SEBASTIAN SCHNEIDER

PERSONAL INFORMATION

Born in Germany, 20 November 1986

email
sebschne@techfak.uni-bielefeld.de

website
https://aiweb.techfak.uni-bielefeld.de/user/sebschne
https://pub.uni-bielefeld.de/person/28264830

EDUCATION

Oct. 2011–Jan. 2019
Bielefeld University

Dr.-Ing. in Intelligent Systems

Grade: magna cum laude · *Human-Robot Interaction, Socially Assistive Robots, User Experience, Motivational Psychology, Personalization and Adaptation*
Thesis: *Socially Assistive Robots for Exercising Scenarios*
Description: This thesis investigated social robots as exercising partners and evaluated different factors that can influence a user's motivation. The results show a replication of the Köhler effect, presenting evidence that working out co-actively with a robot companion increases exercising motivation. Furthermore, encouraging feedback and embodiment of the system also result in higher exercising persistence. Additionally, the thesis explored ways to personalize the interaction experience based on Dueling Bandit Preference learning, which showed that people prefer an autonomous adaptive robot compared to an adjustable robot.
Reviewer: Prof. Franz Kummert & Prof. Elisabeth André

Oct. 2009–Sep. 2011
Bielefeld University

M.Sc. in Intelligent Systems

Grade: 1.1 · *Speech Recognition, Probabilistic Models and Machine Learning, Human-Machine Interaction, Data Mining, Computer Vision, Robotics, Dialogue Systems, Cognitive- and Neuroscience*
Abroad Studies: *University of Helsinki, Aalto University*
Thesis: *Exploring Social Feedback in Human-Robot Interaction During Cognitive Stress*
Abstract: Socially assistive robots assist people with their mere presence. Those systems are suitable for tutoring or coaching scenarios. Though, those scenarios can be stressful for the learners. In this thesis, I explored the effects of robots assisting people during stressful cognitive tasks. I developed an assistive robot that provides feedback for the user. Different feedback strategies showed an increase of user's success rate also under cognitive stress if the robot is giving behavioral feedback to the user.
Reviewer: Dr. Sebastian Wrede & Ingmar Berger

Okt. 2006–Sep. 2009
Bielefeld University

B.Sc. in Bioinformatics and Genome Research

Grade: 2.0 · *Artificial Intelligence, Neural Networks and Learning, Pattern Recognition, Sequence Analysis, Phylogenetics, Molecular Biology, Databases.*
Thesis: *Integration of a Humanoid Robot Platform into a Service Oriented Architecture*
Abstract: Robots not only come in heterogeneous forms and functions, but are developed by various research labs and companies around the globe. To implement behaviors, each platform provides a customized API for programmers. However, this limits the reuse of programmed behaviors across platforms. Therefore, this thesis focused on behavior re-use for different robot platforms. I integrated a humanoid robot into a service-oriented architecture so

that the same behaviors, can be reused on a humanoid platform (i.e., Nao) and a mobile robot platform (i.e., Pioneer) in the context of a RoboCup@Home scenario.
Reviewer: Dr. Sebastian Wrede & Dr. Frederic Siepmann

work experience

Aug. 2017–present

Research associate, Applied Informatics, Bielefeld University

Applied Informatics

Development and teaching of a new study module on Social Robotics for the BSc Cognitive Computing MSc Intelligent Systems; analysis and publication of experimental results on exercising with adaptive robots; HRI studies on preference-based methods for robot skill learning; development of HRI studies on joint tasks with industrial robot arms; supervision of students on robotic, computer vision and machine learning projects

Nov. 2017–Feb. 2018

Visiting researcher, Asada and Nagai Lab, Osaka University

Osaka University

Presentation of research projects; identification of joint research projects on social signal learning in communication tasks using reinforcement learning; reimplementation of experiments on iCub.

Aug. 2014–Jul. 2017

Research scholar, Cognitive Interaction Technology - Center of Excellence, Bielefeld University

CITEC

Research on the motivational aspects of exercising with robot companions; development of a framework to build socially assistive scenarios; studies on group effects, feedback and embodiment on exercising motivation, implementation of adaptation strategies to personalize UX.

Aug. 2013–Jul. 2014

Research scholar, Applied Informatics, Bielefeld University

Applied Informatics

Teaching in the area of social robotics; analysis, publication and presentation of long-term HRI research data; identification of new research directions in the area of socially assistive robots.

