

## Steen Andreassen CV

Steen Andreassen  
Professor, Dr. Techn., PhD (Electronic Eng.)  
Center for Modelbaseret Medicinsk Beslutningsstøtte  
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## Research interests

Since 1986 Steen Andreassen has been working on the development of four medical decision support systems, all of which have reached the stage of clinical testing. The decision support systems are based on model of physiology and pathophysiology and formal methods like decision theory are used to arrive at decisions. He has been system architect on MUNIN, a system for diagnosing neuromuscular disorders, and on DIAS, a system for advising on insulin dose adjustment in type I diabetes patients. He is co-ordinator for a four-year (2000-2004) EU-funded project TREAT. The goal of this project is to provide advice on antibiotic therapy for severe infections. He is leading a four-year (1999-2003) project "Model-Based Medical Decision Support Systems" funded by the IT-Committee under the Danish Research Councils currently extended to 2010. This project also includes work on the decision support system INVENT for assessment of the respiratory and metabolic status of several groups of patients (circulatory problems, postoperative hypoxemia, acid/base disturbances).

## Education and academic degrees

2000

Awarded the degree of Dr. Tech. from Aalborg University for the dissertation "Medical Decision Support Systems Based on Causal Probabilistic Networks"

1977-1978

One year visit to Dr. R. B. Stein, Institute of Physiology, University of Alberta, Canada, including a two month study trip to universities and research institutions in USA. Supported by the Danish Research Councils and private foundations.

1973-1976

Ph. D. in Electronic Engineering from Dept. of Electronic Engineering, Technical University of Denmark and from Institute of Neurophysiology, University of Copenhagen for the thesis "Interval Pattern of Single Motor Units"

1973

M. Sc. in Electronic Engineering from the Technical University of Denmark.

## Employment

2006-

Professor at Aalborg University, Dept. of Health Science and Technology

1998-

Head of Center for Model-based Medical Decision Support

1989-2006

Reader (docent) at Aalborg University, Dept. of Health Science and Technology (former Dept. of Medical Informatics and Image Analysis).

1983-1989

Associate professor at Aalborg University, Dept. of Medical Informatics and Image Analysis.

1980-1983 Research fellow at Aalborg University, Dept. of Medical Informatics and Image Analysis.

1978-1980

Research assistant at Aalborg University, Dept. of Medical Informatics and Image Analysis funded by a three year grant from the Danish Technical and Medical Research Councils for "The motor system as a control system".

1977-1978

Post Doctoral Fellow at Institute of Physiology, University of Alberta, Canada

1973-1976

Ph.D. student at Dept. of Electronic Engineering, Technical University of Denmark and at the Institute of Neurophysiology, University of Copenhagen.

## Industrial activities

2011-  
CEO of Treat Systems ApS  
2008-  
Co-founder and member of the board of Treat Systems ApS  
2005-2009  
Member of the board of Mermaid Care A/S (former Cardiotech ApS)  
2002-  
Co-founder and chairman of the board of OBI ApS. OBI develops methods for interpretation of blood gas, metabolic and electrolyte measurements.  
2000-2005  
Co-founder and chairman of the board of Cardiotech ApS. Cardiotech develops methods for diagnosis and treatment in the area of cardiovascular and pulmonary diseases.  
1997-1999  
Co-founder and chairman of the board of Cephalon A/S. Cephalon sells diagnostic equipment, primarily for neurophysiology, in Denmark and Sweden.  
1989-1992  
Co-founder and member of the board of Hugin Expert A/S, which develops and markets the Hugin shell for expert systems.  
1981-  
Co-founder and chairman of the board of Judex Datasystems A/S. Judex produces hardware and software for biomedical applications.  
1975-1977  
Co-founder and member of the board of the public company Danish Data Electronics A/S.

