Tobias CIBIS

PhD(c) | Research Scientist | Mathematical and Computational Physiology for Health and Life Sciences | Joint Research Centre in AI for Health and Wellness

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702-730 Harris Street, 2007 Ultimo, Sydney, NSW, Australia
Date of Birth : 18 October 1991, Birth Place : Stuttgart, Germany

Education

2020 - to date	**Doctor of Philosophy**, Computer Science, Data Analytics at the **Joint Research Centre in AI for Health and Wellness, University of Technology Sydney and Ontario Tech University**
2011-2019	**Bachelor of Science**, Electrical Engineering and Information Technology, Major Biomedical Engineering, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany
2002 - 2011	Immanuel-Kant-Gynamsium (High School), Leinfelden-Echterdingen, Germany
1998 - 2002	Elementary School, Steinenbronn, Germany

Further Education

2016	Certification for Successful Completion of Diving and Hyperbaric Medicine Introductory Course, Prince of Wales Hospital, NSW, Sydney, Australia, **The Australia And New Zealand Hyperbaric Medicine Group**
2012	Certified Rescue Snorkelling Diver, **German Lifeguard Organisation (DLRG)**
2009	Certified Professional Technical Lifeguard and Certified Professional Support for Rescue Divers, **German Lifeguard Organisation (DLRG)**
2008	Certified Paramedic (San A / B / C civil protection / C+ water rescue, diving medicine, **German Lifeguard Organisation (DLRG)**
2005	German Lifeguard Badge (DRSA-Silver) **German Lifeguard Organisation (DLRG)**
2004	Swimming Instructor for Elementary and Rescue Swimming **German Lifeguard Organisation (DLRG)**

Professional Working Experience

To Date – August 2021 | Casual Academic | Teaching Assistant, at University of Technology Sydney, Sydney

- *Fundamentals in Data Analytics* course design and maintenance
- In-person and online teaching
- Redevelopment of course curriculum

Data Analytics | Data Science | Machine Learning | Teaching | Tutoring

January 2020 – October 2016 | Research Scientist | Student Research Scientist, Fraunhofer Institute for Integrated Circuits (IIS), Germany

- Research and design of hardware and software specific biomedical monitoring technology
- Scientific work to implement and perform large scale subject studies to test and evaluate wearable biomedical monitoring technologies
- Research communication through protocols and academic publications

Circuit Design | Signal Processing | Data Analytics | Subject Studies | Research Communication

July 2017 – October 2016 | Casual Academic | Research & Teaching Assistant, Machine Learning and Data Analytics Lab, Friedrich-Alexander Universität, Germany

- Biomedical signal processing and human computer interaction research
- Teaching and lecture preparation for *Biomedical signal processing* and *Human computer interaction* courses
- Reseach communication through academic publications

Signal Processing | Data Analytics | Human Computer Interaction | Teaching | Tutoring

September 2011 – September 2009 | Lifeguard and Sauna Master, FILDORADO GmbH, Adventure Waterpark and Spa , Germany

- Lifeguard at swimming pools
- Sauna infusions
- Customer service

March 2010 – March 2009 | Mathematics Tutor, Immanuel-Kant-Gynamsium (High-School), Germany

- Tutoring of students in years 6 to 7 in mathematics

Mathematics | Teaching | Tutoring

Professional Volunteering Experience

December 2021 – July 2019 | **Steering Committee Member| Voting and Steering Committee Member, IEEE EMB Standards Committee, US**

- Support and steering of working groups
- Voting about establishing technical standards

Scientific Standards | Technical Standards | Voting | Steering

December 2021 – July 2018 | **Editor-In-Chief | Editor for IEEE Life Sciences Newsletter, IEEE Life Sciences Technical Committee, US**

- Design and implementation of research newsletter
- Conception of issue's content and theme; communication
- Review of contributor's content
- Coordination of the editorial team

Scientific Publication Editing | Team Management | Scientific Communication | Peer Review | Research Communication

December 2021 – January 2018 | **Technical Member| Steering and Technical Committee Member, IEEE Life Sciences Technical Committee, US**

- Committee tasks
- Organization of IEEE Life Science International Conferences

Organisation | Steering | Communication

September 2011 – October 2004 | **Lifeguard and Swimming Instructor, German Life Saving Organisation (DLRG), Germany**

- Education of elementary swimming techniques and rescue swimming techniques
- Lifeguard activities at local swimming pools and open water spaces

Projects

Research Communication
2017 - To Date

Research Communication

Chair and Co-Chair for research communication in "Engineering and Medicine in Extreme Environments" at Minis-Symposia and Special Sessions hosted at the EMBS Conferences.

Extreme Environments | Technology | Computational Simulation | Diving Medicine | Monitoring Technology | Wearables | Research Communication

Underwater Electrocardiogram
2016 - 2018

Research Publication

Research conception and development of a novel ECG technology for underwater application in cooperation between the Fraunhofer Institute for Integrated Circuits (IIS) and the Friedrich-Alexander University Erlangen-Nürnberg. My involvement included the conception, hardware and software design, study performance and result evaluation.

Hardware Design | Monitoring Technology | Wearables | Software Design | Diving Medicine | Data Analytics | Research Communication

Diving Medicine and Technology
2015 - 2016

Literature Review Publication

Research project conducting a critical review on diving medicine and related biomedical monitoring technology. The University of Sydney and Prince of Wales Hospital, Randwick, Sydney.

