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Kontakt



Gruppenleiter Medizintechnik

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Mitgliedschaften

- Vorsitzender des [GMA Fachausschuss](#) 7.26 „Schnittstelle für die Eingabe von aktuellen Wartungsinformationen bei Condition Monitoring“
- Mitglied im Gemeinsamer Fachausschuss [AUTOMED](#) der DGBMT und des GMA
- Mitglied in der Leitungsrunde zum Pandemie-Beatmungsgerät [PV1000](#)

Betreute Abschlussarbeiten

- [Implementierung von eingebetteter stereoskopischer Triangulation für einen 3D-Scanner](#)
- [Entwicklung eines Versuchsaufbaus zur optischen Desinfektionsvalidierung](#)
- [Entwicklung eines dezentral implementierten Sicherheitskonzeptes für intensivmedizinische Anwendungen](#)
- [Auslegung einer pulsatischen Ansteuerungsstrategie für eine Blutpumpe](#)
- [Rezirkulationsmessung bei extrakorporaler Lungenunterstützung](#)
- [Modellierung und Analyse von konkurrierenden Sicherheitszielen in einer intensivmedizinischen Anwendung](#)

- RTOS with Matlab/Simulink for a Medical Application
- Entwicklung eines Zeitsynchronisationsverfahrens für ein intensivmedizinisches, verteiltes System
- Entwicklung und Spezifikation eines CAN Protokolls für sicherheitskritische medizintechnische Anwendungen
- Funktionale Erweiterung des VMware vSphere Systems
- Integration von Hardwareabstraktion und Hardwareansteuerung im eingebetteten Echtzeitbetriebssystem ChibiOS
- Integration modellbasierter Sicherheitsmechanismen für die extrakorporale Lungenunterstützung in ein eingebettetes RTOS
- Erarbeitung und Integration von modellbasierten Sicherheitsmaßnahmen für eine intensivmedizinische Anwendung
- Entwicklung mobiler Multiplattform-Clients für ein Buchungssystem
- Entwicklung einer Metrik zur Bewertung verschiedener Hardwareplattformen für medizintechnische Anwendungen
- Erarbeitung einer mikrowellengeregelten chemischen Reaktionsführung
- Modellbasierte Diagnose eines Oxygenators für die Extrakorporale Membranoxygenierung
- Portierung einer Diagonalpumpensteuerung auf ein eingebettetes Betriebssystem mit Unterstützung modell-basierter Sicherheitsmaßnahmen
- Modellierung und Regelung des Blutflusses einer Diagonalpumpe bei der extrakorporalen Oxygenierung
- Entwurf und Validierung einer auf den Wirkungsgrad optimierten Regelungsstrategie zur Ansteuerung einer piezoelektrisch betriebenen Pumpe für automobiler Anwendungen
- Thermodynamische Modellbildung eines Handdesinfektionsprozesses
- Tiefeninformationsabhängige Bildfusion in einer optischen Desinfektionsvalidierung
- Entwicklung und Umsetzung eines normgerechten Testkonzepts für die Bedienoberfläche eines Notfall-Beatmungsgeräts
- Erarbeitung einer Ansteuerungsautomatik für eine Unabhängige Energieversorgung

Publikationen

[BPS+24]

[PDFBIB](#)

Buglowski, M., Pfannschmidt, V., Stollenwerk, A., Schoberer, M., Huong Nguyen, T. B., Becker, S., and Braun, O., "Beatmungsgerät und Verfahren zur Atemgasversorgung", 2024.

