PERSONAL INFORMATION

Dr.-Ing. Sebastian Schneider
Born in Germany, 20 November 1986

email
sebastian.schneider@th-koeln.de

EDUCATION

Oct. 2011– Jan. 2019
Bielefeld University

Dr.-Ing. in Intelligent Systems

Grade: magna cum laude · *Human-Robot Interaction, Social Robots, User Experience, Motivational and Sport Psychology, Personalization and Adaptation*
Thesis: *Socially Assistive Robots for Exercising Scenarios*
Description: To face global burdens for a healthy life style, social robots could be useful tools as exercising companions. This thesis evaluated different factors that could influence a user's motivation. I developed an embodied interactive, adaptive coaching systems, and found that a co-actively, exercising robot leads to higher exercising motivation. Furthermore, I found 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 based on their task proficiency. 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

Oct. 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.
Reviewer: Dr. SEBASTIAN WREDE & Dr. FREDERIC SIEPMANN

WORK EXPERIENCE

May 2021–
Postdoc, FACULTY OF PROCESS ENGINEERING, ENERGY AND MECHANICAL SYSTEMS, TH KÖLN

Cologne Cobots Lab

Project lead for the BMBF-funded project *SKILLLED*. Development of a socio-empathic multi-turn conversational AI for HRI in public spaces (e.g., museums, train stations, airports, shopping malls). Supervision of Ph.D. students in the area of healthcare, service and automation robotics.

Apr. 2020– Apr. 2021
Postdoc, FACULTY OF SOCIOLOGY, BIELEFELD UNIVERSITY

ERC Predict

Text mining and NLP for semantic analysis of the rise of precision medicine over the past two decades. Automated analysis of archives of biomedical journals, analysis of the technical features of probabilistic and algorithmic techniques in the field of Precision Medicine, analysis of the computational aspects.

Oct. 2019–Mar. 2020
Specially appointed researcher, HRI LABORATORY, KYOTO UNIVERSITY

HRI Lab

Development of interaction strategies to improve mobile social robot's persuasiveness to comply rules in public spaces. Research on the peoples' perception of robot's authority and morality in admonishing scenarios based on Cognitive Dissonance Theory. Implementation on behavior strategies for robots that reduce cognitive dissonance and modify people's perception of moral agency of robots.

Nov. 2017–Jan. 2018
Visiting researcher, Asada and Nagai Lab, OSAKA UNIVERSITY/CENTER FOR INFORMATION AND NEURAL NETWORKS

Emergent Robotics Laboratory

Developmental psychology-inspired reinforcement learning of social signals for cooperative HRI; Implementation and transmission of HRI experiments on various robotic platforms (i.e.,iCub, Nao and Flobi).

Aug. 2017–Sep. 2019
Research associate, APPLIED INFORMATICS, BIELEFELD UNIVERSITY

Applied Informatics

Development and teaching of a new study module on SOCIAL ROBOTICS for the BSc COGNITIVE COMPUTING and 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 and Human-Robot Handover; supervision of students on robotic, computer vision and machine learning projects

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 an assistive framework to build socially assistive scenarios; studies on group effects, feedback generation and embodiment on exercising motivation; implementation of predictive 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.

Oct. 2011–Jul. 2013

Research associate, COGNITION AND ROBOTICS LAB, BIELEFELD UNIVERSITY

Cognition and Robotics Lab

Research and development of computational long-term motivational interaction strategies for socially assistive robots. Condution of longitudinal Human-Robot Interaction experiments 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

Research on noise reduction techniques for embedded speech recognition systems.

Oct. 2008–Sep. 2011

Student research associate, APPLIED INFORMATICS, BIELEFELD UNIVERSITY

Applied Informatics

API development for mobile service robots for RoboCup@Home tasks; Implementation of Human-Robot Interaction scenarios for in-the-wild experiments in museums; Development motion and speech synchronization for humanoid robots

COMPUTER AND SOFTWARE SKILLS

Programming Languages

PYTHON, JAVA, C++, R

Tools/Frameworks

LATEX, SCI-KIT/NUMPY, PANDAS, SEABORN, MIDDLEWARES (e.g., ROS, RSB, NaoQI), (NO)-SQL DATABASES, Linux, GIT, SVN, CONTINUOUS INTEGRATION, OPENCV, TENSORFLOW

ACADEMIC AND UNIVERSITY SERVICE

Area/Session Chair

ACM/IEEE International Conference on Human-Robot Interaction 2021

Reviewer

Interaction Studies
Paladyn, Journal of Behavioral Robotics
International Conference/Journal on Social Robotics
Living Machines Conference
IEEE Transactions on Cognitive and Developmental Systems
ACM/IEEE International Conference on Human-Robot Interaction
ACM/IEEE International Conference on Human-Agent Interaction
ACM Transactions on Human-Robot Interaction
IEEE International Conference on Development and Learning
IEEE International Conference on Robot & Human Interactive Communication
IEEE International Conference on Systems, Man, and Cybernetics
IEEE Robotics and Automation Letters
IEEE International Conference on Intelligent Robots and Systems

Workshop Organization

2018, 2019 · *Personal Robots for Exercising and Coaching*
2022 · *Human-Robot Interaction in Public Spaces* in conjunction with ACM/IEEE Intl. Conference on Human-Robot Interaction

