# Jieyeon Woo

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Google Scholar LinkedIn Personal Website

## Education

***Sorbonne Université*** – **Ph.D.** in AI and HMI (2020 – 2023), at *Institute of Intelligent Systems and Robotics (ISIR)*.
Dissertation: GRAB-HAI: Generating Reciprocally Adaptive Behavior for Human-Agent Interaction
Supervisor: Prof. Catherine Achard, Co-advised by Prof. Catherine Pelachaud.
Graduate scholarship for PhD program by SMAER doctoral school of Sorbonne University and ANR.

***Sorbonne Université*** – **M.S**. in Engineering of Intelligent Systems (2018 – 2020), **Honors** (GPA: 4.0/4.3)

***Sorbonne Université*** – Dual Bachelor's Degree Program (2015- 2018), **Honors** (GPA: 4.0/4.3)
**B.S**. in Electronic Engineering
**B.S**. in Mechanical Engineering

***International School of Geneva*** – IB HL Math, Physics, Chemistry (Graduated in 2013), **Honors** (GPA: 6.3/7.0)

## Publications

***International Conference(s)***

[1] J. Woo, C. Pelachaud, C. Achard (2023). "*ASAP: Endowing Adaptation Capability to Agent in Human-Agent Interaction*". IUI 2023: 28th International Conference on Intelligent User Interfaces (Oral)
[2] J. Woo, M. Grimaldi, C. Pelachaud, C. Achard (2023). "*IAVA: Interactive and Adaptive Virtual Agent for Cognitive Behavioral Therapy*". IVA'23: 23rd ACM International Conference on Intelligent Virtual Agents (Oral)
[3] J. Woo, L. Yang, C. Pelachaud, C. Achard (2023). "*Is turn-shift distinguishable with synchrony?*". HCII'23: International Conference on Human-Computer Interaction (Oral)
[4] J. Woo, L. Yang, C. Pelachaud, C. Achard (2023). "*Are we in sync during turn switch?*". FG 2023: IEEE 17th International Conference on Automatic Face and Gesture Recognition (FG) (Oral)
[5] J. Woo, C. Pelachaud, C. Achard (2023). "*Reciprocal Adaptation Measures for Human-Agent Interaction Evaluation*". ICAART 2023 (Oral)
[6] J. Woo, M. Grimaldi, C. Pelachaud, C. Achard (2023). "*Conducting Cognitive Behavioral Therapy with an Adaptive Virtual Agent*". IVA'23: 23rd ACM International Conference on Intelligent Virtual Agents (Poster and demo)
[7] T. Saga, J. Woo, A. Gerard, H. Tanaka, C. Achard, S. Nakamura, C. Pelachaud. "*An Adaptive Virtual Agent Platform for Automated Social Skills Training*". ICMI'23: Proceedings of the 2023 International Conference on Multimodal Interaction (Poster and demo)
[8] T. Kucherenko, R. Nagy, Y. Yoon, J. Woo, T. Nikolov, M. Tsakov, G. Henter. "*The GENEA Challenge 2023: A large-scale evaluation of gesture generation models in monadic and dyadic settings*". ICMI'23: Proceedings of the 2023 International Conference on Multimodal Interaction (Oral)
[9] Y. Yoon, T. Kucherenko, J. Woo, P. Wolfert, R. Nagy, G. Henter. "*GENEA Workshop 2023: The 4th Workshop on Generation and Evaluation of Non-verbal Behaviour for Embodied Agents*". ICMI'23: Companion Publication of the 2023 International Conference on Multimodal Interaction (Oral)
[10] J. Woo (2021). "*Development of an Interactive Human/Agent Loop using Multimodal Recurrent Neural Networks*". ICMI'21: Proceedings of the 2021 International Conference on Multimodal Interaction (Oral)
[11] J. H. Bagnou, E. Prigent, J. Martin, J. Woo, L. Yang, C. Achard, C. Pelachaud, C. Clavel (2021). "*A Framework for the Assessment and Training of Collaborative Problem-Solving Social Skills*". ICMI'21: Companion Publication of the 2021 International Conference on Multimodal Interaction (Oral)

***National Conference(s)***

[1] J. Woo, C. Pelachaud, C. Achard (2021). "*Creating an interactive human/agent loop using multimodal recurrent neural networks*". WACAI 2021: Workshop on Artificial Companions, Affects and Interactions (Oral)

***Journal(s)***

[1] J. Woo, K. Shidara, C. Achard, H. Tanaka, S. Nakamura, C. Pelachaud (2023). "*Adaptive Virtual Agent System*", IJHCS (Under revision)
[2] M. Grimaldi, J. Woo, F. Boucaud, L. Galland, N. Younsi, L. Yang, M. Fares, S. Graux, P. Gauthier, C. Pelachaud. "*Greta: Interactive and Adaptive ECA System*" (In preparation)