## **Scientific societies**

2008-  
Chairman of the Technical Committee for Modelling and Control in Biomedical Systems (MCBMS) under the International Federation of Automatic Control (IFAC)  
2006-  
Vicechair of the Technical Committee for Modelling and Control in Biomedical Systems (MCBMS) under the International Federation of Automatic Control (IFAC)  
1999-2001  
President of the European Society for Artificial Intelligence in Medicine.  
1992-2004  
Vicepresident of the Danish Society for Biomedical Engineering.  
1990-2004  
Member of the board of the Danish Society for Biomedical Engineering.  
1989- Founding member of the board of the European Society for Artificial Intelligence in Medicine.

## **Conference organization**

2009  
Chairman of 7th Ifac Symposium on Modelling and Control in Biomedical Systems (including Biological Systems)  
2007  
Member of the organizing committee for the bi-annual conference Artificial Intelligence in Medicine, (AIME 07) , Amsterdam, The Netherlands  
2005-  
Member of the International Program Committee for the International Association of Science and Technology for Development (IASTED), Innsbruck, Austria  
2005  
Member of the Organizing Committee of European Society for Computing and Technology in Anaesthesia and Intensive Care(ESTAIC)  
2005  
Member of the organizing committee for the bi-annual conference Artificial Intelligence in Medicine, (AIME 05) Aberdeen, Scotland  
2003  
Member of the organizing committee for the bi-annual conference Artificial Intelligence in Medicine, (AIME 03) Cyprus  
2001  
Member of the organizing committee for the bi-annual conference Artificial Intelligence in Medicine, Europe (AIME 01), Cascais, Portugal  
2000  
Chairman of the symposium on Computers in Diabetes, Israel (CID 2000)  
2000  
Member of the Scientific Committee of the 4th IFAC Symposium on Modelling and Control in Biomedical Systems, Karlsruhe, Germany  
1999

Chairman of the conference Artificial Intelligence in Medicine, Europe (AIMDM'99), Aalborg  
1998  
Chairman of the symposium on Computers in Diabetes, Barcelona (CID 98)  
1997  
Member of the program committee for the bi-annual conference Artificial Intelligence in Medicine, Europe (AIME 97),  
Grenoble  
1996  
Chairman of the symposium on Computers in Diabetes, Graz (CID 96)  
1995  
Member of the program committee for the bi-annual conference Artificial Intelligence in Medicine, Europe (AIME 95), Pavia  
1994  
Chairman of the symposium on Computers in Diabetes, Düsseldorf (CID 94)  
1993  
Chairman of the program committee for the conference Artificial Intelligence in Medicine, Europe (AIME 93)  
1992  
Member of the organizing committee of the 5th International Conference on Computerized and Quantitative EMG 1993,  
Hamilton, Canada  
1992  
Member of the organizing committee for the symposium on Computers in Diabetes, Karlsbad, Tchechoslovakia  
1991  
Member of the program committee for the bi-annual conference Artificial Intelligence in Medicine, Europe (AIME 91)  
1990  
Chairman of the Scientific Programme Committee of the 8th Nordic Meeting on Medical and Biological Engineering,  
Aalborg  
1990  
Member of the organizing committee of the 4th International Conference on Computerized and Quantitative EMG, Mainz,  
Germany  
1989  
Member of the program committee for the bi-annual conference Artificial Intelligence in Medicine, Europe (AIME 89),  
London  
1988  
Member of the organizing committee of the 3rd International Conference on Computerized and Quantitative EMG, Cyprus

## International journals

Member of the editorial board of:  
1999- Methods of Information in Medicine  
1996- Diabetes, Nutrition and Metabolism  
1994 Yearbook of Medical Informatics 94

Reviewer for the international journals:

Artificial Intelligence in Medicine, Computer Methods and Programs in Biomedicine, IEEE Transactions on Medical and Biological Engineering, International Journal of Biomedical Computing, Journal of Intelligent Systems, Medical and Biological Engineering and Computing, Medical Engineering, Physics and Medical Informatics.

