

CUI Activity Report 2017

1 – Team MIRALab - University of Geneva

- **Director**
Magenat-Thalmann Nadia, Professor



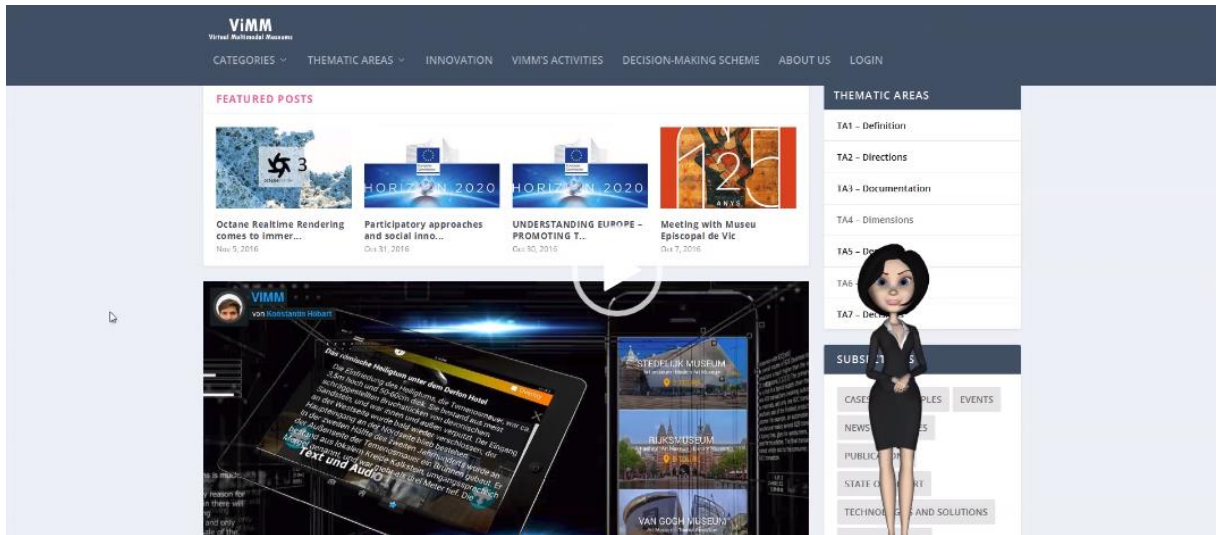
- **Assistants (PhD students)**
Baka Evangelia
Sénécal Simon
Tisserand Yvain
- **Developers / Designers**
Arévalo Marlène
Cadi-Yazli Nedjma
- **Administration**
Grossrieder Coralie

2 – Domain activities

- **Description of the activities of the laboratory research**
MIRALab was founded in 1989 by Professor Nadia Magenat-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 2017, MIRALab was working on the following projects: ANINEX, ITN-DCH, NOTRE and ViMM.

The following are some images of our work:



ViMM project – Dissemination and Communication platform



ITN-DCH project – Demonstration on Site



Robot Eva playing in the Roten Fabrik Theatre at Zurich

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

3 – PhD Thesis

- **David Juan Garcia**

Patient-specific multi-parametric computational model of lower limb muscle function from PET/MRI studies, September 20, 2017

4 – List of publications – Refereed papers in international journals

- L. Tian, N. Magnenat Thalmann, D. Thalmann, J. Zheng, **The Making of a 3D-Printed, Cable-Driven, Single-Model, Lightweight Humanoid Robotic Hand**, *Frontiers in Robotics and AI*, DOI: 10.3389/frobt.2017.00065, pp. 65, December 04, 2017

- W. Gu, G. Seet, N. Magnenat Thalmann, **Perception-Link Behavior Model: Supporting a Novel Operator Interface for a Customizable Anthropomorphic Telepresence Robot**, Robotics, Vol. 6, Issue 3, DOI: 10.3390/robotics6030016, pp. 16, July 20, 2017
- S. Stüvel, N. Magnenat Thalmann, D. Thalmann, F. van der Stappen, A. Egges, **Torso Crowds**, IEEE Transactions on Visualization and Computer Graphics, (IP:1.4), Vol. 23, Issue. 7, pp. 1823 - 1837, DOI: 10.1109/TVCG.2016.2545670, July 2017
- J. Hou, L.P. Chau, N. Magnenat Thalmann and Y. He, **Sparse Low-Rank Matrix Approximation for Data Compression**, IEEE Transactions on Circuits and Systems for Video Technology, (IF: 2.254), Vol. 27, Issue. 5, DOI: 10.1109/TCSVT.2015.2513698, pp. 1043 - 1054, May 2017
- H. Xu, S. Guo, J. Yao and N. Magnenat Thalmann, **Approximating Interior Bounded Box of 3D Character Mesh Model based on Its Skeleton and Symmetry**, International Journal of Intelligent Computing and Cybernetics (IJICC) (IF: 2.254), Vol. 10, Issue. 3, DOI: 10.1108/IJICC-01-2017-0003, pp. 332 - 347, March 2017
- S. Guo, H. Xu, N. Magnenat Thalmann, J. Yao, **Customization and fabrication of the appearance for humanoid robot**, The Visual Computer, (IP: 1.09), Vol 33 (1), pp. 63-74, 2017

