

Jessie Hoegen

Interests: Artificial Intelligence, Human-Computer Interaction, Machine Learning, Affective Computing, Cognitive Modeling, Decision Theory

Education

<i>Doctor of Philosophy</i> , Computer Science University of Southern California, Los Angeles, CA	2016-present
<i>Master of Science</i> , Human Media Interaction Thesis: <i>Human Behavior towards Virtual Humans</i> University of Twente, Enschede, The Netherlands	2012-2015
<i>Bachelor of Applied Sciences</i> , Computer Science Specialization: Games and Virtual Reality Saxion University of Applied Sciences, Enschede, The Netherlands	2006-2011

Publications

K. Fujiwara, **R. Hoegen**, J. Gratch, & N.E. Dunbar. 2021. Synchrony Facilitates Altruistic Decision Making for Non-human Avatars. In *Computers in Human Behavior*, 128.

D. Aneja, **R. Hoegen**, D. McDuff & M. Czerwinski. 2021. Understanding Conversational and Expressive Style in a Multimodal Embodied Conversational Agent. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*.

R. Hoegen, J. Gratch, B. Parkinson and D. Shore. 2019. Signals of Emotion Regulation in a Social Dilemma: Detection from Face and Context. In *8th International Conference on Affective Computing and Intelligent Interaction (ACII)*.

R. Hoegen, D. Aneja, D. McDuff and M. Czerwinski. 2019. An End-to-End Conversational Style Matching Agent. In *Proceedings of the 19th ACM International Conference on Intelligent Virtual Agents*. 111-118. **Best paper nominee.**

J. Rusow, J. Brixey, **R. Hoegen**, L. Wei, K. Singla and X. Yin. 2018. SHIHbot: Sexual Health Information on HIV/AIDS. In *Artificial Intelligence and Social Work*. Milind Tambe and Eric Rice, eds. Cambridge University Press. 211-230.

R. Hoegen, J. van der Schalk, G. Lucas and J. Gratch. 2018. The impact of agent facial mimicry on social behavior in a prisoner's dilemma. In *Proceedings of the 18th International Conference on Intelligent Virtual Agents*. 275-280.

G. Stratou, J. van der Schalk, **R. Hoegen** and J. Gratch. 2017. Refactoring Facial Expressions: an Automatic Analysis of Natural Occurring Facial Expressions in Iterated Social Dilemmas. In *Proceedings of Affective Computing and Intelligent Interaction*.

G. Stratou, **R. Hoegen**, G. Lucas and J. Gratch. 2017. Investigating Gender Differences in Temporal Dynamics during an Iterated Social Dilemma: an Automatic Analysis Using Networks. In *Proceedings of Affective Computing and Intelligent Interaction*.

J. Brixey, **R. Hoegen**, L. Wei, J. Rusow, K. Singla, X. Yin, R. Artstein and A. Leuski. 2017. SHIHbot: A Facebook chatbot for Sexual Health Information on HIV/AIDS. In *Proceedings of the eighth SIGDIAL Workshop on Discourse and Dialogue*.

R. Hoegen, G. Stratou and J. Gratch. 2017. Incorporating Emotion Perception into Opponent Modeling for Social Dilemmas. In *Proceedings of the 16th Conference on Autonomous Agents and Multi-Agent Systems*.

G. Stratou, **R. Hoegen**, G.M. Lucas and J. Gratch. 2015. Emotional Signaling in a Social Dilemma: an Automatic Analysis. In *International Conference on Affective Computing and Intelligent Interaction, IEEE*.

R. Hoegen, G. Stratou, G.M. Lucas, and J. Gratch. 2015. Comparing behavior towards humans and virtual humans in a social dilemma. In *International Conference on Intelligent Virtual Agents*.