## Honorary appointments and research awards

2011  
BrainsBusiness Award  
1992-  
Appointed Senior Visiting Fellow at City University, London  
1985  
Honorary research award from "Civilingeniør A. R. Angelo's legat"

## Supervision

Steen Andreassen has been supervisor for about 20 Ph.D. Students, advisor to about 10 postdocs and is currently supervising 3 Ph.D. Students.

## Publications

During the period 1985-2011 Steen Andreassen published 90 peer reviewed journal articles and 317 publications in total.

Shastri L, Thomsen LP, Toftegaard M, Tygesen GB, Weinreich UM, Rychwicka-Kielek BA et al. **The use of venous blood gas in assessing arterial acid-base and oxygenation status - an analysis of aggregated data from multiple studies evaluating the venous to arterial conversion (v-TAC) method.** Expert review of respiratory medicine. 2024 jul. 15. Epub

2024 jul. 15. doi: 10.1080/17476348.2024.2378021

Pielmeier US, de Watteville A, Parel N, Siegenthaler N, Primmaz S, Skripkina E et al. **Glucosafe 2 - A new medical device to guide healthcare professionals with glucose control and nutritional therapy: Predictive accuracy of blood glucose levels in a retrospective mixed ICU cohort.** *Clinical Nutrition ESPEN*. 2023 dec.;58:694-695. LB15-T. doi: 10.1016/j.clnesp.2023.09.783

Morris AH, Horvat C, Stagg B, Grainger DW, Lanspa M, Orme J et al. **Computer clinical decision support that automates personalized clinical care: a challenging but needed healthcare delivery strategy.** *Journal of the American Medical Informatics Association*. 2022 dec. 13;30(1):178-194. Epub 2022 sep. 19. doi: 10.1093/jamia/ocac143

Morris AH, Stagg B, Lanspa M, Orme J, Clemmer TP, Weaver LK et al. **Enabling a learning healthcare system with automated computer protocols that produce replicable and personalized clinician actions.** *Journal of the American Medical Informatics Association*. 2021 jun. 12;28(6):1330-1344. Epub 2021 feb. 16. doi: 10.1093/jamia/ocaa294

de Watteville A, Pielmeier U, Graf S, Siegenthaler N, Plockyn B, Andreassen S et al. **Usability study of a new tool for nutritional and glycemic management in adult intensive care: Glucosafe 2.** *Journal of Clinical Monitoring and Computing*. 2021;35(3):525-535. Epub 2020 mar. 27. doi: 10.1007/s10877-020-00502-1

Andreassen S, Møller JK, Eliakim-Raz N, Lisby G, Ward L. **A comparison of predictors for mortality and bacteraemia in patients suspected of infection.** *BMC Infectious Diseases*. 2021 aug. 23;21(1):864. doi: 10.1186/s12879-021-06547-0

Karbing DS, Pielmeier US, Thomsen LP, Andreassen S, Rees SE. **Medicin og kunstig intelligens: Glem ikke det, vi allerede ved.** *Medicoteknik*. 2020 feb.;7:20-22.

Andreassen S, Pielmeier US. **Glycaemic control in the ICU – where are we today.** *Journal für Anästhesie und Intensivbehandlung* . 2019;(2):3-7.

Ward L, Andreassen S, Astrup JJ, Rahmani Z, Fantini M, Sambri V. **Clinical- vs. model-based selection of patients suspected of sepsis for direct-from-blood rapid diagnostics in the emergency department: a retrospective study.** *European Journal of Clinical Microbiology & Infectious Diseases*. 2019 aug.;38(8):1515-1522. Epub 2019 maj 11. doi: 10.1007/s10096-019-03581-4

Ward L, Møller JK, Eliakim-Raz N, Andreassen S. **Prediction of Bacteraemia and of 30-day Mortality Among Patients with Suspected Infection using a CPN Model of Systemic Inflammation.** *IFAC-PapersOnLine*. 2018 jan. 1;51(27):116-121. doi: 10.1016/j.ifacol.2018.11.657

Ward LM, Andreassen HS, Opfindere. **A CPN-based tool for the stratification of illness severity in patients suspected of sepsis.** *WO/2017/036482* . 2017.

