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Stephan Wenninger

Education

2018–2024 **PhD Computer Science**, *Bielefeld University & TU Dortmund University*
2015–2018 **MSc Intelligent Systems**, *Bielefeld University*
2011–2015 **BSc Cognitive Sciences**, *University of Tübingen*

PhD Thesis

Title *Realistic Virtual Humans for VR Therapy of Body Image Disorders*
Advisor Prof. Dr. Mario Botsch
Abstract *In my PhD thesis, I developed methods for reconstructing and modifying realistic and personalized virtual humans, also called avatars, to be employed in the context of a VR-based body image disorder therapy system. First, a method for reconstructing such avatars from smartphone videos is presented, which greatly reduces the hardware demands in comparison to previous approaches. The second part of the thesis deals with reconstructing volumetric representations for virtual humans, where anatomical details such as bone structure and muscle and fat tissue are inferred from surface scans. This allows to create a statistical model of human bone structure and soft tissue distribution, enabling fast skeleton inference and semantic localized shape modification.*

Experience

2020–2024 **Research Associate**, *TU Dortmund University*
Computer Graphics & Geometry Processing Group
Realistic Virtual Humans for VR Therapy

2018–2020 **Research Associate**, *Bielefeld University*
Computer Graphics & Geometry Processing Group
3D Avatar Reconstruction From Smartphone Videos

2016–2018 **Research Assistant**, *Bielefeld University*
Cognitive Systems Engineering Group
Smart assistance systems
`C++` • `C#` • `HTML` • `Java` • `Javascript` • `Python`

2016–2016 **Research Assistant**, *University of Duisburg-Essen*
Social Psychology "Media & Communication" Group
Programming a user study investigating virtual agents
`Java` • `Python`

2014–2015 **Research Assistant**, *Max Planck Institute for Intelligent Systems*, Tübingen
Software Workshop Group
Developping an application for capturing data from Kinect camera streams
Automated video processing for recordings of presentations at MLSS 2015 Tübingen
`C++` • `C#` • `Python`

2014–2015 **Research Assistant**, *University of Tübingen*
Student tutor for the lecture Mathematics I

2013–2014 **Research Assistant**, *Leibniz-Institut für Wissensmedien*, Tübingen
Social Processes Group
Programming study environments
Supervising user studies
`HTML` • `Javascript`

Skills

Research	Computer Graphics, 3D Geometry Processing
Code	`C++`, `Python`, `LaTeX`
Libraries	OpenGL, PMP, Eigen, ShapeOp, OpenPose, OpenCV, OpenVR, dlib
Programs	Git, CMake, Agisoft Metashape, Blender

Languages

German	Native
English	Fluent

Publications

[1] Maria Korosteleva, Timur Levent Kesdogan, Stephan Wenninger, Fabian Kemper, Jasmin Koller, Yuhan Zhang, Mario Botsch, and Olga Sorkine. **GarmentCodeData: A Dataset of 3D Made-to-Measure Garments With Sewing Patterns**. *Computer Vision – ECCV* (2024).

[2] Stephan Wenninger, Fabian Kemper, Ulrich Schwanecke, and Mario Botsch. **TailorMe: Self-Supervised Learning of an Anatomically Constrained Volumetric Human Shape Model**. *Computer Graphics Forum* 43.2 (2024).

[3] David Mal, Nina Döllinger, Erik Wolf, Stephan Wenninger, Mario Botsch, Carolin Wienrich, and Marc Erich Latoschik. **Am I the Odd One? Exploring (In)Congruencies in the Realism of Avatars and Virtual Others in Virtual Reality**. *Frontiers in Virtual Reality* 5 (2024).

[4] Nina Döllinger, Erik Wolf, David Mal, Stephan Wenninger, Mario Botsch, Marc Erich Latoschik, and Carolin Wienrich. **Resize Me! Exploring the User Experience of Embodied Realistic Modulatable Avatars for Body Image Intervention in Virtual Reality**. *Frontiers in Virtual Reality* 3 (2022).

[5] Erik Wolf, David Mal, Viktor Frohnapfel, Nina Döllinger, Stephan Wenninger, Mario Botsch, Marc Erich Latoschik, and Carolin Wienrich. **Plausibility and Perception of Personalized Virtual Humans between Virtual and Augmented Reality**. *Proc. of the IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*. 2022.

[6] Erik Wolf, Nina Döllinger, David Mal, Stephan Wenninger, Andrea Bartl, Mario Botsch, Marc Erich Latoschik, and Carolin Wienrich. **Does Distance Matter? Embodiment and Perception of Personalized Avatars in Relation to the Self-Observation Distance in Virtual Reality**. *Frontiers in Virtual Reality* 3 (2022).

[7] Martin Komaritzan, Stephan Wenninger, and Mario Botsch. **Inside Humans: Creating a Simple Layered Anatomical Model from Human Surface Scans**. *Frontiers in Virtual Reality* 2 (2021).

[8] Andrea Bartl, Stephan Wenninger, Erik Wolf, Mario Botsch, and Marc Erich Latoschik. **Affordable but not Cheap: A Case Study of the Effects of Two 3D-Reconstruction Methods of Virtual Humans**. *Frontiers in Virtual Reality* 2 (2021).

[9] Stephan Wenninger, Jascha Achenbach, Andrea Bartl, Marc Erich Latoschik, and Mario Botsch. **Realistic Virtual Humans from Smartphone Videos**. *Proc. of the ACM Symposium on Virtual Reality Software and Technology*. 2020.