Okt. 2011–Jul. 2013

Research associate, Cognition and Robotics Lab, Bielefeld University

Cognition and Robotics Lab

Development and implementation of long-term motivational interaction strategies for social robots in a longitudinal Human-Robot Interaction experiment conducted in conjunction with the German Aerospace Center, Cologne; Robot behavior generation, localization, maintenance, software integration, database management.

Nov. 2010

Research Intern, Softbank Robotics Europe, Paris

Softbank Robotics Europe

Implementation of noise reduction techniques for embedded speech recognition systems.

2008–2011

Student research associate, Applied Informatics, Bielefeld University

Applied Informatics

Various jobs in the area of API maintenance of mobile robots for

RoboCup@Home tasks; implementing Human-Robot Interaction experiments in museums guide scenarios.

COMPUTER SKILLS

Programming Languages — PYTHON, JAVA, C++, R

Tools — LaTeX, SCI-KIT/NUMPY, PANDAS, MIDDLEWARES (e.g., ROS, RSB, NAOQI), (NO)-SQL DATABASES, LINUX, GIT, SVN, CONTINUOUS INTEGRATION, OPENCV

ACADEMIC AND UNIVERSITY SERVICE

Reviewer — Interaction Studies, RO-MAN, HRI, HAI, Living Systems, ICDL-EpiRob, Behavioral Robotics, SMC, TCDS

Scientific Meetings

2018, 2019 · Workshop organization on Personal Robots for Exercising and *Coaching*, Intl. Conference on Human-Robot Interaction

University Administration

2015–present · Equal Opportunity Commission · CITEC Ethics group

Teaching

SoSe 2019 · Socially Assistive and Rehabilitation Robotis (S)
· Ethical Aspects of Intelligent Systems and Robots (S)
· Computational Affective Robot Feedback for Energy Saving in Smart Homes (Pj)
· CNNs on Salient Object Detection data set to Improve Strain Detection Accuracy (Pj)

WiSe 2018/19 · Social Robotics (L+E) · Social User Interface (S)

SoSe 2018 · Comparison of interactive optimization algorithms in conjunction with DMP based robot skill learning (Pj)

WiSe 2017/18 · Social Robotics (L+E)

WiSe 2016/17 · Applied Social Robotics (L+Pj)

WiSe 2015/16 · Applied Social Robotics (L+Pj)

SoSe 2015 · Social Robotics (S)

SoSe 2014 · Ethical/Social Aspects of Intelligent Systems (S)
· Social Robotics (S)
· A Classificaiton System for Rowing (Pj)

Supervision

M.Sc., Michael Görlich, Using abstract Movement-Patterns in a Robot-Guided Learning Scenario for Indoor Rowering

M.Sc., Lukas Ester, Human-Robot Object Handover under Visual Impairment

M.Sc., Florian Berner, Modeling speech-accompanying movements for humanoid robots with BML

B. Sc., Marvin, A personality-based User Model to Predict Exercising Preferences

B. Sc., Christopher Kreis, Predicting Exercising Fatigue and Exhaustiong based on Facial Action Units

B. Sc., Alexander Neumann, A Biological Inspired Architecture Design for Socially Evocative Robots

B. Sc., Georg Alberding, Classification of Exhaustion based on Facial Action Units

Funding

08.2014–08.2018, PhD Scholarship, CITEC Graduate School

11.2017–01.2018, Exchange Scholarship Bielefeld-Osaka, CODEFROR

OTHER INFORMATION

Further Education

2014–2016	·	Training in non-violent communication based on M. Rosenberg
2014–	·	Bielefeld Certificate for University Teaching
2017	·	3rd Summer School on Social Human-Robot Interaction
2012	·	12th Robotics School on Perceptual Robotics for Humanoids

Languages

Native	·	German
Advanced	·	English
Basic Phrases	·	French · Italian · Portuguese · Spanish · Japanese

REFERENCES

Prof. Dr.-Ing. Franz Kummert, franz@techfak.uni-bielefeld.de

Prof. Dr.-Ing. Britta Wrede, bwrede@techfak.uni-bielefeld.de

Prof. Dr.-Ing. Gerhard Sagerer, sagerer@techfak.uni-bielefeld.de

Prof. Carlos Andrés Cifuentes Garca, carlos.cifuentes@escuelaing.edu.co

Prof. Dr. Elisabeth André, andre@informatik.uni-augsburg.de

PUBLICATIONS

2019

S. Schneider and F. Kummert, "Adaptive versus adaptable robots: Effects on the perceived competence and relationship of personalized assistive technologies," in preparation, 2019

