sensing using hyperspectral scanners.

Selected recent publications and patents

1. Larsen, R., L 1 Generalized Procrustes 2D Shape Alignment, *Journal of Mathematical Imaging and Vision*, vol: 31, issue: 2-3, pages: 189-194, 2008
2. K. Sjöstrand, V. A. Cardenas, R. Larsen, C. Studholme, A generalization of voxel-wise procedures for highdimensional statistical inference using ridge regression, *Proceedings of the SPIE, Medical Imaging 2008: Image Processing*, pages: 69140A-69140A-12, 2008,
3. S. Darkner, M. Sabuncu, P. Golland, R. P. Paulsen, R. Larsen, Analysis of Surfaces Using Constrained Regression Models, part of: *Lecture Notes in Computer Science, Medical Image Computing and Computer assisted Intervention (ISBN:)*, pages: 842-849, 2008, Springer Verlag
4. M. S. Hansen, N. V. Christensen, R. Larsen, Curl-gradient Image Warping : Introducing Deformation Potentials for Medical Image registration using Helmholtz Decomposition, part of: *International Conference on Computer Vision Theory and Applications (ISBN:)*, 2008
5. M. S. Hansen, B. Glocker, N. Navab, R. Larsen, Rasmus, Adaptive Parametrization of Multivariate B-splines for Image Registration, part of: *Proceedings of CVPR (ISBN: 978-1-4244-2242-5) (DOI: 10.1109/CVPR.2008.4587760)*, 2008, IEEE conference proceedings
6. K. Sjöstrand, E. Rostrup, C. Ryberg, R. Larsen, C. Studholme, H. Baezner, J. Ferro, F. Fazekas, L. Pantoni, D. Inzitari, G. Waldemar, Sparse Decomposition and Modeling of Anatomical Shape Variation, *IEEE Transactions on Medical Imaging*, vol. 26(12), pp. 1625-1635, 2007
7. R. Larsen, M. B. Stegmann, S. Darkner, S. Forchhammer, T. F. Cootes, B. K. Ersbøll, Texture Enhanced Appearance Models, *Computer Vision and Image Understanding*, vol. 106, pp. 20-30, 2007
8. H. Ólafsdóttir, S. Lanche, T. A. Darvann, N. V. Hermann, R. Larsen, B. K. Ersbøll, E. Oubel, A. Frangi, P. Larsen, C. A. Perlyn, G. M. Morriss-Kay, S. Kreiborg, A Point-Wise Quantification of Asymmetry Using Deformation Fields. Application to the Study of the Crouzon Mouse Model, part of: *Proceedings of the 10th Medical Image Computing and Computer-Assisted Intervention*, pages: 452-459, 2007,
9. K. Sjöstrand, M. S. Hansen, H. B. W. Larsson, R. Larsen, A Path Algorithm for the Support Vector Domain Description and its Application to Medical Imaging, *Medical Image Analysis*, Elsevier, 2007
10. M. B. Stegmann, R. Larsen, Multi-band Modelling of Appearance, *Image and Vision Computing*, vol. 21(1), pp. 61-67, 2003, Elsevier Science
11. M. B. Stegmann, B. K. Ersbøll, R. Larsen, FAME - A Flexible Appearance Modelling Environment, *IEEE Transactions on Medical Imaging*, vol. 22(10), pp. 1319-1331, Institute of Electrical and Electronics Engineers (IEEE), 2003