

## Zsófia Ruttkay, PhD

### Curriculum vitae

#### Personal data

**Born:** in 1955, Budapest, Hungary

**Citizenship:** Dutch and Hungarian

**Family status:** married (Dutch husband), one child of 23

**Work address:** HMI EWI, University of Twente, Enschede, The Netherlands

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#### Professional interest

Intelligent User Interfaces, multimodal communication, particularly Embodied Conversational Agents (ECAs) and its benefits for different interactive applications.

With experience in mathematics, AI (search, constraint satisfaction, evolutionary computing) and computer graphics, and earlier work on user interfaces and facial animation, currently my research focuses on the development of adaptive, individual ECAs. I am interested in different aspects of 'personification' of ECAs, as manifested on the communication signal level in gesturing, facial expressions and speech, and on the 'mind' level in individual behavior, adaptation to the user and to other, dynamically changing circumstances. To increase believability and naturalness, I am also working on fine-tuning and coordination of multi-modal communication. Finally, I am interested in novel applications in the field of health-care and entertainment.

#### Current work (2004-)

**Associate Professor (0.8) at the Human-Media Interaction Group, Department of Computer Science, University of Twente, The Netherlands**

Research on synchronization of multimodal behaviour, high-level representation as well as low-level parameterization and planning. Investigation of the perception of realistic versus artistic representation of humans and motion animations. Applications with a perception-action loop, like a virtual conductor and a virtual trainer.

Investigation of applying computer technology for the arts, as interactive medium of creation (e.g. interactive graffiti, evolutionary art), reconstruction and scholarly investigation.

Also busy with designing a new Bachelor curriculum called Creative Technology.

**Guest professor at Pazmany Peter Catholic University, Faculty of Informations Technology, Hungary**

Lecturing on Virtual Humans and supervising student projects.

#### Recent professional activities

**Projects:** GATE (2007-...), Work Group Lieder of COST 2102 EU (2007-...),

AMI EU IST (2004-2007), HUMAINE EU IST (2004-2007)

FASE (STW 1996-2001); Ambience (EU IST 2000 - 2003) as subcontractor.

**Events organized:**

Leeuwarden BRIDGES (2008)

IVA07 Paris, GALA 07 (2007)

Paris Behavior Markup Language Workshop (2007)

IVA06 Marina del Rey, USA: GALA Festival (2006)

AAMAS05 Utrecht: Workshop on Integrating Perception and Action in Multimodal Interfaces (2005)

IVA05 Kos, Greece: GALA Festival (2005)

Chief organizer of the Dagstuhl Seminar on 'Evaluating ECAs' (2004)

AAMAS04 Workshop on 'Balanced Perception and Action in ECAs' (2004)

AAMAS03 Workshop on 'Embodied Conversational Characters as Individuals' (2003)

AAMAS02 Ws on 'Embodied Conversational Agents – Let's Specify and Evaluate them!' (2002)

Benelux Symposium on Embodied Conversational Agents (2002)

Benelux Symposium on Facial Animation (2000)

ECAI workshop on Non-Standard Constraint Satisfaction (1996)

ECAI workshop on Applied Genetic and Other Evolutionary Algorithms, (1994)

CHI Workshop on Intelligent Graphical User Interfaces (1993)

**On PC and/or reviewer for, among others:**

Reviewer for AAMAS08

PC member for IVA 2007

PC member for FLAIRS07

Chair for GALA 2007

Reviewer for IVA 2007

Reviewer for CHI 2007

Reviewer for IEEE Transactions on Speech and Audio Processing

Reviewer for IEEE Transactions on Image Processing

Reviewer for Eurographics 2006

Reviewer for IVA 2006

Reviewer for IEEE Ro-Man 2006

Reviewer for CASA 2006

PC member for IVA 2006

PC Member for "AI and Ambient Entertainment" for the FLAIRS 2007

Reviewer for IS

PC and reviewer for AAMAS 2005

Reviewer for ACM Multimedia 2005

Reviewer for CA 2005

Reviewer for IVA2005

Reviewer for AISB'05 Social Intelligence and Interaction in Animals, Robots and Agents

Reviewer for IEEE Transactions on Speech and Audio Processing

Reviewer for IEEE Transactions on Image Processing

Reviewer for *Advanced Engineering Informatics Journal*

Reviewer of EU-IST Project PF-STAR, Birmingham

AAMAS04 Conference (2004)

