

# Sophie Jörg

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Graphics Lab  
Robotics Institute  
Carnegie Mellon University  
5000 Forbes Avenue  
Pittsburgh, PA 15213  
USA

Office: Smith Hall (EDSH), room 230  
E-Mail: joergs@cs.cmu.edu  
Phone: (+1) 412-268-8818  
[www.cs.cmu.edu/~joergs/](http://www.cs.cmu.edu/~joergs/)

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## EDUCATION

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| 2006 – 2011 | <b>Ph.D. in Computer Science.</b><br>Graphics Vision and Visualization Group, Trinity College Dublin, Ireland<br>Advisor: Carol O’Sullivan<br>Thesis topic: Perception of Body and Hand Animations for Realistic Virtual Characters |
| 1999 – 2005 | <b>Diplom-Ingenieur in Media Technology</b> (similar to M.Sc.).<br>Hamburg University of Applied Sciences, Germany<br>Specialization on audiovisual media<br>Thesis topic: Real-time Control for a Virtual Character                |
| 1997 – 1999 | <b>Vordiplom in Physics</b> (similar to short B.Sc.).<br>University of Freiburg, Germany  |

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## RESEARCH INTERESTS

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Computer graphics, especially animation and perception. I am also interested in computer vision, crowd animation, machine learning, neuroscience, and artificial intelligence. My current research focuses on:

- **Character animation techniques and algorithms.** I am particularly interested in developing new animation techniques using motion capture, statistical properties, and learning through databases.
- **Perception of lifelike virtual humans.** Humans are capable of successfully distinguishing between human and computer-generated motions, even if the differences are marginal. This skill makes it a challenge to produce convincing animations, especially for very realistic human-like virtual characters. I aim to determine which components of human motion are crucial to lifelike appearance and which errors diminish this realism.

- **Hand and finger motions.** Hand and finger motions are omnipresent in daily life. Nevertheless, virtual characters often lack convincing hand and finger motions. Capturing, analyzing, understanding, and automatically generating these subtle movements are topics I address in my research.

## PROFESSIONAL EXPERIENCE IN RESEARCH

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01.2011 – present	<b>Carnegie Mellon University</b> , Pittsburgh, USA. Postdoctoral researcher
10.2006 – 12.2010	<b>Trinity College Dublin</b> , Graphics Vision and Visualization Group, Ireland. Ph.D. student in Computer Science. Advisor: Carol O’Sullivan
07.2008 – 10.2008	<b>Disney Research, Pittsburgh</b> , USA. Visiting graduate student. Advisor: Jessica Hodgins
04.2007 – 10.2007	<b>Carnegie Mellon University</b> , Pittsburgh, USA. Visiting graduate student. Advisor: Jessica Hodgins
11.2005 – 08.2006	<b>Fraunhofer Institute IAIS</b> , Sankt Augustin, Germany. Junior researcher, Virtual Human project group. Research areas: motion capture and character animation
05.2004 – 11.2005	<b>Fraunhofer Institute IAIS</b> , Sankt Augustin, Germany. Research assistant, Virtual Human project group. Research areas: input devices, navigation, and animation

## PROFESSIONAL EXPERIENCE IN INDUSTRY

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08.2003 – 11.2003	<b>Tevox</b> , Cologne, Germany. Freelancer. 3D scanning
03.2003 – 07.2003	<b>Tevox</b> , Cologne, Germany. Intern. Motion capturing and postproduction for the 3D-animation series “Dragonsrock”
12.2002 – 01.2003	<b>Endoklinik Hamburg</b> , Germany. Freelancer. Editing of a documentary for patients
11.2002 – 12.2002	<b>3D CompAni</b> , Hamburg, Germany. Freelancer. 3D animation and rendering with Maya
09.2000 – 07.2001	<b>R. Barth KG, Electronics and acoustics</b> , Hamburg, Germany. Working student. Software development (Delphi) for the digital mixing desk DMax

- 07.2000 – 11.2000    **R. Barth KG, Electronics and acoustics**, Hamburg, Germany.  
Intern. Production, quality control, and software development (Delphi)
- 05.1999 – 06.1999    **Theater Freiburg**, Germany.  
Intern. Stage technology, lighting, and sound technology

