Tobias Röddiger

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Experience

Karlsruhe Institute of Technology, Ph.D. Candidate (Earable Computing)　　　　*Karlsruhe, GER*
- leading a research team of one full-time junior researcher and six student research assistants　　*Oct. '19 - now*
- successfully realized three machine learning projects with two global market-leading German companies
- participated "Software Campus" which trains doctoral candidates management and leadership skills
- published 12 papers at world-class conferences (2 best paper awards, see Papers) and filed 3 patents (see Patents)
- supervised 10 final thesis projects and gave a lecture to 80+ students on mobile web development

coronazaehler.de, Founder and Lead Programmer　　　　*Karlsruhe, GER*
- lead a team of three to build and scale website to thousands of concurrent users within one week　　*Mar. '20 - now*
- first website in Germany to automatically scrape and aggregate COVID-19 cases from news outlets
  and official sources with 5 million unique visitors and over 70 million sessions by June 2020

Microsoft, Software Engineer Intern　　　　*Prague, CZ*
- gathered cross-team requirements and built a telemetry library used by services across Skype　　*Oct. - Dec. '16*
- contributed to a new auth-token service and took responsibility for getting the service into production

encourage-now.com, Co-Founder　　　　*Karlsruhe, GER*
- took responsibility for developing the enCourage cross-platform emergency app (5.000+ downloads)　*Oct. '14 - Oct. '17*
- gained hands-on experience in the areas of project and product management as well as marketing
- interviews with major German news outlets (Die Welt, WiWo, Süddeutsche, Pro7, RTL II, SWR3, etc.)

Education

Karlsruhe Institute of Technology, M.Sc. Informatics　　　　*Karlsruhe, GER*
- special interest in HCI, medical informatics, design thinking and machine learning　　*Oct. '17 - Oct. '19*
- best master thesis award 2020　"Exploring the Wearability and Design of a Fully-Integrated Sleep Tracker"

SUGAR-network.org (Stanford University Global Alliance for Redesign)　　　*Multiple Locations*
Design thinking project with BASF and workshops at Stanford University.　　*Sep. '17 - Jun. '18*
- developed augmented reality app for smartphones which resulted in a meeting with the BASF CEO
- developed human-centric autonomous mobility concept for the BASF campus in Ludwigshafen (10 sq km)
- HPC cluster application with 200 nodes which reduced concept video rendering from 30 days to 30 minutes

Lancaster University, Interactive Systems, Visiting Bachelor Thesis Student　　　*Lancaster, UK*
- developed novel notification user interaction technique based on gaze (optokinetic response)　　*Apr. '17 - Sep. '17*

Karlsruhe Institute of Technology, B.Sc. Informatics　　　　*Karlsruhe, GER*
- special interest in ubiquitous and mobile computing, software design, and finance　　*Oct. '13 - Oct. '17*

Hector Seminar, part-time student　　　　*Mannheim, GER*
By Hans-Werner Hector (Co-Founder SAP) to support gifted students with weekly advanced lessons　*Oct. '06 - Feb. '13*
- project at age 16 with University of Mannheim "Artificial intelligence for the board game Cluedo"

Others

Soft Skills: work in fast-paced environments and quickly grasp new concepts / technologies (30+ hackathons); excellent team player with the ability to lead the individuals in a group to joint success; ability to form strong relationships with others that last
Programming: hands-on project experience in C#, JavaScript, HTML, CSS, Python, Java and C
Frameworks: sklearn, Jupyter Notebooks, node.js, Xamarin, Bootstrap
Open-Source: edge-ml.org end-to-end ML (founder and project lead); gaze plotting GazePointHeatMap (63 ★ GitHub)
Languages: English (fluent), German (native), French (basic)

Awards

- participated in over 30 hackathons around the globe and won 16 awards *(detailed list is on my LinkedIn)*
- Microsoft Imagine Cup overall winner Germany '15 and world finalist at the Microsoft HQ with Satya Nadella (CEO)
- invited student at Xamarin Evolve '16 with Nat Friedman (now GitHub CEO), Xamarin Student Partner from '16 to '17
- SICK best master thesis at KIT 2020 ("Exploring the Wearability and Design of a Fully-Integrated Sleep Tracker")

Patents

Hearables / Embedded Machine Learning *(confidential)*   2021 (pending)
Tobias Röddiger, Michael Beigl, *confidential*

Discreet Hands- and Eyes-Free Input by Voluntary Tensor Tympani Muscle Contraction   2021 (pending)
Tobias Röddiger, Christopher Clarke, Michael Beigl

Sensor system, evaluation device, method and computer program product for recording a subject's sleeping behavior   2018 (pending)
Tobias Röddiger, Matthias Budde, Marcel Köpke, Michael Beigl

Publications

EarRumble: Discreet Hands-and Eyes-Free Input by Voluntary Tensor Tympani Muscle Contraction
Tobias Röddiger et al., Proceedings of the CHI Conference on Human Factors in Computing Systems 2021.

Best paper award: **Towards Respiration Rate Monitoring Using an In-Ear Headphone Inertial Measurement Unit**
Tobias Röddiger et al., Proceedings of the 1st International Workshop on Earable Computing 2019.

Detecting Episodes of Increased Cough Using Kinetic Earables.
Tobias Röddiger et al., Proceedings of the ACM Augmented Humans International Conference 2021.

Design Space and Usability of Earable Prototyping
Tobias Röddiger et al., Proceedings of the International Symposium on Wearable Computers 2020.

Comfort and Wearability of Earables during Sleep
Tobias Röddiger et al., Proceedings of the International Symposium on Wearable Computers 2021.

Cardiopulmonary Resuscitation Support: Comparison of Wrist-, Chest-, & Ear-Worn Devices and Estimation Algorithms
S. Herrmann; P. Breitling, *Tobias Röddiger* et al., Proceedings of the International Symposium on Wearable Computers 2021

AirCase: Earable Charging Case with Air Quality Monitoring and Soundscape Sonification
H. Zhao, *Tobias Röddiger* et al., Proceedings of the 2nd International Workshop on Earable Computing 2021.

ARMart: AR-Based Shopping Assistant to Choose and Find Store Items
Tobias Röddiger et al., Adjunct Proceedings of ACM Ubicomp 2018.

VOCNEA: Sleep Apnea and Hypopnea Detection Using a Novel Tiny Gas Sensor
Tobias Röddiger et al., Proceedings of the ACM International Symposium on Wearable Computers 2018.

PDMSkin: On-Skin Gestures with Printable Ultra-Stretchable Soft Electronic Second Skin.
Tobias Röddiger et al., Proceedings of the ACM Augmented Humans International Conference 2020.

Responsible, Automated Data Gathering for Timely Citizen Dashboard Provision During a Global Pandemic (COVID-19)
Tobias Röddiger et al., Digital Government: Research and Practice 2.1 (2020).

Best paper award: **3D-Printable Soft Actuators for Wearable Computing *(best paper award)***
L. Fang; *Tobias Röddiger* et al., Proceedings of the International Symposium on Wearable Computers 2020.