5 – List of publications – Full refereed papers in Conference Proceedings

- D. Chakraborty, Y. Tahir, Z. Yang, T. Maszczyk, J. Dauwels, D. Thalmann, N. Magnenat Thalmann, **Assessment and Prediction of Negative Symptoms of Schizophrenia from RGB+D Movement Signals**, IEEE 19th International Workshop on Multimedia Signal Processing (MMSp) 2017, Luton, UK, October 16-18, 2017
 - Y. Tisserand, L. Cuel and N. Magnenat Thalmann, **Automatic 3D garment positioning based on surface metric**, Proceedings of the 30th ACM International Conference on Computer Animation and Social Agents (CASA 2017), Vol. 28, Issue. 3-4, K-Hotel Seoul, Seoul, South Korea, May 22-24, 2017
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7 – List of publications – Books

- S.R.S. Prabaharan, N. Magnenat Thalmann, V.K. Bhaaskaran, **Frontiers in Electronic Technologies**, Springer, 161 p., Hardcover, ISBN 978-981-10-4235-5, 2017
 - J.K. Burgoon, N. Magnenat Thalmann, M. Pantic, A. Vinciarelli, **Social Signal Processing**, Cambridge University Press, 440 p., Hardcover, ISBN-10: 1107161266, ISBN-13: 978-1107161269, 2017
 - M. Ioannides, N. Magnenat Thalmann, G. Papagiannakis, **Mixed Reality and Gamification for Cultural Heritage**, Springer, 1st Edition., 2017, 309 illus., 279 in color., Hardcover, ISBN: 978-3-319-49606-1, 2017
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8 – List of publications – Book chapters

- M. Becker and N. Magnenat Thalmann, **Muscle Tissue Labeling of Human Lower Limb in Multi-Channel mDixon MR Imaging: Concepts and Applications**, IEEE/ACM Transactions on Computational Biology and Bioinformatics, IEEE publisher, DOI: 10.1109/TCBB.2015.2459679, pp. 290-299, 2017
 - N. Magnenat Thalmann, L. Tian and F. Yao, **Nadine: A Social Robot that Can Localize Objects and Grasp Them in a Human Way**, Frontiers in Electronic Technologies, Springer, pp. 1-23, 2017
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9 – List of publications – Research and technical reports

Several technical reports for the following projects: ANINEX, ITN-DCH, NOTRE and ViMM.

10 – International and national advisory committees

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| 2013-2017 | Member of the Scientific Council of the Institute of Mines-Telecom, Paris, France |
| 2016-2019 | Member of the IAB Committee of the Computer Science Dpt of Technical University of Vienna |

- 2013-2018 Expert on the advanced grant panel in Computer Science, European Research Council (ERC)
- 2007-2017 Expert and reviewer of the Seventh Framework Programme FP7, European Commission
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11 – International and national Research Programs Committees (Include here any participation as Evaluator to EU/US/SNF/Other research programs)

- **ICCV2017**, International Conference on computer vision 2017, Oct 22-29, 2017, Venice, Italy
 - **IEEE-ICCT 2017**, 17th IEEE International Conference on Communication Technology, Chengdu, China, October 2017
 - **CYBERWORLDS 2017**, Chester, UK, September 2017
 - **CASA 2017**, the 30th International Conference on Computer Animation and Social Agents Seoul, South Korea, May 2017
 - **MMEDIA 2017**, The Ninth International Conferences on Advances in Multimedia, Venice, Italy, April 2017
 - **VISIGRAPP 2017**, Porto, Portugal, February 2017
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12 – PhD Thesis committees

- David Garcia, Supervisor, University of Geneva, Switzerland
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14 – Member of conference/workshop program committees (Include here any review for conference or workshop)

- **ICCV2017**, International Conference on computer vision 2017, Venice, Italy, Oct 22-29, 2017
- **IEEE-ICCT 2017**, 17th IEEE International Conference on Communication Technology, Chengdu, China, October 2017
- **CYBERWORLDS 2017**, Chester, UK, September 2017

- **CGI2017**, Computer Graphics Internatinal, Yokohama, Japan, June 27-30, 2017
- **CASA 2017**, the 30th International Conference on Computer Animation and Social Agents Seoul, South Korea, May 2017
- **MMEDIA 2017**, The Ninth International Conferences on Advances in Multimedia, Venice, Italy, April 2017
- **12th Asia Conference on Healthcare and Health Insurance**, Panel on "**Roles of the Different Players in the Healthcare Ecosystem in Ensuring Affordability, Accessibility and Sustainability**", Mandarin Orchard Hotel, Singapore, March 20-21, 2017(<http://www3.asiainsurancereview.com/ConferenceDocuments/17-Asia%20Healthcare.pdf>)
- **VISIGRAPP 2017**, Porto, Portugal, February 2017