***Preprint(s) / Oral Presentation(s)***

[1] J. Woo, M. Fares, C. Pelachaud, C. Achard (2023). "*AMII: Adaptive Multimodal Inter-personal and Intra-personal Model for Adapted Behavior Synthesis*". arXiv preprint arXiv:2305.11310 (Preprint)
[2] T. Kucherenko, R. Nagy, Y. Yoon, J. Woo, T. Nikolov, M. Tsakov, G. Henter. "*The GENEA Challenge 2023: A large-scale evaluation of gesture generation models in monadic and dyadic settings*". arXiv preprint arXiv:2308.12646 (Preprint)
[3] J. Woo, C. Pelachaud, C. Achard (2023). "*Developing a Socially Interactive Agent with Adaptation Capability*". PFIA 2023: Plate-Forme Intelligence Artificielle, ACAI (Oral)
[4] J. Woo (2023). "*Modeling interpersonal relationship in dyadic interaction*". KTH Royal Institute of Technology (Oral)
[5] J. Woo (2023). "*Adaptive Virtual Agent*". Electronics and Telecommunications Research Institute (Oral)
[6] J. Woo, C. Pelachaud, C. Achard (2023). "*Agent virtuel adaptatif en temps réel pour la thérapie cognitivo-comportementale (TCC)*". HCERES:

Haut Conseil de l'Evaluation de la Recherche et de l'Enseignement Supérieur (Poster)
[7] J. Woo (2023). "*Introduction to ChatGPT*". Permanent Delegation of the Republic of Korea to the OECD (Oral)
[8] J. Woo, C. Pelachaud, C. Achard (2022). "*Interactive loop modeling for nonverbal behavior animation*". GTAS 2022: 24èmes journées du Groupe de Travail Animation et Simulation (Oral)

## Core Research/Work Experience

- **PhD Thesis *(Oct. 2020 – Dec. 2023)* – Institute of Intelligent Systems and Robotics (ISIR)**
  *Theme: Investigate, understand, and model the reciprocal adaptation (intrapersonal and interpersonal relationships) between human interlocutors to build a virtual agent (Socially Interactive Agent; SIA) that is natural, human-like, social, and engaging.*
  *Goals: Learn from human multimodal behavior data to generate expressive and adaptive agent behavior. Collaborate within the international TAPAS project in creating an adaptive agent applied for medical treatments (CBT and SST).*
  *Keywords: Deep Learning (DL), Multimodal AI, Human-Machine Interaction (HMI), Adaptation, Transformers, Large Language Model (LLM), Real-time application.*
- **Master's Thesis on AI/VR Teleoperation *(Feb. 2020 – Aug. 2020)* – SoftBank Robotics Europe (SBRE)**
  *Theme: Investigate and implement an immersive teleoperation system for humanoid robots (Pepper and NAO).*
  *Goal: Teleoperate humanoid robots via ML-based body motion mapping and VR.*
  *Keywords: Machine Learning (ML), Body motion mapping, Robotics, Virtual Reality (VR), Real-time application.*
- **Graduate Research Internship on NLP-based Open-source project Analysis *(June 2019 – Aug. 2019)* – Queen's University, Software Evolution & Analytics Lab (SEAL)**
  *Theme: Investigate a new way of leveraging the use of Open-source projects with Data Mining and NLP techniques.*
  *Goal: Crowd-source open-source projects, perform empirical research, and apply NLP techniques for code clone detection.*
  *Keywords: Natural Language Processing (NLP), Data Mining, Empirical research.*
- **Undergraduate Research Internship on FPGA *(June 2017 – Dec. 2017)* – Laboratoire d'Informatique de Paris 6 (LIP6)**
  *Theme: Design and implementation (software and hardware programming) of a new FPGA.*
  *Goals: Investigate the optimal use of a low-cost FPGA. Reduced the execution time by 80% for the application of iris recognition.*
  *Keywords: Field Programmable Gate Array (FPGA), software & hardware programming.*
- **Undergraduate Research Internship on Superconductor *(May 2016 – June 2016)* – Laboratoire de Génie Electrique et Electronique de Paris (GeePs)**
  *Theme: Fabrication and application of superconductors (YBaCuO) for infrared detectors.*
  *Goal: Investigate YBaCuO thin films and apply them for MOSFET fabrication.*
  *Keywords: Superconductor, MOSFET fabrication.*

## Teaching Experience

- **Graduate Teaching Assistant *(*2020-2023*)* – Sorbonne Université, EEE Department**
  *Courses: Robotics, Digital Electronics, Microcontrollers.*
- **Teaching Assistant *(*2018-2020*)* – Sorbonne Université, EEE Department**
  *Courses: Mathematics, Analog Electronics, Digital Electronics, Microcontrollers, Electromagnetics.*

