

CUI Activity Report 2021

1 – Team MIRALab - University of Geneva

- **Director**
Magnenat-Thalmann Nadia, Professor



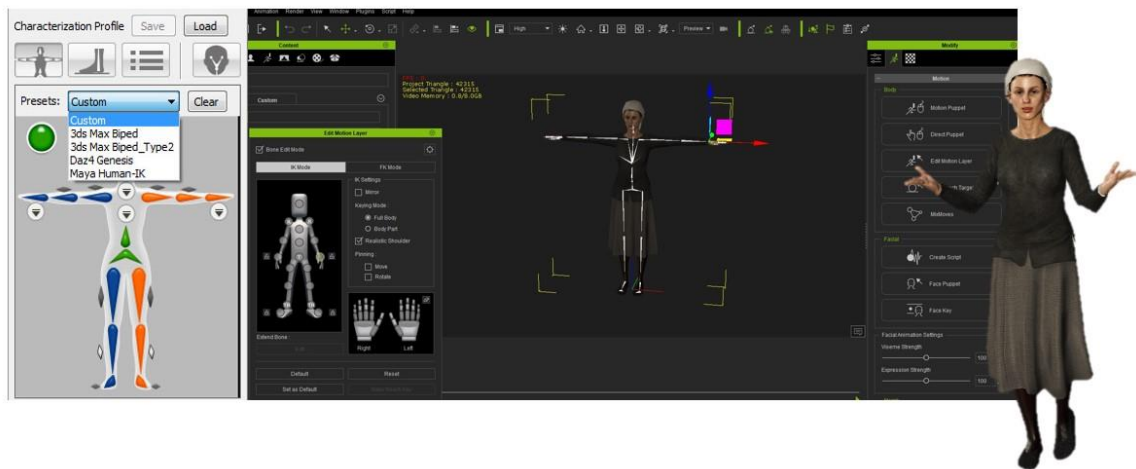
- **Assistants (PhD students)**
Baka Evangelia
 - **Administration**
Giudicelli Elisabeth
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2 – Domain activities

- **Description of the activities of the laboratory research**
MIRALab was founded in 1989 by Professor Nadia Magnenat-Thalmann and has brought together PhD students and researchers from different fields, such as computer science, 3D graphics, 3D simulation, social robotics, 3D fashion design, and cognitive science. This truly interdisciplinary group continues to work in the field of medical informatics, virtual worlds and virtual humans.

Since 1992, MIRALab has participated in more than 50 European Projects and contributes to the management of two International Conferences, CASA and CGI. Moreover, MIRALab produces 3D showcases for museums, galleries, such as fashion shows with virtual models and clothes. In 2020, MIRALab was working on 3D Worlds and Cultural heritage.

The following are some images of our work:



Implementation of Virtual humans in Cultural heritage applications

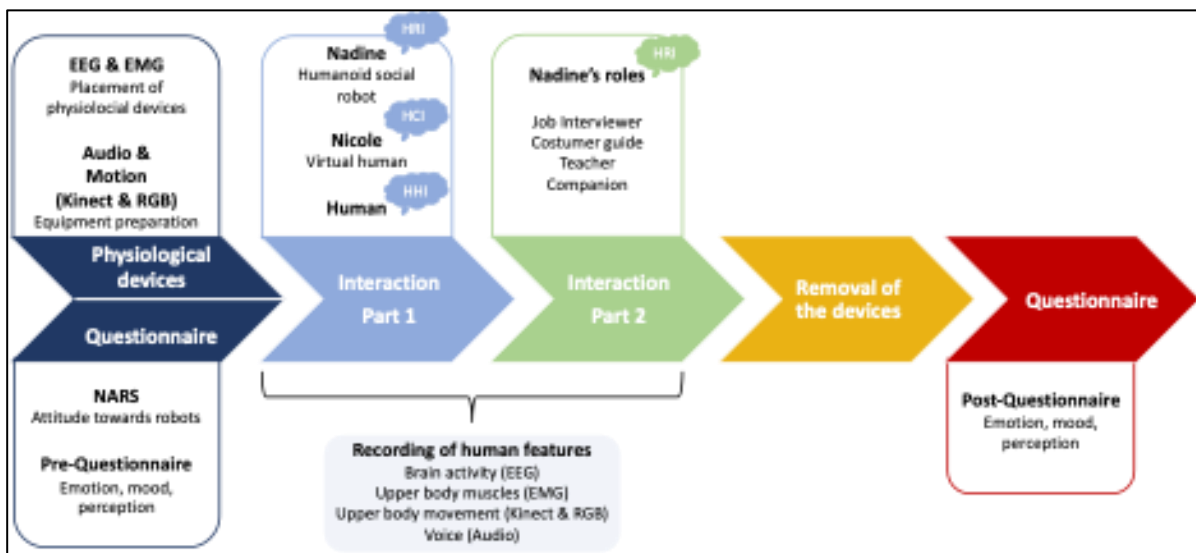
- Website : <http://www.miralab.ch>

3.1 - PhD Thesis in preparation (Faculty of Sciences, mention interdisciplinary)

CUI activity report 2021

- **Eva Baka**

Evangelia Baka is working on human's perception and human's behavioral patterns towards several kind of interactions and technological environments, i.e virtual and physical environments, social humanoid robots and virtual avatars. A multimodal approach is used for the assessment and the validation of humans' reactions, such as brain signals (encephalography (EEG)), muscles activity (electromyography (EMG)), audio (voice recordings), motion (motion capture) and psychological indexes and emotions (questionnaire). The goal is firstly to define and decipher the complex social interaction process and then, to evaluate if technology can affect it. If yes, our purpose is to see how we react towards the different environments and agents and to propose some guidelines on how they could approach better and more efficiently humans. Our plan of work consists of 3 experiments, like shown in Fig. 1. We want to find the key point where humans accept social agents as a part of the social circle and social agents have as origin the human needs.