Ward L, Paul M, Andreassen S. **Automatic learning of mortality in a CPN model of the systemic inflammatory response syndrome.** *Mathematical Biosciences*. 2017;284:12-20. doi: 10.1016/j.mbs.2016.11.004

Pielmeier U, Andreassen S. **VCO2 calorimetry is a convenient method for improved assessment of energy expenditure in the intensive care unit.** *Critical Care*. 2016;20:224. doi: 10.1186/s13054-016-1397-z

Wong AF, Pielmeier U, Haug PJ, Andreassen S, Morris AH. **An *in silico* method to identify computer-based protocols worthy of clinical study: an insulin infusion protocol use case.** *Journal of the American Medical Informatics Association*. 2016;23(2):283-288. doi: 10.1093/jamia/ocv067

Sanden L, Paul M, Leibovici L, Andreassen S. **Quantifying the associations between antibiotic exposure and resistance: a step towards personalised antibiograms.** *European Journal of Clinical Microbiology & Infectious Diseases*. 2016;35(12):1989-1996. doi: 10.1007/s10096-016-2751-4

Rousing ML, Hahn-Pedersen MH, Andreassen S, Pielmeier U, Preiser JC. **Energy expenditure in critically ill patients estimated by population-based equations, indirect calorimetry and CO<sub>2</sub>-based indirect calorimetry.** *Annals of Intensive Care.* 2016;6:16. doi: 10.1186/s13613-016-0118-8

Dickstein Y, Geffen Y, Andreassen S, Leibovici L, Paul M. **Predicting antibiotic resistance in urinary tract infection patients with prior urine cultures.** *Antimicrobial Agents and Chemotherapy.* 2016;60(8):4717-4121. doi: 10.1128/AAC.00202-16

Ward LM, Andreassen HS. **A descriptive meta-analysis of CRP for distinguishing between aetiology and severity of inflammation.** 2015. Abstract fra European Congress of Clinical Microbiology and Infectious Diseases, ECCMID, Copenhagen, Danmark.

Sanden LR, Paul M, Leibovici L, Andreassen S. **Effect of previous antibiotic treatment on susceptibility to antibiotics in Gram-negative bacteria.** 2015. Abstract fra European Congress of Clinical Microbiology and Infectious Diseases, ECCMID, Copenhagen, Danmark.

Ward LM, Andreassen HS. **A descriptive meta-analysis of CRP for distinguishing between aetiology and severity of inflammation.** 2015. Poster præsenteret ved European Congress of Clinical Microbiology and Infectious Diseases, ECCMID, Copenhagen, Danmark.

Ward LM, Andreassen S. **A Bayesian approach to model-development: automatic learning for tuning predictive performance.** I 9th IFAC Symposium on Biological and Medical Systems BMS 2015, 31 August-2 September 2015, Berlin, Germany. IFAC Publisher. 2015. s. 481-486. (IFAC-PapersOnLine; Nr. 20, Bind 48). doi: 10.1016/j.ifacol.2015.10.187

Rousing ML, Pielmeier U, Andreassen HS. **Stability of the insulin–glucose feedback loop in Glucosafe: a comparison of pancreas models.** *Biomedical Signal Processing and Control.* 2015;22:155-160. doi: 10.1016/j.bspc.2015.06.013

Andreassen S, Zalounina A, Paul M, Sanden L, Leibovici L. **Interpretative reading of the antibiogram: a semi-naïve Bayesian approach.** *Artificial Intelligence in Medicine.* 2015;65(3):209-217. doi: 10.1016/j.artmed.2015.08.004