Beatmungsgerät und Verfahren zur Atemgasversorgung

Bibtex entry :

```
@techreport { BPS+24,  
  author = { Buglowski, Mateusz and Pfannschmidt, Valerie and  
            Stollenwerk, André and Schoberer, Mark and Huong Nguyen,  
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  title = { Beatmungsger{\"}t und Verfahren zur Atemgasversorgung },  
  pages = { 29 Seiten : Illustrationen },
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[GRB+24]

PDFBIB

Goldermann, L., Rakel, S., Buglowski, M., Mokhtarian, A., Kampmann, A., Janß, A., Yilmaz, O., Beger, F., Walter, M., Leonhardt, S., Kowalewski, S., and Stollenwerk, A., "Designing the user interface of a ventilator under the constraints of a pandemic", *Automatisierungstechnik*, vol. 72, iss. 5, pp. 484-495, 2024

Designing the user interface of a ventilator under the constraints of a pandemic

Bibtex entry :

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@article { GRB+24,
  author = { Goldermann, Lavinia and Rakel, Stefan and Buglowski,
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and Leonhardt, Steffen and Kowalewski, Stefan and
Stollenwerk, André },
  title = { Designing the user interface of a ventilator under the
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  cin = { 122810 / 611010 / 419410 / 120000 },
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[PSK24]

PDFBIB

Pfannschmidt, V., Stollenwerk, A., and Kowalewski, S., "Physiologische Regelung der künstlichen Beatmung Frühgeborener", in *Proc. Downloads zum 58. Regelungstechnischen Kolloquium vom 21. bis 23. Februar 2024: Kurzfassungen der Vorträge*, 2024.

Physiologische Regelung der künstlichen Beatmung Frühgeborener

Bibtex entry :

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@inproceedings { PSK24,  
  author = { Pfannschmidt, Valerie and Stollenwerk, André and  
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kolloquium-boppard.html },  
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[BWH+23]

[PDFBIB](#)

Berg, F. J., Wiartalla, M. O., Hüllmann, M., Derks, A., Kowalewski, S., and Stollenwerk, A., "ASMO: a decentralized and verifiable interoperability platform in intensive care", *Proceedings on automation in medical engineering*, vol. 2, iss. 1, p. 2, 2023

ASMO: a decentralized and verifiable interoperability platform in intensive care

Bibtex entry :

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@article { BWH+23,  
  author = { Berg, Frederik Julius and Wiartalla, Marc Oliver and  
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[FFN+23]

[PDFBIB](#)

Fonck, S. A. M., Fritsch, S., Nottenkämper, G., and Stollenwerk, A., "Implementation of ResNet-50 for the Detection of ARDS in Chest X-Rays using transfer-learning", *Proceedings on automation in medical engineering*, vol. 2, iss. 1, p. 2, 2023

Implementation of ResNet-50 for the Detection of ARDS in Chest X-Rays using transfer-learning

Bibtex entry :

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@article { FFN+23,
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  url = { https://doi.org/10.18416/AUTOMED.2023 },
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[FLS+23]

[PDFBIB](#)

Fischbach, A., Lamberti, M., Simons, J. A., Wrede, E., Theißen, A., Winnersbach, P., Rossaint, R., Stollenwerk, A., and Bleilevens, C., "Early Blood Clot Detection Using Forward Scattering Light Measurements Is Not Superior to Delta Pressure Measurements", *Biosensors : open access journal*, vol. 13, iss. 12, p. [1]-13, 2023

Early Blood Clot Detection Using Forward Scattering Light Measurements Is Not Superior to Delta Pressure Measurements

Bibtex entry :

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@article { FLS+23,  
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[WBK+23]

PDFBIB

Wiertalla, M. O., Berg, F. J., Kühn, J., Buglowski, M., Bleilevens, C., Kowalewski, S., and Stollenwerk, A., "A fully automated normothermic machine perfusion system for kidney grafts supporting physiological motivated flow profiles", *Current directions in biomedical engineering*, vol. 9, iss. 1, pp. 323-326, 2023

A fully automated normothermic machine perfusion system for kidney grafts supporting physiological motivated flow profiles

Bibtex entry :

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@article { WBK+23,  
  author = { Wiertalla, Marc Oliver and Berg, Frederik Julius and  
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    Christian and Kowalewski, Stefan and Stollenwerk, André },
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    (BMBF-031L0134B) },
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[WBO+23a]

[PDFBIB](#)

Wiertalla, M. O., Berg, F. J., Ottersbach, F., Kühn, J., Buglowski, M., Kowalewski, S., and Stollenwerk, A., "A modular and verifiable software architecture for interconnected medical systems in intensive care", *Annals of computer science and information systems*, vol. 37, pp. 345-351, 2023

A modular and verifiable software architecture for interconnected medical systems in intensive care

Bibtex entry :

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@article { WBO+23a,
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[BOP+22]

PDFBIB

Becker, S., Olivier, L., Pfannschmidt, V., Buglowski, M., Hütten, M., Wienhold, M., Orlikowsky, T., Stollenwerk, A., and Schoberer, M., "Closed-Loop Kontrolle des endtidalen CO₂ im Frühgeborenen Lämmer-Modell", in *Proc. Abstracts 48. Jahrestagung der Gesellschaft für Neonatologie und Pädiatrische Intensivmedizin / Gesellschaft für Neonatologie und Pädiatrische Intensivmedizin e. V = 1, 1, 1, Jena : Conventus Congressmanagement & Marketing GmbH, 2022,, Jena, 2022, Conventus Congressmanagement & Marketing GmbH, p. 92.*

Closed-Loop Kontrolle des endtidalen CO₂ im Frühgeborenen Lämmer-Modell

Bibtex entry :

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@inproceedings { BOP+22,
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Teilvorhaben: Erforschung neuer Modelle zur Diagnose von
Fehlerzust{"a}nden (BMBF-13GW0292C) },
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[BPB+22]

[PDFBIB](#)

Buglowski, M., Pfannschmidt, V., Becker, S., Braun, O., Hutten, M., Ophelders, D., Oprea, C., Pattai, S., Schoberer, M., and Stollenwerk, A., "Closed-Loop Control of Arterial CO₂ in Mechanical Ventilation of Neonates", in *Proc. 44th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC) / pre-conference workshops & social events: Monday, July 11, 2022, conference dates: Tuesday, July 12-Friday, July 15, 2022 / conference chair: Christopher James (University of Warwick), conference co-chair: James Patton (University of Chicago) ; programm chair: Ron Summers (Collegium Basilea), [Piscataway, NJ], 2022, IEEE, pp. 4991-4995.*

Closed-Loop Control of Arterial CO₂ in Mechanical Ventilation of Neonates

Bibtex entry :

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@inproceedings { BPB+22,
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    co-chair: James Patton (University of Chicago) ; programm
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doi = { 10.1109/EMBC48229.2022.9871185 },
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Teilvorhaben: Erforschung neuer Modelle zur Diagnose von
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[JSS+22]

[PDFBIB](#)

Janisch, T., Stollenwerk, A., Siekmann, U., and Kopp, R., "Treatment of children with Hyperbaric Oxygenation (HBOT) : an Europe-wide survey", *Minerva pediatrics*, vol. 74, iss. 2, pp. 116-120, 2022

Treatment of children with Hyperbaric Oxygenation (HBOT) : an Europe-wide survey

Bibtex entry :

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@article { JSS+22,
author = { Janisch, Thorsten and Stollenwerk, André and Siekmann,
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http://publications.rwth-aachen.de/record/787714/files/787714.pdf },
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[OBS+22]

PDFBIB

Olivier, L., Buglowski, M., Sabine, B., Hütten, M., Olikowsky, T., Stollenwerk, A., and Schoberer, M., "Work in progress: Detektion einer intensivierten invasiven Beatmung bei Neonaten mithilfe eines Fuzzylogik-Modells", in *Proc. Abstracts 48. Jahrestagung der Gesellschaft für Neonatologie und Pädiatrische Intensivmedizin / Gesellschaft für Neonatologie und Pädiatrische Intensivmedizin e. V.*, Jena, 2022, Conventus Congressmanagement & Marketing GmbH, p. 93.

Work in progress: Detektion einer intensivierten invasiven Beatmung bei Neonaten mithilfe eines Fuzzylogik-Modells

Bibtex entry :

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@inproceedings { OBS+22,
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[WSE+22]

PDFBIB

Walter, M., Stollenwerk, A., Eckstein, L., Kowalewski, S., and Leonhardt, S., "PV1000 – Interdisziplinäre Entwicklung eines Pandemie-Beatmungsgerätes", in *Proc. MT-2022 Tagungsband*, 2022, p. 169.

PV1000 - Interdisziplinäre Entwicklung eines Pandemie-Beatmungsgerätes

Bibtex entry :