## Project Experience

***Master's Projects***

- **ScanMyNotes Project (Sept. 2019 – Feb. 2020)**
  *Project manager and software developer of Deep Learning.*
  *Led a team of 8 to create a mobile app that transforms hand-written texts into digital form via Optical Character Recognition (OCR). Developed hand-written text recognition code by applying DL techniques (CNN, RNN, TCN).*
  *Keywords: Deep Learning (DL), Computer Vision, Image Processing, Optical Character Recognition (OCR), Android App, Real-time application.*
- **Facial Emotion Imitation Recognition Project (Sept. 2019 – Dec. 2019)**
  *Sentiment analysis via Image Processing and ML/DL techniques.*
  *Keywords: Deep Learning (DL), Machine Learning (ML), Computer Vision, Image Processing, Sentiment Analysis.*
- **Music Genre Recognition Project (Sept. 2019 – Dec. 2019)**
  *Music genre recognition/classification via Audio Processing and ML/DL techniques.*
  *Keywords: Deep Learning (DL), Machine Learning (ML), Audio Processing.*
- **Virtual Coupling for Haptic Interaction in Robotics (Sept. 2019 – Dec. 2019)**
  *Rendering haptic feedback of a robotic arm when encountering virtual objects in the virtual space.*
  *Keywords: Robotics, Haptics.*
- **RATP Transit Project (Jan. 2019 – June 2019)**
  *French metro transport program similar to Google Maps or Citymapper.*
  *Keywords: Recommendation, Optimization.*
- **Image Rectification for Stereo Vision Project (Jan. 2019 – June 2019)**
  *Image calibration and rectification for stereo vision.*
  *Keywords: Computer Vision, Image Processing.*
- **Alpha Matting Project (Sept. 2018 – Dec. 2018)**
  *Alpha matting using state-of-the-art AI technologies.*
  *Keywords: Machine Learning (ML), Computer Vision, Image Processing,*

- **Transmission of Information Project (Sept. 2018 – Dec. 2018)**
  *Information transmission between clients via socket communication.*
  *Keyword: Network Communication.*

***Bachelor's Projects***

- **Planer 3R Robot Project (Jan. 2018 – June 2018)**
  *Path planning of a planer 3R robot capable of avoiding obstacles and writing.*
  *Keyword: Robotics.*
- **Shape Recognition Project (Sept. 2017 – Jan. 2018)**
  *Shape Recognition based on Legendre Moments.*
  *Keywords: Computer Vision, Image Processing.*
- **Numerical Simulation Project (Sept. 2017 – Jan. 2018)**
  *Simulation of the vibration of an acoustic string under tension.*
  *Keyword: Mechanical Engineering.*
- **FPGA Breakout Game Project (Jan. 2017 – June 2017)**
  *Breakout game using FPGA components (accelerators, 7-segment LED displays, buttons, switches, etc.).*
  *Keywords: FPGA, Digital Electronics.*
- **Syringe Pump Project (Jan. 2016 – June 2016)**
  *Project manager, software developer, and electrical/electronic engineer.*
  *Creation of a syringe pump from scratch. The physical device is created via 3D printing and laser cutting considering the physical, mechanical, electrical, and electronic aspects. The device is programmed to control the syringe's infusion speed and additional components.*
  *Keywords: Electronics, Electrical Engineering, Programming, Mechanical Engineering, Physics, 3D printing, laser cutting.*

## Volunteering and Service

- **Organizer in:** *ICMI'23 Grand Challenge on Generation and Evaluation of Non-verbal Behaviour for Embodied Agents, ICMI'23 Workshop on Generation and Evaluation of Non-verbal Behaviour for Embodied Agents.*
- **Reviewer in:** *Journal on Multimodal User Interfaces, FG/WACV'23 Workshop on Socially Interactive Human-like Virtual Agents, ICMI'23 Workshop on Generation and Evaluation of Non-verbal Behaviour for Embodied Agents.*

## Accomplishments

- *Globalink Research Internship Award* (2019) from Mitacs Globalink.
- *Graduate scholarship for PhD program* (2020) from SMAER doctoral school of Sorbonne Université and Agence Nationale de la Recherche (ANR).

## Other Skills and Qualifications

**Artificial Intelligence Skills:** *TensorFlow, Keras, TensorBoard, Deep Learning (DL), Machine Learning (ML), Recurrent Neural Networks (RNNs), Transformers, Large Language Models (LLMs), Natural Language Processing (NLP), Sentiment Analysis.*
**Programming:** *Python, Java, C, C++, ROS, R, Matlab/Simulink, VHDL, FPGA programming, SQL, HTML.*
**Operating Systems:** *Windows, Linux, Mac.*
**Applications:** *Microsoft Office (Word, Excel, PowerPoint), LaTeX, OpenScad, Arduino.*
**Acquired skills:** *Public speaking skills, conflict resolution skills, negotiating skills, research skills.*
**Languages:** *Korean (native), English (bilingual), French (bilingual).*

***References are available upon request.***