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To whom it may concern

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Job Reference for Dr. Simon Butscher

As a full professor of Computer Science, head of the Human-Computer Interaction Group, and former dean of the Department of Computer and Information Science at the University of Konstanz, I possess over 20 years of professional experience in international research-oriented environments. Over the years, I have employed 17 research assistants who received their Ph.D. under my supervision, and four of them moved on to become professors at universities. Given that experience, it is with pride and without any reservation that I recommend Simon Butscher to your organization.

Simon Butscher, born on 05.01.1986, has been working as a graduate teaching and research associate in the Human-Computer Interaction group at the University of Konstanz since May 2012. In 2014 Mr. Butscher began his doctoral studies in the Department of Computer and Information Sciences and completed them in September 2018. Since then Mr. Butscher has continued working as a post-doctoral researcher. The field of activity of Simon Butscher has included:

- the work as a user experience researcher, user experience designer and data scientist in research and industrial projects,
- the planning, organization, and execution of semester courses as well as the mentoring of students in obtaining their academic degree,
- the administration of the IT infrastructure of the Human-Computer Interaction group.

Projects

Simon Butscher contributed to five projects. He presented the results of these projects in the context of public relations work and top scientific conferences in the field of Human-Computer Interaction (e.g., ACM Conferences like CHI, ISS, AVI, Ubicomp).

The project "SmartAct" is an interdisciplinary project, which aims at improving people's health behavior (dietary habits and physical activity) using mobile technology (smartphones, smart watches, activity trackers). Our subproject "SmartMobility" is responsible for the requirements analysis, the design, and the development a toolbox for mobile applications. The toolbox provides the means for a rapid and convenient assembly of applications that are used by the project partners (nutritional psychologists, work psychologists, sports scientists) to study the various aspects of people's health behavior such as their eating motives, emotional states, and physical condition. Since 2015, Simon Butscher has provided significant contributions to that project in the following areas:

- Acquiring UX and technical requirements within workshops and focus groups.

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- Transformation of requirements into UI and interaction concepts following an agile, user-centered design process, which included the generation of flow diagrams, sketches, and high-fidelity prototypes (Sketch, InVision, Axure).
- Design of the software architecture and implementation of a modular toolbox for mobile client-server applications and usage of the toolbox for the creation of six mobile applications which allowed for studying people's health behavior (Android/Java, SQLite, MS SQL Server).
- Design and implementation of a machine learning component based on convolutional neural networks used to perform automatic food classification on meal pictures (Python, scikit-learn, TensorFlow).
- Data consolidation, pre-processing, and analysis of big data collections about users' health behavior (SQL, Excel, KNIME, Tableau).
- Project management in terms of resource planning, staff responsibility for student workers, and coordination with project partners and suppliers.

The "Libros" project aimed at improving the search experience of public library visitors using interactive public display installations. Between 2013 and 2015 Simon Butscher provided a significant contribution to the user experience research and design as well as the implementation of two search systems which were built into the Cologne Municipal Library. His main activities within the project were:

- User research and acquiring technical and business requirements based on the contextual inquiry method (workshops, focus groups, interviews, observations).
- Transformation of requirements into UI and interaction concepts following an agile, user-centered design process. This included the generation of deliverables like architectural drafts (3ds Max), wireframes (Visio, Illustrator), high-fidelity prototypes (Photoshop, Axure), and design specifications.
- Implementation of touch and tangible user interfaces for two media search systems (WPF/C#).
- Design and implementation of Artificial Intelligence components based on natural language processing (sentiment analysis, named entity recognition, relationship extraction) that are used to identify media items in the library collection that are related to current events found in online data sources like news articles or Twitter feeds (C#, Python).
- Planning and execution of formative and summative in-situ evaluations of the developed concepts using qualitative and quantitative data gathering methods and statistical and qualitative content analysis (Excel, SPSS).
- Project management in terms of resource planning, staff responsibility for student workers, coordination with project partners and suppliers, and the external representation of the project.

The project "Blended Library" aimed at the design of new concepts for supporting research and knowledge work processes in physical libraries with the help of information technology and modern visualizations. Between 2012 and 2013, Simon Butscher contributed to that project in the following areas:

- Design and implementation of a multi-user media search system for multi-touch displays (WPF/C#).
- Planning and execution of usability tests and lab experiments and statistical analysis of the study data (Excel, SPSS).