```
@inproceedings { WSE+22,  
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[FFK+21]

PDFBIB

Fonck, S., Fritsch, S. J., Kowalewski, S., Hensen, R., and Stollenwerk, A., "Algorithmic distinction of ARDS and Heart Failure in ICU data from medical embedded systems by using a computer model", *IFAC-PapersOnLine*, vol. 54, iss. 4, pp. 135-140, 2021

Algorithmic distinction of ARDS and Heart Failure in ICU data from medical embedded systems by using a computer model

Bibtex entry :

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@article { FFK+21,  
  author = { Fonck, Simon and Fritsch, Sebastian Johannes and  
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```

[LKL+21]

PDFBIB

Lamberti, M., Kopp, R., Lübke, C., Leonhardt, S., Walter, M., and Stollenwerk, A., "Safety and Automation Concepts for Artificial Impantable Lungs - SmartLungControl", *Biomedical engineering*, vol. 66, iss. s1, 2021

Safety and Automation Concepts for Artificial Impantable Lungs - SmartLungControl

Bibtex entry :

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@article { LKL+21,
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and Leonhardt, Steffen and Walter, Marian and Stollenwerk,
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[MBF+21]

[PDF](#)[BIB](#)

Marx, G., Bickenbach, J., Fritsch, S. J., Kunze, J. B., Maassen, O., Deffge, S., Kistermann, J., Haferkamp, S. D., Lutz, I., Voellm, N. K., Lowitsch, V., Polzin, R., Sharafutdinov, K., Mayer, H., Kuepfer, L., Burghaus, R., Schmitt, W., Lippert, J., Riedel, M., Barakat, C., Stollenwerk, A., Fonck, S., Putensen, C., Zenker, S., Erdfelder, F., Grigutsch, D., Kram, R., Beyer, S., Kampe, K., Gewehr, J. E., Salman, F., Juers, P., Kluge, S., Tiller, D., Wisotzki, E., Gross, S., Homeister, L., Bloos, F., Scherag, A., Ammon, D., Mueller, S., Palm, J., Simon, P., Jahn, N., Loeffler, M., Wendt, T., Schuerholz, T., Groeber, P., and Schuppert, A., "Algorithmic surveillance of ICU patients with acute respiratory distress syndrome (ASIC) : protocol for a multicentre stepped-wedge cluster randomised quality improvement strategy", *BMJ open*, vol. 11, iss. 4, pp. 1-7, 2021

Algorithmic surveillance of ICU patients with acute respiratory distress syndrome (ASIC) : protocol for a multicentre stepped-wedge cluster randomised quality improvement strategy

Bibtex entry :

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[PSS+21]

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Preuss, R., Smieschek, M., Stollenwerk, A., Kowalewski, S., and Heinrichs, T.,
 "Behälterreinigungsmaschine", 2021.

Behälterreinigungsmaschine

Bibtex entry :

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@techreport { PSS+21,
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[BBF+20]

[PDFBIB](#)

Buglowski, M., Bleilevens, C., Fabry, G., Kowalewski, S., and Stollenwerk, A., "Flussgesteuerte
 pH-Regulierung in einem automatisierten Nierenperfusionssystem", *Proceedings on automation
 in medical engineering*, vol. 1, iss. 1, 2020

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@article { BBF+20,  
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    Entwicklung eines vollautomatisierten in vitro Teststands  
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[KGE+20]

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Apparat zur automatisierten Justage optischer Systeme

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[SRT+20]

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Smieschek, M., Rakel, S., Thönnessen, D., Derks, A., Stollenwerk, A., and Kowalewski, S., "A Remote Test Environment for a Large-Scale Microcontroller Laboratory Course", in *Proc. Cyber physical systems : model-based design : 9th international workshop, CyPhy 2019 and 15th international workshop, WESE 2019, New York City, NY, USA, October 17-18, 2019 : revised selected papers / Roger Chamberlain, Martin Edin Grimheden, Walid Taha (eds.)*, Cham, 2020 in *Lecture Notes in Computer Science*, Springer, pp. 231-246.

A Remote Test Environment for a Large-Scale Microcontroller Laboratory Course

Bibtex entry :

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@inproceedings { SRT+20,
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[SS20]

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Bibtex entry :

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@techreport { SS20,
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[Sto20]

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Stollenwerk, A., "An Embedded Graduate Lab Course with Spirit", in *Proc. Cyber physical systems : model-based design : 9th international workshop, CyPhy 2019 and 15th international workshop, WESE 2019, New York City, NY, USA, October 17-18, 2019 : revised selected papers /*

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An Embedded Graduate Lab Course with Spirit

Bibtex entry :

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@inproceedings { Sto20,
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[FDG+19]

[PDFBIB](#)

Fabry, G., Doorschodt, B. M., Grzanna, T., Boor, P., Elliott, A. R., Stollenwerk, A., Tolba, R. H., Rossaint, R., and Bleilevens, C., "Cold Preflush of Porcine Kidney Grafts Prior to Normothermic Machine Perfusion Aggravates Ischemia Reperfusion Injury", *Scientific reports*, vol. 9, p. 9, 2019

