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
Medicine

AWARDS & HONOURS

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

Repidly: 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.

PRESENTATIONS

Resolvable vs. Irresolvable Ambiguity: A New Hybrid Framework for Dealing with Uncertain Ground Truth. (see above) 2016
Workshop on Human-Centered Machine Learning at SIGCHI, San Jose, CA.

Hacking Brain-Computer Interfaces 2015
Singularity Meets Self-Improvement (SMSI) Meetup, Berlin, Germany

Implicit Surface Modeling for 3D Printing 2015
WebGL Meetup, Berlin, Germany

WORK EXPERIENCE

Entrepreneur 2011 - 2015
SpontaneousOrder GmbH, Berlin, Germany

- Co-founder and Head of IT of a startup company dealing with browser-based designs for 3D-printing (`https://stilnest.com/`)
- Received USD 1 million in seed funding in 08/2014 (`https://www.crunchbase.com/organization/stilnest`), followed by additional funding rounds
- Led a medium-sized team of software engineers to build an international platform for 3D-printed designer accessories

Visiting Researcher 2013 - 2014
Games and Media Entertainment Research Laboratory
University of Ontario Institute of Technology, ON, Canada

Tutor for Applied Mathematics 2012 - 2013
Salzburg University of Applied Sciences, Austria

Research Assistant at Core-Unit "BrainImaging" 2009 - 2010
University Medical Center, Marburg, Germany

SELECTED PROJECTS

CrowdEEG
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.

3D Simulation of the Human Endocrine System
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.

Repidly
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.

Implicit Surface Modeling for 3D Printing
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.

TECHNOLOGY SKILLS

Programming Languages: C++, Java, C#, Assembler, Python.
Web Development: HTML5, CSS3, JavaScript, Nginx, Apache, Node.js, Meteor, Django, MongoDB, PostgreSQL, MySQL, AWS, Heroku.
Machine Learning / AI: 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.
Game Development: Game Engine Architecture, Advanced Collision Detection.
Augmented Reality: Filters, Object Tracking, Feature Points (SIFT, SURF).
Computer Graphics: Programmable Graphics Pipeline, OpenGL/WebGL and Shader Programming with GLSL, Marching Cubes.

SERVICE & LEADERSHIP

Reviewer for Conferences: CHI PLAY (2016)
Membership: Association for Computing Machinery
Involvement with Academic Institution: Advisor for incoming international students (2012), President of the students council (2013) at Salzburg University of Applied Sciences, Austria

INTER-NATIONAL EXPERIENCE

International PhD Student 2016 - Present
University of Waterloo, ON, Canada

International Visiting Researcher 2013 - 2014
University of Ontario Institute of Technology, ON, Canada

Advisor for Incoming International Students 2012
Salzburg University of Applied Sciences, Austria

International Student at Academic High School 2007
Avondale College, Auckland, New Zealand

LANGUAGE SKILLS

English - Full Professional Proficiency TOEFL iBT (116/120)
German - Native Speaker
French, Italian, Japanse, Maori - Basics