

# Zerrin Yumak

Utrecht University  
Department of Information and Computing Sciences  
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Nationality: Turkish  
Date of birth: 01.01.1981

## EDUCATION

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May 2006 - March 2011

### **PhD in Computer Science (mention très bien)**

*University of Geneva, Switzerland*

- **Thesis title:** Modeling Emotions and Memory for Virtual Characters and Social Robots
- **Thesis supervisor:** Prof. Nadia Magnenat-Thalmann, MIRALab, University of Geneva
- **Jury members:** Prof. José Rolim (University of Geneva), Prof. Catheriné Pelachaud (Telecom ParisTech - France) and Prof. Christoph Bartneck (Canterbury University – New Zealand)

September 2003 – June 2005

### **MSc in Computer Engineering**

*Dokuz Eylul University, Turkey*

- **Thesis title:** HIS: Hierarchical Constraint Solver
- **Thesis supervisor:** Prof. Tatyana Yakhno, Dokuz Eylul University, Izmir, Turkey
- **Indicative learning activities:** Artificial Intelligence, Human-computer Interaction, Theory of Computer Science, Distributed Databases, Object-Oriented programming
- **International learning activities:** First International Summer School on Constraint Programming, Acquafredda di Maratea, Italy, 2005

September 2002 – June 2003

### **Computer Engineering Orientation Program**

*Dokuz Eylul University, Turkey*

- **Indicative learning activities:** Data Structures, Operating Systems, Computer Networks, Programming Languages, Computer Organization and Architecture, Database Management Systems

September 1998 – June 2002

### **BSc in Industrial Engineering**

*Dokuz Eylul University, Turkey*

- **License Thesis:** “Decision Support Systems”
- **Thesis supervisor:** Prof. Irem Ozkarahan, Dokuz Eylul University, Izmir, Turkey
- **Indicative learning activities:** Operations Research, Business Economics, Simulation, Production Planning, Ergonomics, Thermodynamics, Statics, Dynamics, Materials Science

## PROFESSIONAL EXPERIENCE

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April 2015 – Now

### **Assistant Professor**

*Department of Information and Computing Sciences, Utrecht University*

- **Teaching** Computer Animation (MSc) and Cognition & Emotion (BSc) courses, coordinating Game and Media Technology Colloquium (MSc), Obtained “Teaching in Higher Education” certificate, BKO in process

- **Leading** Task 3.2 “Embodiment and Physical Interaction”, Horizon 2020 RAGE (Realizing an Applied Gaming Ecosystem) EU project
- **Leading** the work package “ANI3: Biomechanical Animation” in the COMMIT project “Virtual Worlds for Well-being”
- **Supervision** of students and staff (PhD and Post-doc)
- **Obtained** Game Research Focus Area Seed Money for the project entitled “Autonomous Gaze Animation for Virtual Characters During Multi-party Interactions”, co-PI, 8500 Euro

Jan 2013 – April 2015

### **Research Fellow**

*Institute for Media Innovation – Nanyang Technological University, Singapore*

- **Research** on multi-party interaction with virtual characters and social robots
- **Co-author** of the BeingThere proposal on “Autonomous Virtual Humans and Social Robots in Telepresence”, obtained grant 800,000 SGD

Nov 2011 – Nov 2012

### **Scientific Collaborator**

*Human-Computer Interaction Lab and Artificial Intelligence Lab – EPFL, Switzerland*

- **Research** on mobile and persuasive systems for health and wellbeing

March 2011 – May 2011

### **Senior Researcher**

*MIRALab - University of Geneva, Switzerland*

- **Research** on interactive virtual characters and social robots
- **Deputy manager, researcher and developer** in EU projects

March 2011- May 2011

### **Visiting Researcher**

*Institute for Media Innovation, Nanyang Technological University, Singapore*

- **Collaboration and research exchange**, gave a tutorial in VR 2011 and presented in an international workshop in IMI

May 2006 - March 2011

### **Research Assistant**

*MIRALab-University of Geneva, Switzerland*

- **Research and development** of behavior models (personality, emotion, memory) for artificial entities (virtual characters and physical robots) and expressive character animation
- **Deputy manager, researcher and developer** in the EU projects HUMAINE, INDIGO, PlayMancer and 3DLife

May 2006 – March 2011

### **Editorial Assistant of “Computer Animation and Virtual Worlds” Journal**

*MIRALab-University of Geneva, Switzerland*

- **Editorial assistant** of the “Computer Animation and Virtual Worlds”, published by John Wiley & Sons, Inc.