Cold Preflush of Porcine Kidney Grafts Prior to Normothermic Machine Perfusion Aggravates Ischemia Reperfusion Injury

Bibtex entry :

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Entwicklung eines vollautomatisierten in vitro Teststands
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Ersatzmethode zur Biokompatibilit{"a"}tstestung von
Membranoxygenatoren und zur Transplantationssimulation
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[KBS+19]

PDFBIB

Kühn, J., Buglowski, M., Stollenwerk, A., Kowalewski, S., Walter, M., Leonhardt, S., Petran, J., Kopp, R., Rossaint, R., and Janisch, T., "Fault Identification in a Blood Pump Using Neural Networks", in *Proc. World Congress on Medical Physics and Biomedical Engineering 2018 : June 3-8, 2018, Prague, Czech Republic (Vol.2) / edited by Lenka Lhotska, Lucie Sukupova, Igor Lacković, Geoffrey S. Ibbott*, Singapore, 2019 in IFMBE Proceedings, Springer Singapore, pp. 27-32.

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Bibtex entry :

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@inproceedings { KBS+19,
author = { K{"u"}hn, Jan and Buglowski, Mateusz and Stollenwerk,
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Engineering
    2018 : June 3-8, 2018, Prague, Czech Republic (Vol.2) /
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}

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[PAS+19]

[PDFBIB](#)

Pomprapa, A., Ahmed, W., Stollenwerk, A., Kowalewski, S., and Leonhardt, S., "Deep Learning of Arrhythmia Analysis Based on Convolutional Neural Network", *International journal of bioelectromagnetism : IJBEM*, vol. 21, iss. 1, pp. 48-58, 2019

Deep Learning of Arrhythmia Analysis Based on Convolutional Neural Network

Bibtex entry :

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@article { PAS+19,
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[SKS+19]

[PDFBIB](#)

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Aided Hand Detection in Thermal Imaging Using RGB Stereo Vision

Bibtex entry :

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@inproceedings { SKS+19,
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}

[KSK+18]

PDFBIB

Kühn, J., Stollenwerk, A., Kowalewski, S., Fabry, G., Grzanna, T., Doorschodt, B., Tolba, R. H., Rossaint, R., and Bleilevens, C., "A long-term setup for kidney perfusion." 2018.

A long-term setup for kidney perfusion

Bibtex entry :

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    Stefan
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[PAS+18]

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Convolutional Neural Network

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@inproceedings { PAS+18,  
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Bioelectromagnetism : 23-25 May 2018, Aachen, Germany /  
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Malmivuo, Technische Universit{"a"}t Berlin, Germany, Dr.  
Marian Walter, RWTH Aachen University, Germany, Benjamin  
Hentze, RWTH Aachen University, Germany Markus L{"u"}ken,  
RWTH Aachen University, Germany ; Scientific Committee for  
ICBEM 2018 in Aachen: Prof. Catherine Disselhorst-Klug, RWTH  
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[PAS+18a]

[PDFBIB](#)

Pomprapa, A., Ahmed, W., Sayani, M. S., Stollenwerk, A., Kowalewski, S., and Leonhardt, S.,
"Classification of Obstructive Sleep Apnea Using Machine Learning", *American journal of
respiratory and critical care medicine*, vol. 197, iss. Abstract Issue, p. 1, 2018