The project "Holistic Workspace" investigated the design space of control rooms and how novel interaction technologies can assist control room operators. The project was conducted in cooperation with Siemens AG, Munich. Between 2012 and 2013, Simon Butscher contributed to that project in the following areas:

- UI/UX design (Visio, Illustrator, Photoshop) and implementation (WPF/C#) of study prototypes for the monitoring of road networks on touch-enabled, multi-display environments in traffic control rooms.

- Planning and execution of usability tests in the lab and intraffic control rooms using quantitative and qualitative research and performing a statistical and qualitative content analysis of the study data (Excel, SPSS).

The project "Reality-based Idioms" represents Simon Butscher's dissertation project which he launched in 2014 and finished in 2018. In this project, he studied how interfaces for immersive technologies can be designed to reduce the interaction complexity and to increase the support for collaboration during visual data analysis. The project included international collaborations with the Universities of Copenhagen and St. Andrews and the convolution of the disciplines Human-Computer Interaction, Information Visualization, and Psychology. The central elements of this project encompass:

- Requirements analysis based on literature research and focus groups.
- Transformation of the requirements into UX/UI concepts and the implementation of five prototypes for visual data analysis (WPF/C#, C++, Unity).
- Planning and execution of controlled lab experiments, formative and summative in-situ evaluations, and focus groups with target users.
- Analysis of qualitative and quantitative study data from participant interviews, observations, interaction logging, video coding, and eye tracking (Noldus Observer, EyeWorks, Excel, SPSS, KNIME, RStudio).
- Writing reports, publishing and presenting findings in journals and on major international symposia and workshops on Human-Computer Interaction.
- Project management in terms of resource planning, staff responsibility for student workers, and coordination with project partners.

Teaching and Mentoring

Between 2013 and 2019, Simon Butscher mentored ten Bachelor students and seven Master students on completing their academic degree. Besides, he contributed to the following semester courses:

- Agile UX Design / Usability Engineering: Design (as course designer, co-lecturer, tutor, and examiner; five semesters).
- New Directions in Human-Computer Interaction: Blended Interaction (as course designer, co-lecturer, tutor, and examiner; six semesters).
- Visual Information Seeking Systems (as for course designer, co-lecturer, tutor, and examiner; three semesters).
- Physical Computing (as co-lecturer and tutor; one semester).
- Interactions in Mixed Reality Spaces (as a tutor; one semester).

IT-Administration

Since 2013 Simon Butscher is responsible for the administration of the IT infrastructure of the Human-Computer Interaction group. This includes the following activities:

- Installation, configuration, and administration of Ubuntu and Windows servers (web server, file server, and database server).
- Setup and maintenance of the network system.
- Execution of backup and recovery of elementary operating data.
- Granting and administration of user rights.

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Due to this comprehensive scientific and technological knowledge, Simon Butscher was valued in my group and among fellow Ph.D. students as an intellectual "sparring partner" with whom they enjoyed discussing their work. Both his remarkable technical skills in software engineering, user interface prototyping, and his great expertise in the design and analysis of controlled experiments in the area of user interface design have been immeasurably helpful for students and my research group. Frequently I observed how he carefully gives advice and suggests alternative or sometimes superior approaches to his colleagues in a respectful, co-operative and helpful manner. These social skills make him a gifted leader. Over the years, he created and led small teams of fellow Ph.D. students and student researchers. His projects and teams were always a source of innovation and great prototypes. For me, one of the main reasons for his teams' successes is the equitable but efficient working style that he established in his teams. He always gained a strong reputation among his teams due to his perseverance, diligence and by practicing leadership by example.

In conclusion, it is a great pleasure for me to recommend this exceptional person to your institution wholeheartedly. Simon Butscher would be a most valuable asset for your institution. I wish him all the best with his application, and I am convinced that he has the skills and experience for becoming an excellent member of your organization.

Please do not hesitate to contact me if you need further information.

Sincerely,

Prof. Dr. Harald Reiterer
Head of the Human-Computer Interaction Group
Dept. of Computer and Information Science
University of Konstanz, Germany