Ward LM, Mogensen ML, Paul M, Leibovici L, Andreassen S. **A Bayesian approach to model-development: design of continuous distributions for infection variables.** I 19th World Congress of The International Federation of Automatic Control, IFAC, 24-29 August 2014, Cape Town, South Africa. IFAC Publisher. 2014. s. 5653-5658

Rousing ML, Pielmeier U, Andreassen S. **Stability analysis of insulin-glucose feedback in the Glucosafe pancreas model of endogenous insulin production.** I 19th World Congress of The International Federation of Automatic Control, IFAC, 24-29 August 2014, Cape Town, South Africa. IFAC Publisher. 2014. s. 10959-10963

Pielmeier U, Rousing ML, Andreassen S. **Pancreatic secretion, hepatic extraction, and plasma clearance of insulin from steady-state insulin and C-peptide measurements in critically ill patients.** I 19th World Congress of The International Federation of Automatic Control, IFAC, 24-29 August 2014, Cape Town, South Africa. IFAC Publisher. 2014. s. 10964-10969

Karbing DS, Kjærgaard S, Andreassen S, Rees SE. **Mathematical modelling of pulmonary gas exchange.** I Carson E, Cobelli C, red., *Modelling Methodology for Physiology and Medicine.* 2. udg. Elsevier. 2014. s. 281-309. (Elsevier Insights). doi: 10.1016/b978-0-12-411557-6.00013-6

Rousing ML, Simonsen MH, Andreassen S, Pielmeier U, Preiser JC. **Comparison of resting energy expenditure estimated using predictive equations and measured using indirect calorimetry in critically ill patients.** *Intensive Care Medicine.* 2014;40(Suppl. 1):S82-S83, No. 0277.

Pielmeier U, Rousing ML, Andreassen S. **A model of changes in energy expenditure to specify daily caloric intake targets in sepsis and trauma patients.** *Intensive Care Medicine.* 2014;40(Suppl. 1):S83, No. 0279.

Andreassen S, Desai T, Karbing DS. **Modelling in anaesthesia and intensive care: A special section including papers from IFAC's 8. Symposium on Medical and Biological Systems in Budapest 2012.** Journal of Clinical Monitoring and Computing. 2014;28(6):499-500. doi: 10.1007/s10877-014-9637-8

Rousing ML, Pielmeier U, Andreassen S. **Evaluating modifications to the Glucosafe decision support system for tight glycemic control in the ICU using virtual patients.** Biomedical Signal Processing and Control. 2014;12:54-61. doi: 10.1016/j.bspc.2013.12.008

Ward LM, Knudsen JD, Mogensen M, Paul M, Leibovici L, Zalounina A et al.. **Prediction of bacteraemia using the Treat decision support system.** 2013. Abstract fra European Congress of Clinical Microbiology and Infectious Diseases, ECCMID, Berlin, Tyskland.

Ward LM, Knudsen JD, Mogensen M, Paul M, Leibovici L, Zalounina A et al.. **Prediction of bacteraemia using the Treat decision support system.** 2013. Poster præsenteret ved European Congress of Clinical Microbiology and Infectious Diseases, ECCMID, Berlin, Tyskland.

Karbing DS, Thomsen LP, Moesgaard J, Andreassen S, Toft E, Thorgaard P et al. **Model-based measurement of gas exchange in healthy subjects using ALPE Essential: influence of age, posture and gender.** I 35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, IEEE EMBS, 3-7 July 2013, Osaka, Japan. IEEE Press. 2013. s. 2441-2444. (IEEE Engineering in Medicine and Biology Society. Conference Proceedings). doi: 10.1109/EMBC.2013.6610033

Ward LM, Møller J, Østergaard C, Mogensen M, Paul M, Leibovici L et al. **Prediction of bacteraemia in a low-bacteraemia-prevalence cohort using the Treat decision support system.** Minimally Invasive Therapy and Allied Technologies. 2013;22(Suppl. 1):21-22, No. 38.