Classification of Obstructive Sleep Apnea Using Machine Learning

Bibtex entry :

```
@article { PAS+18a,  
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1_MeetingAbstracts.A7449 },
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[PAS+18b]

[PDFBIB](#)

Pomprapa, A., Ahmed, W., Stollenwerk, A., Kowalewski, S., Uguz, D. U., and Leonhardt, S.,
 "Arrhythmia Analysis in a Non-contact cECG Chair using Convolutional Neural Network",
International journal of bioelectromagnetism : IJBEM, vol. 20, iss. 1, pp. 47-50, 2018

Arrhythmia Analysis in a Non-contact cECG Chair using Convolutional Neural Network

Bibtex entry :

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@article { PAS+18b,
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[PSA+18]

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Pomprapa, A., Sayani, M. S., Anwar, T., Stollenwerk, A., Kowalewski, S., von Platen, P. H., and Leonhardt, S., "Apnea Detection in a Contactless Multisensor System using Deep Learning Algorithm", in *Proc. [13th Russian-German Conference on Biomedical Engineering (RGC), RGC, 2018-05-23 - 2018-05-25, Aachen, Germany]*, 2018.

Apnea Detection in a Contactless Multisensor System using Deep Learning Algorithm

Bibtex entry :

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@inproceedings { PSA+18,
  author = { Pomprapa, Anake and Sayani, Mohammad Salman and Anwar, Toni
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[SBK18]

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Bibtex entry :

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@article { SBK18,
  author = { Stollenwerk, André and Buglowski, Mateusz and K{"u}hn, Jan },
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[SHS+18]

[PDFBIB](#)

Smieschek, M., Hinrichs, T., Stollenwerk, A., Kowalewski, S., and Preuß, R., "A New Condition Indicator for Slow-Rotating Roller Chains based on the Angle and Torque of the Driving Motor", in *Proc. 2018 IEEE 14th International Conference on Automation Science and Engineering (CASE) : 20-24 Aug. 2018 / general chair: Birgit Vogel-Heuser (Technical University of Munich)* ; publisher: IEEE, Piscataway, NJ, 2018, IEEE, pp. 642-644.

A New Condition Indicator for Slow-Rotating Roller Chains based on the Angle and Torque of the Driving Motor

Bibtex entry :

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@inproceedings { SHS+18,
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Demonstratoren in realen Umgebungen und Evaluation mit Fokus
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Case 4: Predictive Maintenance' },
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[WSA+18]

PDFBIB

Winter, A., Stäubert, S., Ammon, D., Aiche, S., Beyan, O. D., Bischoff, V., Daumke, P., Decker, S. J., Funkat, G., Gewehr, J. E., de Greiff, A., Haferkamp, S. D., Hahn, U., Henkel, A., Kirsten, T., Klöss, T., Lippert, J., Löbe, M., Lowitsch, V., Maassen, O., Maschmann, J., Meister, S., Mikolajczyk, R., Nüchter, M., Pletz, M. W., Rahm, E., Riedel, M., Saleh, K., Schuppert, A., Smers, S., Stollenwerk, A., Uhlig, S., Wendt, T., Zenker, S., Fleig, W., Marx, G., Scherag, A., and Löffler, M., "Smart Medical Information Technology for Healthcare (SMITH) : Data Integration based on Interoperability Standards", *Methods of information in medicine*, vol. 57, iss. S 01, p. e92-e105, 2018

Smart Medical Information Technology for Healthcare (SMITH) : Data Integration based on Interoperability Standards

Bibtex entry :

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@article { WSA+18,
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Kutaiba and Schuppert, Andreas and Smers, Stefan and
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[BHK+17]

[PDFBIB](#)

Brendle, C., Hackmack, K. -F., Kühn, J., Wardeh, M. N., Janisch, T., Kopp, R., Rossaint, R., Stollenwerk, A., Kowalewski, S., Leonhardt, S., Walter, M., and Misgeld, B. J. E., "Closed-loop control of extracorporeal oxygen and carbon dioxide gas transfer", *Control engineering practice*, vol. 59, pp. 173-182, 2017

Closed-loop control of extracorporeal oxygen and carbon dioxide gas transfer

Bibtex entry :

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@article { BHK+17,
  author = { Brendle, Christian and Hackmack, K.-F. and Kühn, Jan
and
Wardeh, M. N. and Janisch, T. and Kopp, Rolf and
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die Therapie des Lungenversagens (ECLA-VENT) (224967929) },
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[BMK+17]

[PDF](#)BIB

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Physiological closed-loop control of mechanical ventilation and extracorporeal membrane oxygenation

Bibtex entry :

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@article { BMK+17,
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[KBS+17]

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Kühn, J., Brendle, C., Stollenwerk, A., Schweigler, M., Kowalewski, S., Janisch, T., Rossaint, R., Leonhardt, S., Walter, M., and Kopp, R., "Decentralized safety concept for closed-loop controlled intensive care : Supervision of a blood pump during extracorporeal circulation", *Biomedical engineering = Biomedizinische Technik*, vol. 62, iss. 2, pp. 213-224, 2017

Decentralized safety concept for closed-loop controlled intensive care : Supervision of a blood pump during extracorporeal circulation

Bibtex entry :

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@article { KBS+17,
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[SKS+17]

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Bibtex entry :

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@article { SKS+17,
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[SSK+17]

PDFBIB

Smieschek, M., Stollenwerk, A., Kowalewski, S., Orlikowsky, T., and Schoberer, M., "Unterstützte Handerkennung in Thermographiebildern zur Validierung der hygienischen Händedesinfektion", in *Proc. Bildverarbeitung für die Medizin 2017 : Algorithmen - Systeme - Anwendungen : Proceedings des Workshops vom 12. bis 14. März 2017 in Heidelberg / Klaus Hermann Maier-Hein, Thomas M. Deserno, Heinz Handels, Thomas Tolxdorff (Herausgeber)*, Berlin, Heidelberg, 2017 in Informatik aktuell, Springer Berlin Heidelberg, pp. 147-152.

Unterstützte Handerkennung in Thermographiebildern zur Validierung der hygienischen Händedesinfektion

Bibtex entry :

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@inproceedings { SSK+17,
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Algorithmen -
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[SSM+17]

[PDFBIB](#)

Stollenwerk, A., Sehl, F., Marx, G., Kowalewski, S., and Janisch, T., "Enrichment of a diving computer with body sensor network data", in *Proc. 2017 IEEE 14th International Conference on Wearable and Implantable Body Sensor Networks (BSN) : 9-12 May 2017 / sponsors: IEEE, EMB, Piscataway, NJ, 2017, IEEE*, pp. 169-172.

Enrichment of a diving computer with body sensor network data

Bibtex entry :

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@inproceedings { SSM+17,
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[BHK+16]

[PDFBIB](#)

Brendle, C., Hackmack, K. -F., Kühn, J., Wardeh, M. N., Janisch, T., Kopp, R., Rossaint, R., Stollenwerk, A., Kowalewski, S., Misgeld, B. J. E., Leonhardt, S., and Walter, M., "Continuous gas transfer monitoring during extracorporeal membrane oxygenation", *Biomedical signal*

processing and control, vol. 31, pp. 321-330, 2016

Continuous gas transfer monitoring during extracorporeal membrane oxygenation

Bibtex entry :

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@article { BHK+16,  
  author = { Brendle, Christian and Hackmack, K.-F. and K{"u}hn, Jan  
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  journal = { Biomedical signal processing and control },  