Study of Human behavior during interaction - EEG Experiment

4 – List of publications – Refereed papers in international journals

- Z. Bai, N. Yao, N. Mishra, H. Chen, H. Wang, N. Magnenat Thalmann, **Enhancing Emotional Experience by Building Emotional Virtual Characters in VR Volleyball Games**, Computer Animation and Virtual Worlds, Special Issue Paper, DOI: 10.1002/cav.2008, May 31, 2021 (IF: 0.654)
 - L. Tian, H. Li, Q. Wang, X. Du, J. Tao, J.S Chong, N. Magnenat Thalmann, J. Zheng, **Towards Complex and Continuous Manipulation: A Gesture Based Anthropomorphic Robotic Hand Design**, IEEE Robotics and Automation Letters (RA-L) DOI: 10.1109/LRA.2021.3076960, April 30, 2021 (IF: 3.6)
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5 – List of publications – Full refereed papers in Conference Proceedings

- Z. Zhang, J. Zheng, N. Magnenat Thalmann, **Engagement Intention Estimation in Multiparty Human-Robot Interaction**, 30th IEEE International Conference on Robot and Human Interactive Communication (RO-MAN 2021), Virtual, August 08 – 12, 2021
 - H. Li, X. Jiang, B. Guan, N. Magnenat Thalmann, **Efficient Sketch Recognition via Compact Spatial Embedding Graph Neural Networks**, IEEE International Conference on Multimedia and Expo (ICME) 2021, Virtual, July 05 – July 09, 2021
 - Z. Bai, N. Yao, N. Mishra, H. Chen, H. Wang, N. Magnenat Thalmann, **Play with Emotional Characters: Improving User Emotional Experience by a Data-driven Approach in VR Volleyball Games**, IEEE VR 2021 conference, Virtual, March 27 – April 02, 2021
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6 – List of publications – Books Published/Edited

- N. Magnenat Thalmann, J.J. Zhang, M. Ramanathan, D. Thalmann, **Intelligent Sense Modeling and Human-Computer Interaction** (Human-Computer Interaction Series), Springer 1 st ed., 296 p., Hardcover, ISBN 978-3030710019, 2021
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9 – PhD Thesis committees

- **Evangelia Baka**, Director Prof. Nadia Magnenat-Thalmann, University of Geneva, Switzerland

10 – Conference/Program Chair and Festival Chair

September 2021 Conference Co-Chair, 38th Annual International Computer Graphics International (CGI 2021), Geneva, Switzerland - Fully virtual

11 – Refereeing (Include any review for Journal)

- Jury of Ph.D. thesis for New Zealand, France, Sweden, Switzerland and Germany
- European Union, FP7 Projects, Brussels
- Research Grants Council of Singapore
- Natural Sciences and Engineering Research Council of Canada
- National Science Foundation USA
- Swiss National Research Foundation
- Austrian Research Foundation
- ACM SIGGRAPH, IEEE Transactions on Visualization and Computer Graphics, IEEE Computer Graphics and Applications, IEEE Computer, Communications of ACM, The Visual Computer, Computer Graphics Forum, Computer Vision, Graphics and Image Processing, Presence, International Journal of Human-Computer Studies, Computers and Graphics, cyberworlds conference, ICAART (International Conference on Agents and Artificial Intelligence), Enactive conference, Multimedia Modelling conference, International Conference on Entertainment Computing (ICEC), International Conference on Signal Processing, Image Processing and Pattern Recognition; GRAPP (“International Conference on Computer Graphics Theory and Applications), Conference on Affective Computing and Intelligent Interaction (ACII 2010), EG Workshop on 3D Object Retrieval, IEEE Virtual Reality Conference 2010, Computer Graphics International, CASA conference, SIGGRAPH/EUROGRAPHICS Symposium on Computer Animation, etc.

12 – Editorial Responsibilities

2014-Present	Associate Editor, Frontiers in Robotics , Nature Publisher
2010-Present	Editorial Adviser of the journal of Graphical Models published by Elsevier
2000-Present	Editor-in-Chief of the Journal The Visual Computer published by Springer Verlag, Germany
2000-Present	Editor of the Journal of Computational Geometry published by Elsevier, Holland
1990-Present	Co-founder and Co-editor-in-chief, Computer Animation and Virtual Worlds , John Wiley and Sons

13 – Events organised in Geneva

- Computer Graphics International (CGI), Geneva, Switzerland, September 6-10, 2021 - **moved to a full online conference.**

14 – Invited talks and Keynotes

- Invited Panelist at the Webinar: “**In the age of AI and social Interaction**”, Economic Board of Singapore and Embassy of Switzerland, March 18, 2021

16 – Honours and scientific awards

- **Selected among four Women Scientists in History. Exhibition to offer a tribute to the historical and contemporary influence of Chinese and French/speaking Women Scientists.** International Women’s Rights Day 2021, Gangzhou, China, 8 March 2021-31 March **2021**
https://www.dropbox.com/s/zs6wldi1ikxs7ya/Women%20Scientists%20in%20History_2021.pdf?dl=0