January 2003– April 2006

### **Research Assistant**

*Dokuz Eylul University, Izmir, Turkey*

- **Indicative teaching activities:** Introduction to Constraint Programming, Logic Programming and Expert Systems, Algorithms and Programming, Linear Algebra and Differential Equations, Numerical Analysis, Introduction to Probability and Statistics

## KEY PUBLICATIONS

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*Google scholar citations: 269, h-index : 8. Please note the publications before 2012 are with the surname Kasap.*

### Journal papers

- C. Christyowidiasmoro, Z. Yumak. A Survey of Motion Synthesis Methods for Expressive Character Animation, Eurographics state-of-the-art, 2017 (in preparation)
- Y. Ling, L. P. Ter Meer, Z. Yumak, R. Veltkamp. Usability Test of Exercise Games Designed for Rehabilitation of Elderly Patients after Hip Replacement Surgery: A Pilot Study, JMIR Serious Games, May 2017 (submitted)
- Z. Yumak, B. van den Brink, A. Egges. Autonomous Social Gaze Model for an Interactive Virtual Character in Real-Life Settings, Computer Animation and Virtual Worlds, 2017
- Y. Chen, D. Le, Z. Yumak, P. Pu. EHR : A Sensing Technology Readiness Model for Lifestyle Changes. Mobile Networks and Applications, pp. 1-15, 2017
- Z. Yumak, J. Ren, N. Magnenat-Thalmann, and J. Yuan. Modelling Multi-party Interactions Among Virtual Characters, Robots and Humans, MIT Presence: Tele-operators and Virtual Environments Presence), vol. 23, no. 2, 2014.
- Z. Yumak and P. Pu. Survey of Sensor-based Personal Wellness Management Systems. BioNanoScience, Springer. Volume 3, Issue 3, pp. 254-269. 2013.
- Z. Kasap and N. Magnenat-Thalmann. Building Long-term Relationships with Virtual and Robotic Characters: The role of remembering. The Visual Computer. 28(1). pp. 87-97. Springer-Verlag. 2012.
- Z. Kasap, M. Ben Moussa, P. Chaudhuri, N. Magnenat-Thalmann. Making them Remember-Emotional Virtual Characters with Memory. IEEE Computer Graphics and Applications, Vol. 29, No. 2, pp. 20-29, 2009.
- Z. Kasap and N. Magnenat-Thalmann. Intelligent Virtual Humans with Autonomy and Personality. Intelligent Decision Technologies, IOS Press, Vol. 1, No. 1-2, pp. 3-15, 2007.

### Book Chapters

- A. Beck, Z. Yumak, N. Magnenat Thalmann. Body Movement Generation for Virtual Characters and Social Robots. Social Signal Processing, Cambridge University Press, 2016
- Z. Yumak and N. Magnenat Thalmann. Multi-modal and Multi-party Social Interactions. Context Aware Human-Robot and Human-Agent Interaction, Springer Publishing, November 2015.
- Z. Kasap and N. Magnenat-Thalmann. Interacting with Emotion and Memory enabled Virtual Characters and Social Robots. In T. Nishida, C. Faucher and L. C. Jain (eds.), Modeling Machine Emotions for Realizing Intelligence: Foundations and Applications, Springer, Germany, 2010.
- Z. Kasap and N. Magnenat-Thalmann. Intelligent Virtual Humans with Autonomy and Personality: State-of-the-Art. New Advances in Virtual Humans (Eds.) Nadia Magnenat-Thalmann, Lakhmi C. Jain, N. Ichalkaranje, Studies in Computational Intelligence, Springer, pp. 43-84, 2008.

### Conference/workshop papers

- Z. Yumak and A. Egges. Autonomous Gaze Animation for Socially Interactive Virtual Characters during Multi-party Interactions. Motion in Games, May 2016.
- N. Magnenat-Thalmann, Z. Yumak and A. Beck. Autonomous Virtual Humans and Social Robots in Telepresence. IEEE 16<sup>th</sup> International Workshop on Multimedia Signal Processing (MMSp), Jakarta, Indonesia, 2014 (invited paper).
- Z. Yumak and N. Magnenat-Thalmann. Multi-party Interaction with a Virtual Character and Human-like Robot. The 19th ACM Symposium on Virtual Reality Software and Technology (VRST'13), Singapore, 2013.
- Z. Yumak, Y. Chen and P. Pu. EmoSoNet: An Emotion-aware Social Network for Emotional Wellbeing. In Proceedings of ACM SIGCHI 2012 Workshop on Interaction Design and Emotional Wellbeing, Austin, TX, USA, May 05-10, 2012.
- Z. Kasap and N. Magnenat-Thalmann. Long-term Social Interaction with an Expressive Robot. In Proceedings of Computer Graphics International (CGI'11), Ottawa, Canada, 2011.