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[KBS+16]

[PDFBIB](#)

Kopp, R., Bensberg, R., Stollenwerk, A., Arens, J., Grottke, O., Walter, M., and Rossaint, R.,
"Automatic Control of Veno-Venous Extracorporeal Lung Assist : Presented in part at the 13th
Congress of DIVI held December 4-6, 2013 in Leipzig, Germany", *Artificial organs*, vol. 40, iss.
10, pp. 992-998, 2016

Automatic Control of Veno-Venous Extracorporeal Lung Assist : Presented in part at the 13th Congress of DIVI held December 4-6, 2013 in Leipzig, Germany

Bibtex entry :

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[KSB+16]

[PDFBIB](#)

Kühn, J., Stollenwerk, A., Brendle, C., Janisch, T., Walter, M., Rossaint, R., Leonhardt, S., Kowalewski, S., and Kopp, R., "Sensor Supervision and Control Value Limitations in Networked Intensive Care", in *Proc. [Gemeinsamer Tagungsband der Workshops der Tagung Software Engineering 2016 (SE-WS 2016), Wien, 23.-26. Februar 2016 / Edited by: Wolf Zimmermann, Lukas Alperowitz, Bernd Brügge, Jörn Fahsel, Andrea Herrmann, Anne Hoffmann, Andreas Krall, Dieter Landes, Horst Lichter, Dirk Riehle, Ina Schaefer, Constantin Scheuermann, Alexander Schlaefer, Sibylle Schupp, Andreas Seitz, Andreas Steffens, André Stollenwerk, Rüdiger Weißbach]*, Aachen, Germany, 2016 in CEUR Workshop Proceedings, RWTH Aachen, pp. 187-194.

Sensor Supervision and Control Value Limitations in Networked Intensive Care

Bibtex entry :

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@inproceedings { KSB+16,
  author = { K{"u}hn, Jan and Stollenwerk, Andr{e} and Brendle,
Christian
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R{"u}dger },
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    Edited by: Wolf Zimmermann, Lukas Alperowitz, Bernd
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Ina Schaefer, Constantin Scheuermann, Alexander Schlaefer,
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[KVS+16]

[PDFBIB](#)

Kühn, J., Vaitl, L., Stollenwerk, A., Brendle, C., Walter, M., Leonhardt, S., Kowalewski, S., Rossaint, R., Kopp, R., and Janisch, T., "Eingebettete Rezirkulationsmessung für eine ECLA-Therapie", in *Proc. AUTOMED 2016 : Workshop : Wismar, 22.-23. September 2016 / DGBMT - Deutsche Gesellschaft für Biomedizinische Technik im VDE ; Editoren: Prof. Dr.-Ing. habil. Olaf Simanski, Dr. Olaf Hagendorf, Jörg Zucknik*, Wismar, 2016, Hochschule Wismar, Fakultät für Ingenieurwissenschaften, Fachgebiet Automatisierungstechnik/Mechatronik, p. 2.

Eingebettete Rezirkulationsmessung für eine ECLA-Therapie

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  author = { K{"u}hn, Jan and Vaitl, Lorenz and Stollenwerk, André
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[SSJ+16]

[PDFBIB](#)

Smieschek, M., Stollenwerk, A., Jüptner, J. P., Kowalewski, S., Orlikowsky, T., and Schoberer, M., "Evaluating Hand Disinfection with Alcohol-Based Hand Sanitizers Using Thermal Imaging", in *Proc. [Gemeinsamer Tagungsband der Workshops der Tagung Software Engineering 2016 (SE-WS 2016), Wien, 23.-26. Februar 2016 / Edited by: Wolf Zimmermann, Lukas Alperowitz, Bernd Brügge, Jörn Fahsel, Andrea Herrmann, Anne Hoffmann, Andreas Krall, Dieter Landes, Horst Lichter, Dirk Riehle, Ina Schaefer, Constantin Scheuermann, Alexander Schläefer, Sibylle Schupp, Andreas Seitz, Andreas Steffens, André Stollenwerk, Rüdiger Weißbach]*, Aachen, Germany, 2016 in CEUR Workshop Proceedings, RWTH Aachen, pp. 174-181.

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@inproceedings { SSJ+16,
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[SSS16]

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[SSS16a]

[PDFBIB](#)

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[WBK+16]

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Bibtex entry :

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  author = { Walter, Marian and Brendle, Christian and K{\\"u}hn, Jan  
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[ZAB+16]

[PDFBIB](#)

Zimmermann, W., Alperowitz, L., Brügge, B., Fahsel, J., Herrmann, A., Hoffmann, A., Krall, A., Landes, D., Lichter, H., Riehle, D., Schaefer, I., Scheuermann, C., Schlaefel, A., Schupp, S., Seitz, A., Steffens, A., Stollenwerk, A., and Weißbach, R., Eds., *Gemeinsamer Tagungsband der Workshops der Tagung Software Engineering 2016 (SE-WS 2016)*, Wien, 23.-26. Februar 2016, Aachen, Germany: RWTH Aachen, 2016.

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Bibtex entry :

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@proceedings { ZAB+16,  
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Riehle, Dirk and Schaefer, Ina and Scheuermann, Constantin
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Andreas and Steffens, Andreas and Stollenwerk, André and
Wei{\ss}bach, R{"u}diger },
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[BHK+15]

[PDFBIB](#)

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  author = { Brendle, Christian and Hackmack, Kay-Florian and
K{"u}hn,
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[dMK+15]

[PDFBIB](#)

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[KSB+15]

[PDFBIB](#)

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Embedded Safety Measures for Extracorporeal Blood Circulation

Bibtex entry :

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@inproceedings { KSB+15,  
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[KSK+15]

[PDFBIB](#)

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Bibtex entry :

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[KSS+15]

[PDFBIB](#)

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Bibtex entry :

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[KWS+15]

[PDFBIB](#)

Kühn, J., Wübbels, N., Stollenwerk, A., Kowalewski, S., Brendle, C., Walter, M., Leonhardt, S., Wardeh, M., Kopp, R., and Roissant, R., "Pulsatile Ansteuerung einer Diagonalblutpumpe", in *Proc. Automation 2015 : 16. Branchentreff der Mess- und Automatisierungstechnik, 11. und 12. Juni 2015, Baden-Baden / VDI/VDE-Gesellschaft Mess- und Automatisierungstechnik*, Düsseldorf, 2015 in VDI-Berichte, VDI-Verl., pp. 325-339.

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[SKW+15]

[PDFBIB](#)

Stollenwerk, A., Kühn, J., Walter, M., Brendle, C., Wardeh, M. N., Roissant, R., Leonhardt, S., Kowalewski, S., and Kopp, R., "Software-based Prediction of Cannula Occlusion during Extracorporeal Blood Circulation through Networked Medical Data", in *Proc. SE-WS 2015, software engineering workshops 2015 : gemeinsamer Tagungsband der Workshops der Tagung Software Engineering 2015, Dresden, 17. - 18. März 2015 / hrsg. von Wolg Zimmermann ...*,

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Bibtex entry :

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[SLR+15]

[PDFBIB](#)

Stollenwerk, A., Leonhardt, S., Rossaint, R., and Kowalewski, S., "Advancing Intensive Care by Networked Medical Systems", in *Proc. [Proceedings of the 11th German-Russian-Conference on Biomedical Engineering, GRC, 17.06.2015-19.06.2015, Aachen, Germany]*, 2015, pp. 211-213.

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Bibtex entry :

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  title = { Advancing Intensive Care by Networked Medical Systems },
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[SKB+14]

[PDFBIB](#)

Stollenwerk, A., Kühn, J., Brendle, C., Walter, M., Arens, J., Wardeh, M. N., Kowalewski, S., and Kopp, R., "Model-based supervision of a blood pump", in *Proc. Proceedings of the 19th World Congress of the International Federation of Automatic Control, Cape Town, South Africa, 2014, 24-29 August 2014 : Promoting automatic control for the benefit of humankind*, Laxenburg, 2014 in IFAC-PapersOnLine, IFAC, pp. 6593-6598.

Model-based supervision of a blood pump**Bibtex entry :**