Rousing ML, Pielmeier U, Andreassen S. **A biphasic pancreas model for the Glucosafe decision support system.** Minimally Invasive Therapy and Allied Technologies. 2013;22(Suppl. 1):22, No. 39.

Pielmeier U, Andreassen S, Rousing ML, Streenfeldt Nielsen B, Christensen PH. **The role of pancreatic insulin secretion rate in intravenous insulin therapy in the ICU.** Critical Care Medicine. 2013;41(12, Suppl. 1):A245, No. 976. doi: 10.1097/01.ccm.0000440214.27330.f4

Thomsen LP, Karbing DS, Smith BW, Murley D, Weinreich UM, Kjærgaard S et al. **Clinical refinement of the automatic lung parameter estimator (ALPE).** Journal of Clinical Monitoring and Computing. 2013;27(3):341-350. doi: 10.1007/s10877-013-9442-9

Karbing DS, Andreassen S, Lindholt C, Rees SE, Opfindere. **The automatic lung parameter estimator for measuring oxygen and carbon dioxide gas exchange.** WO2012069051. 2012.

Riddersholm SJ, Preiser JC, Rousing ML, Pielmeier U, Andreassen S. **Lowering of blood glucose and its variability by computerized decision support.** 2012. Abstract fra Clinical Diabetes Technology Meeting, Los Angeles, CA, USA.

Rousing ML, Pielmeier U, Andreassen S. **Virtual testing of decision support for tight glycemic control in the ICU.** I Benyo B, Andreassen S, Feng DD, Carson E, Chase JG, Kovács L, red., 8th IFAC Symposium on Biological and Medical Systems (2012). Elsevier. 2012. s. 408-413. (Elsevier IFAC Publications / IFAC Proceedings series, Bind 8). doi: 10.3182/20120829-3-HU-2029.00074

Mogensen ML, Karbing DS, Steimle KL, Rees SE, Andreassen S. **A stratified model of pulmonary gas exchange.** I Benyo B, Andreassen S, Feng DD, Carson E, Chase JG, Kovács L, red., 8th IFAC Symposium on Biological and Medical Systems (2012). Elsevier. 2012. s. 512-517. (Elsevier IFAC Publications / IFAC Proceedings series, Bind 8). doi: 10.3182/20120829-3-HU-2029.00053

Andreassen S. **From model to medical device: the life cycle of medical decision support systems**. I 8th IFAC Symposium on Biological and Medical Systems, 29-31 August 2012, Budapest, Hungary [CD-ROM]. Elsevier. 2012. s. Article No. A-0119

Tygesen G, Matzen H, Grønkjær K, Uhrenfeldt L, Andreassen S, Gaardboe O et al. **Mathematical arterialization of venous blood in emergency medicine patients**. European Journal of Emergency Medicine. 2012;19(6):363-372. doi: 10.1097/MEJ.0b013e32834de4c6

Pielmeier U, Rousing ML, Andreassen S, Streenfeldt Nielsen B, Christensen PH. **Decision support for optimized blood glucose control and nutrition in a neurotrauma intensive care unit: preliminary results of clinical advice and prediction accuracy of the Glucosafe system**. Journal of Clinical Monitoring and Computing. 2012;26(4):319-328. doi: 10.1007/s10877-012-9364-y

Karbing DS, Allerød C, Thomsen LP, Espersen K, Thorgaard P, Andreassen S et al. **Retrospective evaluation of a decision support system for controlled mechanical ventilation**. Medical & Biological Engineering & Computing. 2012;50(1):43-51. doi: 10.1007/s11517-011-0843-y

Kristensen SR, Andreassen S, Rees SE, Opfindere. **Method for estimation of non-bicarbonate buffering, strong ion gap, corrected anion gap, plasma protein or albumin concentration**. WO2011103881 (A1). 2011.