AAMAS workshops (2001-2004)

ERCIM Compulog-Constraints Symposiums (2001-2003)

Constraint Processing (1999, 2000)

**Work visits abroad:**

2006: University of Bolzano, Invited lectures and consultancy

2005: Szent-Györgyi Fellow at the Pázmány Péter Catholic University, Budapest

2003: University Paris VIII; National University of Singapore; University of Birmingham;

Semmelweis University Budapest;

2002: Pázmány Peter University, Budapest (teaching for a semester)

2001: University Roma Tre; University Roma La Sapienza;

2000: University of Cape Town, South Africa

1999: Fraunhofer Institute, Darmstadt, Germany

1998: MiraLab, University of Geneva;

1987: University Tokyo, Japan; CWI, Amsterdam.

**Student projects:** expert for 2 PhD projects, supervising 1 PhD student, and supervisor of some 15 MSc projects

**Publications:** Above 90 scientific publications at conferences, journals and books

Co-editor of a book on *Evaluating ECAs*.

Fundamental role in launching the *International Journal of Constraints* in 1997.

**Memberships:** ACM SIGGRAPH, Eurographics, ERCIM Constraints Network of Excellence,

EU IST HUMAINE Network of Excellence, Bolyai Association, Neumann Association

**Education**

**Secondary school:** 1970-1974: at Radnóti Miklós Gimnázium, Budapest, extended curriculum in mathematics, English and arts.

**University:** 1975-1979 applied mathematics at the Faculty of Natural Sciences, Eötvös Loránd University, Budapest, graduated with first-class honors, M.S. thesis: 'A mathematical model of the nervous system'.

**PhD:** 1990: at Budapest Technical University, with 'Summa cum laude', Ph. D. thesis: 'An intelligent graphical editor for fixture design'.

**2<sup>nd</sup> PhD:** 2003: at Budapest Technical University, Ph. D. thesis: 'Computer Facial Animation'.

**Languages: English** (excellent) and **Dutch** (fluent, 'Dutch as second language' certification), **Hungarian** (mother tongue), **French and Russian** (medium).

### Earlier jobs

**1997-2004: Senior researcher at the Center for Mathematics and Computer Science, Amsterdam**

Research on emotional facial expressions and their rendering on 2D non-photorealistic and 3D realistic facial models. Design and implementation of a software to define and interactively edit facial expressions on synthetic faces. The resulting CharToon software has been used by international partners (University Roma La Sapienza, Italy, Intelligent Machines USA, KU Hungary, VU, KUB and Philips Research, The Netherlands) and is being marketed by the Epictoid Company. Research on declarative motion processing, design of interval-constraint based motion editing facilities. Design and development of the GESTYLE language, to define the style of nonverbal communication of synthetic characters. Application of GESTYLE for full-body avatars in VRML. Evaluating ECAs, and providing design guidelines for different applications.

**1994-1997: Founder and executive director of the Vierkant Foundation, located at the Dept. of Mathematics and Computer Science, Vrije Universiteit, Amsterdam.**

**1990-1994: Guest researcher at the Artificial Intelligence Group at the Department of Mathematics and Computer Science of the Vrije Universiteit, Amsterdam.**

**1984-1992: Research fellow at the Artificial Intelligence Group of the Computer and Automation Institute of the Hungarian Academy of Sciences, Budapest**

**1983-1984: Scientific co-worker SYSTEM Computer Service Enterprise, Budapest**

**1979-1984: Scientific co-worker at the Central Statistical Office for State Administration, Budapest**

**1979-1980: Eötvös Loránd University, Budapest**

Lecturer at the Algebra Department

**1976-1982: KÖMAL Secondary School Maths Journal, Budapest**

Co-worker, later on the editorial board

### Other interests and activities

**Maths education for children:** Founder of the Vierkant Foundation (publicity in Dutch media incl. NRC, TV, and on several professional forums), organizer of maths camps, author of 6 activity books still in demand. Also developed interactive maths projects on the web, the one on Mozart music and probability got also international response (LA Times, Australian Journal of Maths Education).

**Arts and mathematics:** On the board of the Ars et Mathesis Foundation, organizer of exhibitions at CWI.

**Ceramics:** active member of a pottery studio. **Literature, theater and music:** as to spend free time.

Zsófia Ruttkay

15 September 2007, Amsterdam