Services

- Reviewer, 2020 & 2021 ACM International Conference on Intelligent Virtual Agents (IVA)
- Reviewer, 2019 International Conference on Affective Computing & Intelligent Interaction (ACII)

Research Experience

USC Institute for Creative Technologies, Los Angeles, CA 2016-present

Graduate Research Assistant – Supervisor: Jonathan Gratch

Research focus on artificial intelligence, affective computing, emotion and cognitive modeling, performing research such as:

- Building predictive models of human behavior in both structured and unstructured interactions using machine learning and game theoretical approaches. Utilizing a multimodal approach by leveraging expressed emotion and verbal/nonverbal communication to improve upon traditional predictive modeling methods.
- Create behavioral and emotion models for an embodied emotionally aware agent using real-time facial expression recognition.
- Design user studies to study the effects of emotion on behavior and decision-making.

Hume AI, New York, NY

2022

Research Intern

- Improved a multimodal deep neural network used for classification of expressions, leveraging visual, audio and text modalities during a 3-month internship. The model was built for videos obtained in the wild, rather than in controlled settings, and had to be made capable to classify data with various quality of input and misaligned modalities to a certain degree.

Microsoft Research, Redmond, WA

2018

Research Intern

- Built an end-to-end conversational agent system during a 3-month internship. The system managed to maintain long interactions by using speech recognition and dialogue generation through a combination of neural models built from large-scale unconstrained datasets and intent detection. The system tracked user state such as paralinguistic features and was capable of adjusting its responses based on this information. A user study was designed where participants interacted with the agent for 15 minutes.

University of Oxford, Oxford, United Kingdom

2018

Visiting Researcher

- Set up a framework for a 4-studies research project. Including setting up a server-client architecture for a social dilemma framework for several studies. The framework was extended with an automatic procedure that allowed participants to provide feedback on the video captured while playing the game, in an automated video-cued recall procedure.

USC Institute for Creative Technologies, Los Angeles, CA

2015-2016

Visiting Researcher

- Integrated an autonomous virtual agent into a social dilemma framework used for behavioral game theory research. Designed user studies where participants played social dilemma games against each other and against the virtual agent using the framework. Ran user studies with the framework, analyzed data and wrote research papers on results.

Human Media Interaction group, University of Twente, The Netherlands

2013-2015

Research Assistant – Supervisor: Elisabeth van Dijk and Dirk Heylen

- Studied the effects of the voice of a robot on human-robot proxemics. Programmed the robot, designed and ran a study with the robot, performed statistical analysis on results, and wrote a technical report on the overall results.
- Built a framework to run studies using a virtual agent. The framework allows the experimenter to control a virtual agent and have it answer questions from participants in a police interview setting.

Teaching Experience:

University of Southern California, Los Angeles, CA

2017 & 2020

Teaching Assistant

- Teaching assistant for Affective Computing and Database Systems graduate level courses. Duties included helping design homework assignments, giving in-class demonstration and providing support for students through office hours.

Saxion University of Applied Sciences, Enschede, The Netherlands

2008-2009

Lab Session Mentor

- Led lab sessions on Principles of Computation and Introduction to Programming. Programming languages used were Java and C++.

Industry Experience:

TriMM Interactieve Media, Enschede, the Netherlands

2011

Intern programmer

Worked in a small team on the design and development of an online web based serious game aimed at teens.

KnowledgePlaza, Apeldoorn, the Netherlands

2009

Intern programmer

Implemented the graphical interface, back-end and database of a customer relationship management framework.

Skills:

- Experienced in Machine Learning, Deep Learning, Predictive Modeling, Data Visualization.
- Built human-computer systems allowing for naturalistic interactions and collection of behavioral data.
- Worked with large datasets of structured and unstructured data relating to multimodal analysis.

Languages: Python (PyTorch, SciKit-learn, NLTK, etc), Java, C++, C#, SQL, Unity3D.

Data Analysis: Python (Numpy, Pandas), R, Matlab, SPSS.

Web: HTML5, JavaScript, JSP, PHP.