Pielmeier U, Andreassen S, Nielsen BS, Haure P. **Interim safety assessment of glycemic control with the GLUCOSAFE system after traumatic brain injury or subarachnoid hemorrhage**. I Eleventh Annual Diabetes Technology Meeting, 27-29 October 2011, Burlingame, CA, USA. Diabetes Technology Society. 2011. s. A150

Mogensen ML, Karbing DS, Andreassen S. **The effect of arteriolar resistance on perfusion distribution in a model of the pulmonary perfusion**. I Bittanti S, Cenedese A, Zampieri S, red., Proceedings of the 18th World Congress of the International Federation of Automatic Control, 28 August-2 September 2011, Milano, Italy. IFAC Publisher. 2011. s. 5018-5023 doi: 10.3182/20110828-6-IT-1002.02805

Thomsen LP, Smith BW, Kjærgaard S, Thorgaard P, Toft E, Andreassen S et al. **The current status of the automatic lung parameter estimator**. Journal of Clinical Monitoring and Computing. 2011;25(1):35-36, No. 29. doi: 10.1007/s10877-011-9276-2

Karbing DS, Kjærgaard S, Andreassen S, Espersen K, Rees SE. **Minimal modeling of pulmonary gas exchange of oxygen and carbon dioxide: modeling complexity required in intensive care patients**. Intensive Care Medicine. 2011;37(Suppl. 1):S102, No. 0386. doi: 10.1007/s00134-011-2322-1

Allerød C, Karbing DS, Thorgaard P, Andreassen S, Kjærgaard S, Rees SE. **Use of the invent system for standardized quantification of clinical preferences towards mechanical ventilator settings**. Journal of Clinical Monitoring and Computing. 2011 apr. 11;25(1):22-24. 17. doi: 10.1007/s10877-011-9276-2

Rees SE, Carson ER, Feng DD, Andreassen S. **Introduction for special issue "Cardio-Pulmonary Modelling"**. Computer Methods and Programs in Biomedicine. 2011;101(2):107-108. doi: 10.1016/j.cmpb.2011.01.001

Rees SE, Carson ER, Feng DD, Andreassen S. **Modelling and control in biomedical systems: introduction**. Computer Methods and Programs in Biomedicine. 2011;104(2):27-28. doi: 10.1016/j.cmpb.2011.09.004

Feng DD, Andreassen S, Rees SE. **Extended selected papers from the 7th IFAC Symposium on Modelling and Control in Biomedical Systems (MCBMS'09)**. Biomedical Signal Processing and Control. 2011;6(1):1-2. doi: 10.1016/j.bspc.2010.12.002

Carson ER, Rees SE, Andreassen S, Feng DD. **Introduction**. Computer Methods and Programs in Biomedicine. 2011;102(2):91-93. doi: 10.1016/j.cmpb.2010.12.013

Rees SE, Karbing DS, Allerød C, Toftegaard M, Thorgaard P, Toft E et al. **The Intelligent Ventilator project: application of physiological models in decision support.** Lecture Notes in Computer Science. 2011;6747:149-158. doi: 10.1007/978-3-642-22218-4\_19

Andreassen S, Karbing DS, Pielmeier U, Rees SE, Zalounina A, Sanden LR et al. **Model-based medical decision support: A road to improved diagnosis and treatment?** International Federation for Medical and Biological Engineering Proceedings . 2011;34:257-260. doi: 10.1007/978-3-642-21683-1\_65

Steimle KL, Mogensen ML, Karbing DS, de la Serna JB, Andreassen S. **A model of ventilation of the healthy human lung.** Computer Methods and Programs in Biomedicine. 2011;101(2):144-155. doi: 10.1016/j.cmpb.2010.06.017

Poulsen P, Karbing DS, Rees SE, Andreassen S. **Tidal breathing model describing end-tidal, alveolar, arterial and mixed venous CO<sub>2</sub> and O<sub>2</sub>.** Computer Methods and Programs in Biomedicine. 2011;101(2):166-172. doi: 10.1016/j.cmpb.2010.03.020