Diving Medicine | Monitoring Technology | Wearables | Research Communication

HBOEvidence Mobile APP
2015 - 2016

http://hboevidence.wikis.unsw.edu.au/

Development and implementation of an Android & iOS mobile library APP, containing critical appraisals of scientific literature.

Java | Swift | Python | Scientific Literature | Editing

Bachelor Thesis Project
2015 - 2016

Thesis Publication

Thesis title : "IMU-based determination and analysis of biomechanical parameters in scuba diving". Development of automated detection of biomechanical parameters in scuba divers.

Matlab | Subject Studies | Research Communication

Awards, Scholarships and Research Grants

2023 **HDR Research Excellence Award 2023**, University of Technology, Faculty of Engineering and IT (Runner-Up)
2023 **$2.500,00 AUD Fellowship Grant** from the Australasian Underwater Safety Foundation, for the participation at the South Pacific Underwater Medicine Society's Annual Scientific Meeting 2023, Cairns
2022 **$30.000,00 AUD Research Grant** from the Australasian Underwater Safety Foundation, for the development and implementation of Biomedical Underwater Data Acquisition in a Controllable Environment
2022 **$10.000,00 USD Research Grant** from the Academy of Underwater Arts and Science, for the development and performance of physiological data collection in a controllable underwater environment for the evaluation of a mathematical physiology model
2020 Collaborative Research Degree Program Scholarship, University of Technology Sydney
2020 Faculty of Engineering and Information Technology Scholarship, University of Technology Sydney
2019 **$18.000,00 USD Research Grant** from IEEE Lifesciences Technical Committee for the implementation of the Mini-Symposium "Engineering and Medicine in Extreme Environments" and the Invited-Session "Veterinary Medicine Engineering" at the IEEE EMBC 2019, Berlin, Germany
2018 **$10.000,00 USD Research Grant** from IEEE Lifesciences Technical Committee for the implementation of a workshop on "Engineering and Medicine in Extreme Environments" at the IEEE EMBC 2018, Honolulu, Hawaii, USA
2017 IEEE Life Sciences Appreciation Award, for Tutorial on *Engineering and Medicine in Scuba Diving*, IEEE Life Sciences Conference, 2017, Sydney

Publications

Journal Articles

1. Cibis, Tobias, et al. "Diving into research of biomedical engineering in scuba diving." IEEE reviews in biomedical engineering 10 (2017) : 323-333.
2. Schuster, A., Castagna, O., Schmid, B., Cibis, T., & Sieber, A. (2017). Underwater monitoring system for body temperature and ECG recordings. Underwater Technology, 34(3), 135-139.
3. Gradl, S., Cibis, Tobias, et al. (2017). "Wearable current-based ecg monitoring system with non-insulated electrodes for underwater application". Applied Sciences, 7(12), 1277

Books

1. T. Cibis and C. McGregor (2022) Engineering and Medicine in Extreme Environment. Springer Nature, New York.

Book Chapters

1. **T. Cibis** and C. McGregor. The physiological and psychological environments in humans. In T. Cibis and C. McGregor (Eds.), Engineering and Medicine in Extreme Environments, Chapter 1. Springer Nature, New York, 2022.
2. C. McGregor and **T. Cibis**. Frameworks and Platforms for Extreme Environments Adaptation and Resilience Monitoring. In T. Cibis and C. McGregor (Eds), Engineering and Medicine in Extreme Environments, Chapter 2. Springer Nature, New York, 2022.
3. M. Bennett and **T. Cibis**. The Underwater World and Diving Medicine. In T. Cibis and C. McGregor (Eds), Engineering and Medicine in Extreme Environments, Chapter 2. Springer Nature, New York, 2022.
4. **T. Cibis**. Decompression Modelling and Algorithm. In T. Cibis and C. McGregor (Eds), Engineering and Medicine in Extreme Environments. Springer Nature, New York, 2022.
5. **T. Cibis**, S. Gradl, A. McEwan. Biomedical Monitoring in Underwater Environments. In T. Cibis and C. McGregor (Eds) Engineering and Medicine in Extreme Environments. Springer Nature, New York, 2022.
6. D. Poimann and H. Eckhardt and **T. Cibis** and M. Wirth. The Extreme Environments of Elite Sports. In T. Cibis and C. McGregor (Eds), Engineering and Medicine in Extreme Environments. Springer Nature, New York, 2022.
7. **T. Cibis**, E. Boire , N. Bressan. Designing Immersive Environments for Extreme Environments (2023) In An Introduction to Veterinary Medicine Engineering. Springer Nature, New York, 2023.

Conference Publications

1. Cibis, Tobias, et al. "Biomedical underwater engineering – motivation and approaches", IEEE EMBC Berlin 2019, Conference Proceedings, 2019.
2. McEwan, Alistair and Cibis, Tobias "Biologically inspired physiological monitoring", IEEE EMBC Berlin 2019, Conference Proceedings, 2019.
3. Cibis, Tobias, et al. "Identification of electrical impedance tomography as simulation system emulating the electroreceptive system in aquatic animals." 2017 IEEE Life Sciences Conference (LSC). IEEE, 2017.
4. Cibis, Tobias, et al. "Wearable real-time ECG monitoring with emergency alert system for scuba diving", EMBC Conference, Milano, 2015.
5. Benjamin H. Groh, Tobias Cibis, Ralph O. Schill, Bjoern M. Eskofier : "IMU-based pose determination of scuba divers' bodies and shanks", BSN Conference, Boston, 2015.