

# Mike Schaekermann

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## OVERVIEW

My research interest is at the intersection of machine learning and human-computer interaction. In particular, I look at how the power of human and machine intelligence may be combined to solve problems too hard to be tackled by computational methods alone. My work in this topic revolves around the analysis of medical time series data.

## EDUCATION

**Ph.D. Candidate** 2016 - Present  
University of Waterloo, ON, Canada  
Computer Science  
Advisors: Edith Law and Kate Larson

**Bachelor of Science in Engineering** 2014  
Salzburg University of Applied Sciences, Austria  
Media Informatics  
Thesis Supervisor: Lennart Nacke

**Staatsexamen** (equivalent to Bachelors) 2011  
University of Marburg, Germany  
Human Medicine

## AWARDS & HONOURS

<b>David R. Cheriton Graduate Scholarship</b> (\$10,000) — UWaterloo	2016
<b>International Doctoral Student Award</b> (\$11,760/year) — UWaterloo	2016
<b>Merit-based Scholarship</b> — Salzburg University of Applied Sciences	2014
<b>Merit-based Scholarship for Foreign Studies</b>	2014
<b>Engineering Scholarship</b> — both Economic Chamber of Salzburg	2013
<b>Nominee for the German National Academic Foundation</b>	2009

## WORKING PAPER

**Sequence-aware Active Learning for Sleep Stage Classification.** Schaekermann, M., Pineau, J., Lim, A., Poupart, P., Nacke, L. E. & Law, E.

## POSITION PAPERS

**Resolvable vs. Irresolvable Ambiguity: A New Hybrid Framework for Dealing with Uncertain Ground Truth.** Schaekermann, M., Law, E., Williams, A. C., & Callaghan, W. Workshop on Human-Centered Machine Learning at SIGCHI 2016. San Jose, CA.

**Rapidly: A Lightweight Tool for the Collaborative Analysis of Biosignals and Gameplay Videos.** Schaekermann, M., Nacke, L. E. Workshop on Lightweight GUR for Indies and Non-Profit Organizations at SIGCHI 2016. San Jose, CA.

**The Big Picture: Preserving Context in the Decomposition of Complex Expert Tasks.** Williams, A. C., Bradshaw, J., Schaekermann, M., Tse, T., Callaghan, W., & Law, E. Workshop on Microproductivity at SIGCHI 2016. San Jose, CA.

<b>PRESENTATIONS</b>	<b>Resolvable vs. Irresolvable Ambiguity: A New Hybrid Framework for Dealing with Uncertain Ground Truth.</b> (see above) Workshop on Human-Centered Machine Learning at SIGCHI, San Jose, CA.	2016
	<b>Hacking Brain-Computer Interfaces</b> Singularity Meets Self-Improvement (SMSI) Meetup, Berlin, Germany	2015
	<b>Implicit Surface Modeling for 3D Printing</b> WebGL Meetup, Berlin, Germany	2015
<b>WORK EXPERIENCE</b>	<b>Entrepreneur</b> SpontaneousOrder GmbH, Berlin, Germany	2011 - 2015
	<ul style="list-style-type: none"> <li>• Co-founder and Head of IT of a startup company dealing with browser-based designs for 3D-printing (<a href="https://stilnest.com/">https://stilnest.com/</a>)</li> <li>• Received USD 1 million in seed funding in 08/2014 (<a href="https://www.crunchbase.com/organization/stilnest">https://www.crunchbase.com/organization/stilnest</a>), followed by additional funding rounds</li> <li>• Led a medium-sized team of software engineers to build an international platform for 3D-printed designer accessories</li> </ul>	
	<b>Visiting Researcher</b> Games and Media Entertainment Research Laboratory University of Ontario Institute of Technology, ON, Canada	2013 - 2014
	<b>Tutor for Applied Mathematics</b> Salzburg University of Applied Sciences, Austria	2012 - 2013
	<b>Research Assistant at Core-Unit “BrainImaging”</b> University Medical Center, Marburg, Germany	2009 - 2010
<b>SELECTED PROJECTS</b>	<b>CrowdEEG</b> Framework to combine machine and human intelligence for the scalable and accurate analysis of human clinical EEG recordings. This is an active research project in the HCI CrowdLab at the University of Waterloo, Canada, led by professor Edith Law.	
	<b>3D Simulation of the Human Endocrine System</b> Real-time 3D simulation of the hypothalamic-pituitary-adrenal (HPA) axis, a part of the human neuro-endocrine system. This was done as final project for a course on “Simulation Methods in Physiology and Neurobiology” at the medical school of the University of Marburg, Germany.	
	<b>Rapidly</b> Collaborative web application for annotating gameplay videos, based on physiological time series data developed as part of my bachelor thesis at Salzburg University of Applied Sciences, Austria.	
	<b>Implicit Surface Modeling for 3D Printing</b> Web application enabling real-time customization and animation of 3D-printable objects. It makes use of implicit surfaces, raymarching and the iso-surface extraction algorithm Marching Cubes.	

<b>TECHNOLOGY SKILLS</b>	<b>Programming Languages:</b> C++, Java, C#, Assembler, Python.	
	<b>Web Development:</b> HTML5, CSS3, JavaScript, Nginx, Apache, Node.js, Meteor, Django, MongoDB, PostgreSQL, MySQL, AWS, Heroku.	
	<b>Machine Learning / AI:</b> Decision Trees, kNN, Generalized Linear Models, Logistic Regression, Support Vector Machines, Gaussian Process, Neural Networks, Informed, Local & Adversarial Search, Constraint Satisfaction Problems, (Partially Observable) Markov Decision Processes, Multi-armed Bandits, Reinforcement Learning.	
	<b>Game Development:</b> Game Engine Architecture, Advanced Collision Detection.	
	<b>Augmented Reality:</b> Filters, Object Tracking, Feature Points (SIFT, SURF).	
<b>SERVICE &amp; LEADERSHIP</b>	<b>Computer Graphics:</b> Programmable Graphics Pipeline, OpenGL/WebGL and Shader Programming with GLSL, Marching Cubes.	
	<b>Reviewer for Conferences:</b> CHI PLAY (2016)	
	<b>Membership:</b> Association for Computing Machinery	
	<b>Involvement with Academic Institution:</b> Advisor for incoming international students (2012), President of the students council (2013) at Salzburg University of Applied Sciences, Austria	
<b>INTER-NATIONAL EXPERIENCE</b>	<b>International PhD Student</b>	2016 - Present
	University of Waterloo, ON, Canada	
	<b>International Visiting Researcher</b>	2013 - 2014
	University of Ontario Institute of Technology, ON, Canada	
<b>LANGUAGE SKILLS</b>	<b>Advisor for Incoming International Students</b>	2012
	Salzburg University of Applied Sciences, Austria	
	<b>International Student at Academic High School</b>	2007
	Avondale College, Auckland, New Zealand	
<b>LANGUAGE SKILLS</b>	<b>English</b> - Full Professional Proficiency	TOEFL iBT (116/120)
	<b>German</b> - Native Speaker	
	<b>French, Italian, Japanese, Maori</b> - Basics	