University Organization	2015–2019 · Equal Opportunity Commission of Faculty of Technology · CITEC Ethics group (both at Bielefeld University)

Teaching   Seminar (S) · Projects (Pj) · Lecture (L) · Exercises (E)

2021 · Human-Machine Interaction (L)

2019 · Socially Assistive and Rehabilitation Robotis (S)

· Ethical/Social 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)

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

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

2017 · Social Robotics (L+E)

2016 · Applied Social Robotics (L+Pj)

2015 · Applied Social Robotics (L+Pj)

· Social Robotics (S)

2014 · Ethical/Social Aspects of Intelligent Systems and Robots (S)

· Social Robotics (S)

· A Classification 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

B. Sc., Kira Sophie Lose, A Chat Bot for Mental Health Applications

Funding   Oct. 2019–Feb. 2020, Postdoctorial Research Funding, Japanese Science and Technology Agency

Aug. 2014–Jul. 2018, PhD Scholarship, CITEC Graduate School, Bielefeld University

Nov. 2017–Jan. 2018, Exchange Scholarship Bielefeld-Osaka, CODEFROR

Jan. 2010–Jun. 2010, Erasmus Scholarship

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

In preparation/revision

S. Schneider, Y. Liu, and T. Kanda, "Stop ignoring me! on fighting the trivialization of social robots in public spaces," *ACM Transactions on Human-Robot Interaction*, accepted

L. Hindemith, O. Vsesviatska, S. Schneider, *et al.*, "Interactive robot task learning: Human teaching proficiency with different feedback approaches," *IEEE Tansactions on Cognitive and Developmental System*, submitted

C. Kreis, A. Aguirre, M. Munera, *et al.*, "Predicting perceived exhaustion in rehabilitation exercises using facial action units," *Sensors*, in preparation

2021

S. Schneider, "Soziale roboter im öffentlichen raum," in *Soziale Roboter*, O. Bendel, Ed. Springer International Publishing, 2021, wird erscheinen

D. J. Rea, S. Schneider, and T. Kanda, ""is this all you can do? harder!": The effects of (im)polite robot encouragement on exercise effort," in *Proceedings of the 2021 ACM/IEEE International Conference on Human-Robot Interaction*. New York, NY, USA: Association for Computing Machinery, 2021, 225fffdfffdfffd233, ISBN: 9781450382892. [Online]. Available: https://doi.org/10.1145/3434073.3444660

L. Langholf, D. Battefeld, K. Henning, *et al.*, "Testing the elaboration likelihood model of persuasion on the acceptance of health regulations in a video human-robot interaction study," in *Companion of the 2021 ACM/IEEE International Conference on Human-Robot Interaction*, ser. HRI '21 Companion, Boulder, CO, USA: Association for Computing Machinery, 2021, 121fffdfffdfffd125, ISBN: 9781450382908. DOI: 10.1145/3434074.3447142. [Online]. Available: https://doi.org/10.1145/3434074.3447142

2020

S. Schneider and F. Kummert, "Comparing robot and human guided personalization: Adaptive exercise robots are perceived as more competent and trustworthy," *International Journal of Social Robotics*, pp. 1–17, 2020. DOI: https://doi.org/10.1007/s12369-020-00629-w

2019

S. Schneider, *Socially assistive robots for exercising scenarios. studies on group effects, feedback, embodiment and adaption*. Bielefeld: Universität Bielefeld, 2019. DOI: 10.4119/unibi/2934006

S. Schneider, C. A. Cifuentes, M. Munera, *et al.*, "Prec 2019: Personal robots for exercising and coaching," *Hri '19: 2019 14Th Acm/Ieee International Conference On*

Human-Robot Interaction, ACM IEEE International Conference on Human-Robot Interaction, pp. 679–680, 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. DOI: 10.1007/978-3-030-05204-1_44

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

2017   S. Schneider and F. Kummert, "Exploring embodiment and dueling bandit learning for preference adaptation in human-robot interaction," in *2017 26th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN)*, Aug. 2017, pp. 1325–1331. DOI: 10.1109/ROMAN.2017.8172476

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 *Social Robotics*, A. Agah, J.-J. Cabibihan, A. M. Howard, *et al.*, Eds., Cham: Springer International Publishing, 2016, pp. 870–879, ISBN: 978-3-319-47437-3. DOI: 10.1007/978-3-319-47437-3_85

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 *2016 IEEE-RAS 16th International Conference on Humanoid Robots (Humanoids)*, Nov. 2016, pp. 495–501. DOI: 10.1109/HUMANOIDS.2016.7803321

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 of the 3rd International Conference on Human-Agent Interaction*, ser. HAI fffdfffdfffd15, Daegu, Kyungpook, Republic of Korea: Association for Computing Machinery, 2015, 157fffdfffdfffdfffdfffd164, ISBN: 9781450335270. DOI: 10.1145/2814940.2814962. [Online]. Available: https://doi.org/10.1145/2814940.2814962

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. Sfffdfffdssenbach, 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*, Aug. 2014, pp. 286–293. DOI: 10.1109/ROMAN.2014.6926267

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

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