- Z. Kasap and N. Magnenat-Thalmann. Towards Episodic Memory Based Long-term Affective Interaction with a human-like Robot. IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN), pp. 479-484, 2010.
- C. Cig, Z. Kasap, A. Egges, N. Magnenat-Thalmann. Realistic Emotional Gaze and Head Behavior Generation Based on Arousal and Dominance Factors. The Third International Conference on Motion in Games, Springer-Verlag, pp. 278-289, 2010.
- M. Ben Moussa, Z. Kasap, N. Magnenat-Thalmann, K. Chandramouli, M. Haji, N. Seyed, Q. Zhang, E. Izquierdo, I. Biperis and P. Daras. Towards an Expressive Virtual tutor: an Implementation of a Virtual Tutor Based on an Empirical Study of Non-verbal Behaviour, Proceedings of the 2010 ACM workshop on Surreal media and virtual cloning (SMVC), ACM, pp. 39-44, 2010.
- M. Ben Moussa, Z. Kasap, N. Magnenat-Thalmann and David Hanson. MPEG-4 FAP Animation Applied to Humanoid Robot Head. Proceedings of Engage 2010 Summer School, 2010.
- N. Magnenat-Thalmann, Z. Kasap, M. Ben Moussa, Affective Interaction with an Expressive Robot. Poster session of the 4th International Conference on Cognitive Systems, 2010.
- N. Magnenat-Thalmann and Z. Kasap, Virtual Humans in Serious Games. International Conference on CyberWorlds, IEEE Computer Society, pp. 71-79, September 2009 (invited paper).
- D. Vogiatzis, C. Spyropoulos, S. Konstantopoulos, V. Karkaletsis, Z. Kasap, C. Matheson and O. Deroo, An Affective Robot Guide to Museums. Fourth International Workshop on Human-Computer Conversation, 2008.
- N. Magnenat-Thalmann, Z. Kasap and M. Ben Moussa, Communicating with a Virtual human or a Skin-based Robot Head. 8th IEEE International Conference on Automatic Face and Gesture Recognition, Amsterdam, Netherlands, 2008 (invited paper).
- Z. Yumak, T. Yakhno, "HIS: Hierarchical Solver for Over-constrained Satisfaction Problems", 14<sup>th</sup> Turkish Symposium on Artificial Intelligence and Neural Networks (TAINN), 2005.

## **PROFESSIONAL ACTIVITIES**

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### **Presenter and contributor in talks, workshops, tutorials, courses, exhibitions, demonstrations**

- Computer Animation and Social Agents (CASA), "Autonomous Social Gaze Model", Seoul, May 2017
- Demonstration at ICT Open, "Cycling Game for Elderly Patients for Rehabilitation", Utrecht, March 2017
- Featured in DUB News, Utrecht University, "The Virtual Characters and Motion Synthesis", February 2017
- Studium Generale presenter, "Robots and People Will Never Marry" Lecture series, Utrecht, October 2016
- IVA 2016 tutorial, "How to Build and Interactive Virtual Character", Los Angeles, September 2016
- Utrecht Summer School: Multidisciplinary Game Research, "Natural Interaction", August 2016
- Demonstration of Virtual Receptionist demo at INTETAIN 2016, Utrecht, June 2016
- Demonstration of Virtual Receptionist demo to EU ambassadors, Utrecht, May 2016
- Singapore Challenge held in conjunction with Global Young Scientist Summit@one-north 2014 (GYSS), "Persuasive robots and virtual characters to promote well-being and quality-of-life", 2014.
- METU Game Technologies Seminar, "Long-Term Interaction with Virtual and Robotic Tutors", 2011.
- TECFA Brown Bag Seminar, "Long-term social interaction with virtual and robotic tutors", University of Geneva. 2011.
- IEEE Virtual Reality 2011, "Social interaction with virtual characters and social robots", Singapore, March 19-23, 2011.
- Wee Kim Wee School of Communication and Information, Nanyang Technological University, "Creating some awareness in Virtual Humans and Social Robots", October 27, 2010.
- IEEE International Conference on Multimedia & Expo, "Interacting with Virtual Characters and Social Robots: What is missing? What is next? Singapore, July 21, 2010.
- VRCAI'09 (The 8<sup>th</sup> ACM SIGGRAPH International Conference on Virtual Reality Continuum and Its Applications in Industry), "Modeling socially intelligent virtual humans", December 14-15, 2009, Yokohama, Japan.