15 – 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

16 – Editorial Responsibilities

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

(Include here any Conf/Workshop/Other prominent event organized in Geneva)

- **Cultural Heritage workshop Thematic Area 6 “Discovery”** In the framework of the EU project ViMM , Batelle - University of Geneva, Switzerland, December 15, 2017
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18 – Invited talks

- Invited talk at The International Conference on Nextgen Electronic Technologies: Silicon to Software, Imaging and Computer Graphics Theory and Applications(ICNETS²), "**Social robotics: Who are they and what are their applications? Case study with NTU Nadine robot**", VIT University, Chennai Campus, India, March 23–25, 2017 (<https://www.icnets2.com/dump/keynote-speakers>)
- Invited talk at The 12th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISIGRAPP 2017), "**The Future of Social Robots - A Case Study with Nadine Humanoid Robot**", Porto, Portugal, February 27–March 01, 2017 (<http://www.visigrapp.org/KeynoteSpeakers.aspx?y=2017>)

- Invited talk at The Second edition of iMagination Week 2017: Shaping the City of Tomorrow, "**Social Robots as companions of real people**", ESSEC Business School, Singapore, January 10, 2017
(http://www.essec.edu/media/asia-pacific/news/press_release_-_imagination_week_2017_-_singapore.pdf)
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19 – Participation in TV and Radio Programs

- **From EVA to Nadine (Les progrès de l'intelligence artificielle ont fait émerger une nouvelle génération de robots)**
[RTS.ch - Swiss News TV](#), 10 jan 2017, 7 :30 pm
-

20 – Press Release

- **Vieillir? Jamais sans mon robot**
[RTS Radio Télévision Suisse](#), 01 Feb 2017, French
 - **Les progrès de l'intelligence artificielle ont fait émerger une nouvelle génération de robots**
[RTS Radio Télévision Suisse](#), 14 Jan 2017, French
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21 – Funded research projects – Participation to European projects

- **ANINEX**
User Centred Computer Animation Techniques for Next Generation Digital Creation and Modelling
Period: December 2013 - November 2017
Type: European Research
MIRALab Total budget: CHF 188'000.-
MIRALab Budget 2017: CHF 43'080.-

Partners (5 partners):

- National Centre for Computer Animation, Bournemouth University – United Kingdom
- MIRALab, University of Geneva – Switzerland
- National Laboratory for Information Science and Technology, Tsinghua University – China
- The State Key Laboratory of Computer Science, Institute of Software, Chinese Academy of Sciences – China
- The State Key Laboratory of Computer Aided Design and Computer Graphics, Zhejiang University – China

- **ITN-DCH**

Initial Training Network for Digital Cultural Heritage: Projecting our Past to the Future

Period: October 2013 - September 2017

Type: European Research

Website: <http://www.itn-dch.org/>

MIRALab Total budget: CHF 459'230.-

MIRALab Budget 2017: CHF 86'105.-

Partners (14 partners):

- Cyprus University of Technology - Cyprus
- National Technical University of Athens - Greece
- Universitaet Stuttgart – Germany
- Foundation for Research and Technology Hellas – Greece
- Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e.v. - Germany
- Katholieke Universiteit Leuven – Belgium
- Fondazione Bruno Kessler – Italy
- Centre National de la Recherche Scientifique - France
- Universidad de Murcia - Spain
- Univerzav Ljubljani - Slovenia
- Arctron 3d Vermessungstechnik-und Softwareentwicklung Gmbh - Germany
- 7Reasons Medien Gmbh - Germany
- The University of Warwick – United Kingdom

- **NOTRE**

Network for Social Computing Research

Period: January 2016 - December 2018

Type: European Research

Website: <http://notre.socialcomputing.eu>

MIRALab Total budget: CHF 189'750.-

MIRALab Budget 2017: CHF 63'250.-

Partners (5 partners):

- Cyprus University of Technology (CUT) – Cyprus
- Foundation For Research and Technology Hellas (FORTH-ICS) – Greece
- IMDEA Networks Institute (IMDEA) – Spain
- MIRALab, University of Geneva (UNIGE) – Switzerland
- University of Dusseldorf (UDUS) – Germany

- **ViMM**

Virtual Multimodal Museum

Period: October 2016 - March 2019

Type: European Research

Website: <http://vi-mm.eu/>

MIRALab Total budget: CHF 199'701.-

MIRALab Budget 2017: CHF 79'880.-

Partners (7 partners):

- Cyprus University of Technology (CUT) – Cyprus
- Foundation For Research and Technology Hellas (FORTH-ICS) – Greece
- 7Reasons Medien GmbH - Germany
- MIRALab, University of Geneva (UNIGE) – Switzerland
- Stiftung Preussischer Kulturesitz – Germany
- Universidad Pompeu Fabra – Spain
- 7scenes – Netherlands

24 – Others. In this chapter, please indicate whatever that could not match another heading, like:

- The robot Eva playing in the Roten Fabrik Theatre at Zurich, Feb 2017
(<https://www.youtube.com/watch?v=ISFD76N1FZI>)