Mogensen ML, Steimle KL, Karbing DS, Andreassen S. **A model of perfusion of the healthy human lung.** Computer Methods and Programs in Biomedicine. 2011;101(2):156-165. doi: 10.1016/j.cmpb.2010.06.020

Karbing DS, Kjærgaard S, Andreassen S, Espersen K, Rees SE. **Minimal model quantification of pulmonary gas exchange in intensive care patients.** Medical Engineering & Physics. 2011;33(2):240-248. doi: 10.1016/j.medengphy.2010.10.007

Allerød C, Karbing DS, Thorgaard P, Andreassen S, Kjærgaard S, Rees SE. **Variability of preference toward mechanical ventilator settings: A model-based behavioral analysis.** Journal of Critical Care. 2011;26(6):637.e5-637.e12. doi: 10.1016/j.jccr.2011.01.006

Pielmeier U, Boudreau S, Andreassen S. **A decision-theoretic approach to consistent tight glycemic control in critical care patients.** I UKACC International Conference on Control, CONTROL 2010, 7-10 September 2010, Coventry, UK [CD-ROM]. 2010. s. 839-844

Mogensen ML, Thomsen LP, Karbing DS, Steimle KL, Zhao Y, Rees SE et al. **A mathematical physiological model of the dynamics of pulmonary ventilation.** I Proceedings of the UKACC International Conference on Control, CONTROL 2010 [CD-ROM]. 2010. s. 734-739

Rees SE, Kjærgaard S, Andreassen S, Hedenstierna G. **A comparison of the MIGET and a simple model of pulmonary gas exchange.** The FASEB Journal. 2010;24:1063.4.

Rees SE, Toftegaard M, Hansen A, Harving H, Kristensen SR, Andreassen S. **Clinical application of acid-base models: calculation of arterial acid-base status from peripheral venous blood.** Journal of Clinical Monitoring and Computing. 2010;24(1):25-26, No. 22. doi: 10.1007/s10877-009-9211-y

Rees SE, Klæstrup E, Handy J, Andreassen S, Kristensen SR. **Evaluation of a mathematical model of the acid-base chemistry of blood.** The FASEB Journal. 2010;24:815.16.

Karbing DS, Allerød C, Thorgaard P, Andreassen S, Kjærgaard S, Rees SE. **INVENT - a decision support system for managing inspired oxygen: prospective evaluation in an intensive care unit.** Journal of Clinical Monitoring and Computing. 2010;24(1):17, No. 14. doi: 10.1007/s10877-009-9211-y

Rees SE, Klæstrup E, Handy J, Andreassen S, Kristensen SR. **Mathematical modelling of the acid-base chemistry and oxygenation of blood: a mass balance, mass action approach including plasma and red blood cells.** European Journal of Applied Physiology. 2010;108(3):483-494. doi: 10.1007/s00421-009-1244-x



Rees SE, Kjærgaard S, Andreassen S, Hedenstierna G. **Reproduction of inert gas and oxygenation data: a comparison of the MIGET and a simple model of pulmonary gas exchange.** Intensive Care Medicine. 2010;36(12):2117-2124. doi: 10.1007/s00134-010-1981-7

Pielmeier U, Andreassen S, Nielsen BS, Chase JG, Christensen PH. **A simulation model of insulin saturation and glucose balance for glycemic control in ICU patients.** Computer Methods and Programs in Biomedicine. 2010;97(3):211-222. doi: 10.1016/j.cmpb.2009.06.004

Pielmeier U, Andreassen S, Juliussen BN, Chase JG, Nielsen BS, Haure P. **The Glucosafe system for tight glycemic control in critical care: a pilot evaluation study.** Journal of Critical Care. 2010;25(1):97-104. doi: 10.1016/j.jcrc.2009.10.003

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