```
@inproceedings { SKB+14,
  author = { Stollenwerk, André and K{"u}hn, Jan and Brendle,
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[PMS+13]

[PDFBIB](#)

Pomprapa, A., Misgeld, B., Sorgato, V., Stollenwerk, A., Walter, M., and Leonhardt, S., "Robust Control of End-Tidal CO₂ using the H_∞ Loop-Shaping Approach", *Acta polytechnica = Journal of advanced engineering*, vol. 53, pp. 895-900, 2013

Robust Control of End-Tidal CO₂ using the H_∞ Loop-Shaping Approach

Bibtex entry :

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@article { PMS+13,
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http://publications.rwth-aachen.de/record/231825/files/231825.pdf },
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[Sto13]

[PDFBIB](#)

Stollenwerk, A., "Ein modellbasiertes Sicherheitskonzept für die extrakorporale Lungenunterstützung", PhD Thesis, Aachen, 2013.

Ein modellbasiertes Sicherheitskonzept für die extrakorporale Lungenunterstützung

Bibtex entry :

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@phdthesis { Sto13,
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[WBS+13]

[PDFBIB](#)

Walter, M., Brendle, C., Stollenwerk, A., Kopp, R., Arens, J., Bensberg, R., and Leonhardt, S., "Patient oriented closed loop control of extracorporeal lung assist", in *Proc. Journal of critical care*, New York, NY, 2013, vol. 28, Elsevier, p. e8-e9.

Patient oriented closed loop control of extracorporeal lung assist

Bibtex entry :

```
@inproceedings { WBS+13,
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[WSB+13]

PDFBIB

Walter, M., Stollenwerk, A., Bensberg, R., Kopp, R., and Leonhardt, S., "Smart ECLA—closed loop control of O2 and CO2 for management of extracorporeal lung assist", *Journal of critical care*, vol. 28, p. e41-e42, 2013

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Bibtex entry :

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@article { WSB+13,  
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[KRS12]

PDFBIB

Kowalewski, S., Rumpe, B., and Stollenwerk, A., "Cyber-Physical Systems - eine Herausforderung an die Automatisierungstechnik?", in *Proc. Automation 2012 : der 13. Branchentreff der Mess- und Automatisierungstechnik / VDI/VDE-Gesellschaft Mess- und Automatisierungstechnik ; Kongress 'Automation 2012' ; 13 (Baden-Baden) ; 2011.06.13-14 Branchentreff der Mess- und Automatisierungstechnik, Düsseldorf, 2012* in VDI-Berichte, VDI-Verl., pp. 113-116.

Cyber-Physical Systems - eine Herausforderung an die

Automatisierungstechnik?

Bibtex entry :

```
@inproceedings { KRS12,
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[WBB+12]

[PDFBIB](#)

Walter, M., Brendle, C., Bensberg, R., Kopp, R., Arens, J., Stollenwerk, A., and Leonhardt, S., "Closed loop physiological ECMO control", in *Proc. 5th European Conference of the International Federation for Medical and Biological Engineering : 14 - 18 September 2011, Budapest, Hungary ; [EMBEC] / Ákos Jobbágy (ed.)*, [Berlin], 2012 in IFMBE Proceedings, Springer, pp. 319-322.

Closed loop physiological ECMO control

Bibtex entry :

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@inproceedings { WBB+12,
  author = { Walter, Marian and Brendle, Christian and Bensberg, Ralf
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[WBS+12]

[PDFBIB](#)

Walter, M., Brendle, C., Stollenwerk, A., Kopp, R., Arens, J., Bensberg, R., and Leonhardt, S., "Patient oriented closed loop control of extracorporeal lung assist", in *Proc. 11th International Conference on Complexity in Acute Illness (ICCAI), Ottawa, Canada, September 6 - 9, 2012*, 2012, pp. 51-51.