S. Schneider, *Socially assistive robots for exercising scenarios. studies on group effects, feedback, embodiment and adaption*. Bielefeld: Universität Bielefeld, 2019

2018

S. Schneider and F. Kummert, "Comparing the effects of social robots and virtual agents on exercising motivation," in *Social Robotics*, S. S. Ge, J.-J. Cabibihan, M. A. Salichs, *et al.*, Eds., Cham: Springer International Publishing, 2018, pp. 451–461, ISBN: 978-3-030-05204-1

S. Schneider, B. Wrede, C. Cifuentes, *et al.*, "Prec 2018: Personal robots for exercising and coaching," in *Companion of the 2018 ACM/IEEE International Conference on Human-Robot Interaction*, ser. HRI '18, Chicago, IL, USA: ACM, 2018, pp. 401–402, ISBN: 978-1-4503-5615-2. DOI: 10.1145/3173386.3173566. [Online]. Available: http://doi.acm.org/10.1145/3173386.3173566

2017

S. Schneider and F. Kummert, "Exploring Embodiment and Dueling Bandits for Preference Adaptation in Human-Robot Interaction," in *Proceedings of the 26th IEEE International Symposium on Robot and Human Interactive Communication*, Lisbon, 2017

S. Schneider and F. Kummert, "Does the User's Evaluation of a Socially Assistive Robot Change Based on Presence and Companionship Type?" In *Proceedings of the Companion of the 2017 ACM/IEEE International Conference on Human-Robot Interaction - HRI '17*, Association for Computing Machinery (ACM), 2017, ISBN: 9781450348850. DOI: 10.1145/3029798.3038418

2016

S. Schneider and F. Kummert, "Motivational Effects of Acknowledging

Feedback from a Socially Assistive Robot," in *Proceedings of the Eight International Conference on Social Robotics*, Kansas City: Springer, 2016

A. Kipp and S. Schneider, "Applied Social Robotics: Building Interactive Robots with LEGO Mindstorms," in *Robotics in Education*, M. Merdan, W. Lepuschitz, G. Koppensteiner, *et al.*, Eds. Vienna: Springer Nature, 2016, pp. 29–40, ISBN: 978-3-319-42974-8. DOI: 10.1007/978-3-319-42975-5_3

S. Schneider and F. Kummert, "Exercising with a Humanoid Companion is More Effective than Exercising Alone," in *Proceedings of the IEEE-RAS Conference on Humanoid Robots*, 2016

S. Schneider, M. Goerlich, and F. Kummert, "A framework for designing socially assistive robot interactions," *Cognitive Systems Research*, 2016, ISSN: 1389-0417. DOI: 10.1016/j.cogsys.2016.09.008

2015

S. Schneider, L. Süssenbach, I. Berger, *et al.*, "Long-Term Feedback Mechanisms for Robotic Assisted Indoor Cycling Training," in *Proceedings International Conference on Human-Agent Interaction*, ACM, 2015, p. 157, ISBN: 978-1-4503-3527-0

S. Schneider, M. Goerlich, and F. Kummert, "Reusable Motivational Instruction Patterns for Socially Assistive Robots," in *Workshop Towards Intelligent Social Robots: Current Advances in Cognitive Robotics*, Korea, 2015

2014

L. Süssenbach, N. Riether, S. Schneider, *et al.*, "A robot as fitness companion: towards an interactive action-based motivation model," in *The 23rd IEEE International Symposium on Robot and Human Interactive Communication*, Edinburgh, 2014, pp. 286–293

S. Schneider, N. Riether, I. Berger, *et al.*, "How Socially Assistive Robots Supporting on Cognitive Tasks Perform," in *Proceedings of the 50th Anniversary Convention of the AISB*, 2014

2012

I. Berger, A. Kipp, I. Lütkebohle, *et al.*, "Social Robots for Long-Term Space Missions," in *63rd International Astronautical Congress*, International Astronautical Federation, 2012

S. Schneider, I. Berger, N. Riether, *et al.*, "Effects of Different Robot Interaction Strategies During Cognitive Tasks," in *Social Robotics. 4th International Conference, ICSR 2012, Chengdu, China, October 29-31, 2012. Proceedings*, S. S. Ge, O. Khatib, J.-J. Cabibihan, *et al.*, Eds. Chengdu, China: Springer Science + Business Media, 2012, vol. 7621, pp. 496–505, ISBN: 978-3-642-34102-1. DOI: 10.1007/978-3-642-34103-8_50

May 31, 2019