## PUBLICATIONS

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- Sophie Jörg, Jessica Hodgins, and Carol O’Sullivan. “The Perception of Finger Motions”. *Proceedings of the 7th Symposium on Applied Perception in Graphics and Visualization (APGV)*, July 2010, pp. 129–133.
- Jessica Hodgins, Sophie Jörg, Carol O’Sullivan, Sang Il Park, and Moshe Mahler. “The Saliency of Anomalies in Animated Human Characters”. *ACM Transactions on Applied Perception (TAP)*, July 2010, vol. 7, issue 4, article no. 22.
- Sophie Jörg and Carol O’Sullivan. “Exploring the Dimensionality of Finger Motion”. *Proceedings of the 9th Eurographics Ireland Workshop (EGIE)*, December 2009.
- Rachel McDonnell, Sophie Jörg, Joanna McHugh, Fiona N. Newell, and Carol O’Sullivan. “Investigating the role of body shape on the perception of emotion”. *ACM Transactions on Applied Perception (TAP)*, August 2009, vol. 6, no. 3.
- Rachel McDonnell, Sophie Jörg, Jessica K. Hodgins, Fiona N. Newell, and Carol O’Sullivan. “Evaluating the effect of motion and body shape on the perceived sex of virtual characters.” *ACM Transactions on Applied Perception (TAP)*, January 2009, vol. 5, no. 4.
- Rachel McDonnell, Sophie Jörg, Joanna McHugh, Fiona N. Newell, and Carol O’Sullivan. “Evaluating the emotional content of human motions on real and virtual characters.” *Proceedings of the 5th Symposium on Applied Perception in Graphics and Visualization (APGV)*, August 2008, pp. 67–74.
- Frank Hülksen, Christian Eckes, Roland Kuck, Jörg Unterberg, and Sophie Jörg. “Modeling and Animating Virtual Humans”. *International Journal of Virtual Reality (IJVR)*, December 2007, vol. 6, no. 4, pp. 11–20.
- Rachel McDonnell, Sophie Jörg, Jessica K. Hodgins, Fiona N. Newell, and Carol O’Sullivan. “Virtual shapers & movers: form and motion affect sex perception.” *Proceedings of the 4th Symposium on Applied Perception in Graphics and Visualization (APGV)*, July 2007, pp. 7–10.

## AWARDS

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09.2006 – 12.2009    IRCSET (Irish Research Council for Science Engineering and Technology), Postgraduate Scholarship Award.

## SELECTED TALKS AND POSTERS

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“Exploring the Dimensionality of Finger Motion”. *Eurographics Ireland*, December 2009. Conference talk.

“Capturing Motion. March 2009. *Science Gallery, Dublin*. Public talk.

“Evaluating the emotional content of human motions on real and virtual characters”. *4th Symposium on Applied Perception in Graphics and Visualization (APGV)*. August 2008. Conference talk.

“Improving the Perceived Quality of Lifelike Motions for Virtual Characters”. *Trinity College Dublin*. June 2008. Transfer talk.

“Perception of Errors in Synchronization”. Sophie Jörg, Carol O’Sullivan, and Jessica Hodgins. *VGV symposium*. May 2008. Poster.

“Perception of Synchronisation Errors in Hand Motions”. Sophie Jörg, Jessica Hodgins, and Carol O’Sullivan. *Symposium on Computer Animation (SCA)*, July 2008. Poster.

“Virtual Human – Creating Motions for Virtual Characters”. *Trinity College Dublin*, June 2006. Invited talk.

## TEACHING EXPERIENCE

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Spring 2010	Computer Vision (Teaching assistant), Trinity College Dublin, Ireland
Fall 2009	Computer Graphics (Guest lecturer), Trinity College Dublin, Ireland
Spring 2002	Avid Editing Software Workshop (Instructor), University of Applied Sciences, Hamburg, Germany

## SKILLS

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Languages	German and French (native) English (fluent), Spanish (basics)
Computer Skills	Operating Systems: Linux, Windows Programming: Matlab, Python, C/C++, OpenGL, OpenCV, Java Applications: Maya, Motionbuilder, Avid Media Composer, Premiere, Gimp, Morpheme Motion Capture Systems: Vicon, Polhemus, ARTtrack, Cybergloves