Patient oriented closed loop control of extracorporeal lung assist

Bibtex entry :

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@inproceedings { WBS+12,
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[BBS+11]

PDFBIB

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Analyzing Embedded Systems Code for Mixed-Critical Systems Using Hybrid Memory Representations

Bibtex entry :

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@inproceedings { BBS+11,
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[BBS+11a]

PDFBIB

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Patientenorientierte Automatisierung der Therapie mit der Extrakorporalen Membranoxygenierung (ECMO)

Bibtex entry :

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@article { BBS+11a,
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[BBS+11b]

[PDFBIB](#)

Brendle, C., Bensberg, R., Stollenwerk, A., Arens, J., and Walter, M., "Patient Orientated Automation of the Therapy with the Extracorporeal Membrane Oxygenation (ECMO)", in *Proc. 45. Jahrestagung der Deutschen Gesellschaft für Biomedizinische Technik*, 2011, DGBMT.

Patient Orientated Automation of the Therapy with the Extracorporeal Membrane Oxygenation (ECMO)

Bibtex entry :

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[KBW+11]

[PDFBIB](#)

Kopp, R., Bensberg, R., Walter, M., Arens, J., Rossaint, R., and Stollenwerk, A., "Automation of extracorporeal membrane oxygenation using a combined safety and control concept", in *Proc.*

Intensive care medicine, Berlin [u.a.], 2011, vol. 37, Springer, pp. 230-230.

Automation of extracorporeal membrane oxygenation using a combined safety and control concept

Bibtex entry :

```
@inproceedings { KBW+11,  
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[KS11]

[PDF](#)[BIB](#)

Kowalewski, S. and Stollenwerk, A., "Supporting Evolving Requirements in CPS by Abstraction Layers in the Architecture", in *Proc. Workshop on Architectures for Cyber-Physical Systems*, Chicago, IL, USA, 2011.

Supporting Evolving Requirements in CPS by Abstraction Layers in the Architecture

Bibtex entry :

```
@conference { KS11,  
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[SGA+11]

[PDFBIB](#)

Stollenwerk, A., Gathmann, F., Arens, J., Bensberg, R., Walter, M., Kopp, R., and Kowalewski, S., "Safety Aware Pump-Control for a Rotary ECMO Blood Pump", in *Proc. The international journal of artificial organs*, Milano [u.a.], 2011, vol. 34, Wichtig, pp. 617-617.

Safety Aware Pump-Control for a Rotary ECMO Blood Pump

Bibtex entry :

```
@inproceedings { SGA+11,
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[SGB+11]

[PDFBIB](#)

Stollenwerk, A., Gathmann, F., Bensberg, R., Walter, M., Arens, J., Kopp, R., and Kowalewski, S., "A model-based safety concept for a rotary blood pump", *Biomedizinische Technik = Biomedical engineering*, vol. 56, iss. S1, 2011

A model-based safety concept for a rotary blood pump

Bibtex entry :

```
@article { SGB+11,
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[SGW+11]

[PDFBIB](#)

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Smart Data Provisioning for Model-Based Generated Code in an Intensive Care Application

Bibtex entry :

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@inproceedings { SGW+11,
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[WBA+11]

[PDF](#)BIB

Walter, M., Brendle, C., Arens, J., Stollenwerk, A., Kopp, R., Bensberg, R., and Leonhardt, S.,
"Physiological target control in long term extracorporeal oxygenation", in *Proc. The international
journal of artificial organs*, Milano [u.a.], 2011, vol. 34 in 2011, Wichtig, pp. 625-625.

Physiological target control in long term extracorporeal oxygenation

Bibtex entry :

```
@inproceedings { WBA+11,  
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[AdM+10]

[PDFBIB](#)

Arens, J., de Brouwer, P., Mager, I., Kopp, R., Walter, M., Stollenwerk, A., Schmitz-Rode, T., and Steinseifer, U., "A dynamic study on the hemolytic effect of negative pressure on blood", in *Proc. ASAIO journal*, Hagerstown, Md., 2010, vol. 56, Lippincott, pp. 96-96.

A dynamic study on the hemolytic effect of negative pressure on blood

Bibtex entry :

```
@inproceedings { AdM+10,
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[SDK10]

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A Modular, Robust and Open Source Microcontroller

Platform

Bibtex entry :

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@inproceedings { SDK10,  
  author = { Stollenwerk, André and Derks, Andreas and Kowalewski,  
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WESE 2010 ; Scottsdale, AZ, USA, October 28th, 2010 / Eds.:  
Peter Marwedel ... },  
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[SJA+10]

[PDFBIB](#)

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Bibtex entry :

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@inproceedings { SJA+10,  
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[SJW+10]

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Modellbasierte Fehlerdiagnose eines Membranoxygenators

Bibtex entry :

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@article { SJW+10,
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[SLW+10]

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Magdeburg, 2010, ifak, pp. 65-74.

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Bibtex entry :

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@inproceedings { SLW+10,  
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11. Fachtagung mit Tutorium, 25. bis 27. Mai 2010 in  
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[WLK+10]

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@article { WLK+10,
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author = { Walter, Marian and Leonhardt, Steffen and Kopp,
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Bibtex entry :

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@article { WLK+10a,
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@article { KWA+09,  
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@inproceedings { LW+09,  
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@inproceedings { SJK09,  
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Bibtex entry :

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@article { SWW+09,
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[WLK+09]

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Bibtex entry :

```
@inproceedings { WLK+09,
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[WWS+09]

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Bibtex entry :

```
@inproceedings { WWS+09,
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[SSG+09]

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Automatic Calibration of a Scanner-Based Laser Welding System

Bibtex entry :

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@article { SSG+09,  
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[SSG+07]

[PDFBIB](#)

Stache, N. C., Stollenwerk, A., Gedicke, J., Olowinsky, A., Knepper, A., and Aach, T., "Automatic Calibration of a Scanner-Based Laser Welding System", in *Proc. International Congress on the Applications of Lasers and Electro-Optics (ICALEO)*, Orlando, Florida, USA, 2007, Laser Institute of America, pp. 223-229, best paper award.

Automatic Calibration of a Scanner-Based Laser Welding System

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@inproceedings { SSG+07,  
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