- Motion in Games Conference, “Emotional Humans and Social Robots for Interactive Games Application”, Zeist, The Netherlands, Nov 22, 2009.
- 450e anniversaire de L’Université de Genève, “Demonstration d’EVA, un robot social”, Exhibition at the Centre commercial de Balexert, Geneva, Switzerland, April 27 - May 9, 2009.
- The 3ème cycle Romand d’Informatique (CUSO), Workshop on Challenges in Serious Games, Interaction with an Emotion and Memory Enabled Teaching Robot, Villars-sur-Ollon, Switzerland, March 2-3, 2009
- ACM SIGGRAPH Asia 2008 Courses, “Communicating with a Virtual Human or Skin-based robot head”, Singapore, December 10-13, 2008
- The 3ème cycle Romand d’Informatique (CUSO), Workshop on Data Acquisition for 3D Simulation, “Remembering Faces for Interaction with an Emotional Virtual Human”, December 7-9, 2007.
- 3<sup>rd</sup> HUMAINE Summer School, Increasing the feeling of presence with affective modalities, September 22-28, 2006, Genova, Italy.

### **Program Committee, Editorial Board member and Reviewer for journals, conferences, workshops**

- Associate Editor of Visual Computer, Springer
- Program Committee member of Computer Animation and Social Agents (CASA) and Computer Graphics International (CGI) conferences, Motion in Games (MIG) and GALA (Games and Learning Alliance), Eurasia Graphhics
- Reviewer for INTETAIN, IEEE RO-MAN, IEEE Transactions on Multimedia, Computer Graphics Forum, Computers & Graphics, International Journal of Human-Computer Studies and others
- Editorial Member of Frontiers in Virtual Environments, Robotics and AI Editorial Office, EPFL, Switzerland (www.frontiersin.org)

### **Workshop, Event Organization**

- Publicity Chair of INTETAIN 2016
- Short paper chair of VRST 2013 and CGI 2013
- Guest editorship: Special Issue on “Personal Health Systems for Wellbeing and Lifestyle Change” BioNanoScience, Springer, co-organizer Prof. Pearl Pu, Editor-in-Chief Dr. Sandro Carrara
- Co-organizer, RecSys 2012 Workshop on Recommender Technologies for Lifestyle Change with Dr. Bernd Ludwig, University of Regensburg and Prof. Francesco Ricci, University of Bozen-Bolzano
- Local Committee Chair of ENGAGE Summer School, 13-15 September 2010

### **Supervision of student and staff**

- Christyowidiasmoro, PhD student on the topic of “Motion Synthesis for Expressive Character Animation”, Utrecht University, co-promotor Prof. Remco Veltkamp (ongoing)
- Dr. Yun Ling, post-doc in the COMMIT project, “Usability of Exercise Games for Elderly” (ongoing)
- Jack Hadjicosti, “Generating Believable Gesture Motion for NPCs Based on Conversational Attitudes”, Master Thesis (ongoing)
- Ferdinand Coninck, “Automated Social Behavior Between Virtual Characters in Casual Conversations”, Master Thesis (ongoing)
- Constantinos Charalambous, Realistic Lip-Sync Animation Based on Emotional Speech and Linguistic Cues, Master Thesis (ongoing)
- Costas Mavridis, “Autonomous Data-driven Gaze Model for the Pepper robot”, Small project GMT (ongoing)
- Andrey Obolenski, “Using Hofstede’s Dimensions to Model Culture in Multi-Party Dialogue”, Master Thesis (ongoing)
- Raoul Harel, “Using Social Practices to Model Turn-taking in Multi-party Conversations”, Master Thesis, Utrecht University (ongoing)
- Bram van den Brink, “Virtual Human Controller” project, research programmer, Utrecht University, November - June 2016
- Rohit Dubey, “Multi-party interactions with a social robot”, research associate, Nanyang Technological University, 2014 (now PhD candidate at the Future City Lab Singapore and ETH-Zurich)

- Danni Le, “Large scale analysis on Technology Adoption for Lifestyle Change”, Master semester project, Swiss Federal Institute of Technology, Lausanne, Switzerland, Autumn 2012.
- Javier Martin de Valmesada, “Wellness sensing with wearable sensors”, Master semester project, Swiss Federal Institute of Technology, Lausanne, Switzerland, Autumn 2012. (Now software engineer at Accenture Switzerland)
- Cagla Cig, “Realistic Emotional Gaze and Head Behavior Generation Based on Arousal and Dominance Factors”, Master Thesis, University of Geneva and Utrecht University, 2010. (Now Software Engineer at Huawei Technologies, Turkey)
- Maher Ben Moussa, “Facial Animation and Interaction During Dialogues”, Master Thesis, MIRALab - University of Geneva and University of Twente, 2008. (Now senior researcher at University of Geneva)

### **Membership**

- AAAC Emotion Research network
- 3TU.NIRICT ICT Next Gen
- Foundation of Responsible Robotics

### **Languages**

- Turkish (Native Language)
- English (Written and oral fluently)
- French (Intermediate)
- Dutch (Beginner)