

Emmett Tomai

Associate Professor, Chair
Department of Computer Science
University of Texas – Rio Grande Valley
1201 West University Dr.
Edinburg, TX 78539-2999, USA
emmett.tomai@utrgv.edu

EXPERIENCE

<i>University of Texas Rio Grande Valley</i> Chair, Department of Computer Science	2017-present
<i>University of Texas Rio Grande Valley</i> Associate Professor, Department of Computer Science	2015-present
<i>University of Texas – Pan American</i> Assistant Professor, Department of Computer Science	2009-2015

EDUCATION

<i>Northwestern University, Evanston, IL</i> Ph.D. in Computer Science	2009
<i>Northwestern University, Evanston, IL</i> M.S. in Computer Science	2007
<i>Northwestern University, Evanston, IL</i> B.S. in Electrical Engineering B.S. in Computer Engineering	1997

PUBLICATIONS

Dissertation

- Tomai, E. (2009). A Pragmatic Approach to Computational Narrative Understanding. Doctoral dissertation. Northwestern University.

Journal Articles and Book Chapters

- Rios D, Chebotko A, Reilly C, Tomai E, Weimer AA, Weimer N, Pearson T, Andoh-Baidoo F, Winkle R, Ammons D, Rampersad J. (2012). Improving STEM education in research: Preliminary report on the development of a computer-assisted student-mentor research community. *Creative Education*.
- Dehghani, M., Forbus, K., Tomai, E. & Klenk, M. (2011). An Integrated Reasoning Approach to Moral Decision-Making. In Anderson, M., Anderson, S (Ed.) *Machine Ethics*. Cambridge University Press.
- Klenk, M., Forbus, K., Tomai, E., and Kim, H. (2011). Using Analogical Model Formulation with Sketches to Solve Bennett Mechanical Comprehension Test Problems. *Journal of Experimental and Theoretical Artificial Intelligence*, Special Issue on 'Test-Based AI'. Taylor & Francis.
- Lovett, A., Tomai, E., Forbus, K. & Usher, J. (2009). Solving geometric analogy problems through two-stage analogical mapping. *Cognitive Science* 33(7), 1192-1231.

Peer-Reviewed Conference and Workshop Proceedings

- Gracia De Luna, D., Tijernia, R., Butler, A., Tomai, E., Timmer, D., Caruntu, D. (2020). A Study of Human Balance and Coordination Using a Head Mounted Display. In *Proceedings of ASME 2020 International Design Engineering Technical Conference and Computers and Information in Engineering (IDETC/CIE2020)*. August, 2020, Saint Louis, MO.
- Khan, F., Quweider, M., Qubbaj, A., Tomai, E., Xu, L., Zhang, L., Lei, H. (2020). Infusing

- Raspberry Pi in Computer Science Curriculum for Enhanced Learning. In *Proceedings of the 2020 American Society for Engineering Education Conference*. June, 2020. USA.
- Tomai, E. (2018) Extraction of Interaction Events for Learning Reasonable Behavior in an Open-World Survival Game. In *Proceedings of the Second Knowledge Extraction from Games (KEG-19) workshop at the Thirty-Third AAAI Conference on Artificial Intelligence (AAAI-19)*. New Orleans, LA.
 - Tomai, E. and Lopez, L. (2016) Towards a Model-Learning Approach to Interactive Narrative Intelligence for Opportunistic Storytelling. In *Proceedings of the 9th International Conference on Interactive Digital Storytelling (ICIDS)*. Los Angeles, CA.
 - Reilly, C., Tomai, E. and Grabowski, L. (2015). An Evaluation of How Changes to the Introductory Computer Science Course Sequence Impact Student Success. In *Proceedings of the 45th Annual Frontiers in Education (FIE) Conference*. El Paso, TX.
 - Tomai, E., Flores, R., Richardson, C., Rojas, J., Oliva, J. and Zuniga, G. (2015). A Gateway Game to Make Computational Problem Solving Accessible and Engaging. In *Proceedings of the 46th ACM Special Interest Group on Computer Science Education Technical Symposium*. Kansas City, MO. (Poster abstract).
 - Tomai E., Martinez, E. and Silcox, L. (2014). Exploring Narrative Structure with MMORPG Quest Stories. In *Proceedings of the 3rd Workshop on Games and NLP*. Raleigh, NC.
 - Tomai, E. (2014). Exploring Abductive Event Binding for Opportunistic Storytelling. In *Proceedings of the Tenth AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*. Raleigh, NC.
 - Reilly, C. and Tomai, E. (2014). Correlation Between Being Calculus-Ready and Success in Computer Science 1. In *Proceedings of the 44th Annual Frontiers in Education (FIE) Conference*. Madrid, Spain.
 - Tomai, E. (2014). Opportunistic Storytelling: An Experience-Oriented Strategy for Playable Interactive Narratives. In *Proceedings of the Intelligent Narrative Technologies VII Workshop*. Milwaukee, WI.
 - Tomai, E. and Flores, R. (2014). Adapting In-Game Agent Behavior by Observation of Players with Learning Behavior Trees. In *Proceedings of the International Conference on the Foundations of Digital Games 2014*.
 - Reilly, C. and Tomai, E. (2014). The Impact of Math Preparedness on Introductory Programming (CS1) Success. In *Proceedings of the 45th ACM Special Interest Group on Computer Science Education Technical Symposium*. Atlanta, GA. (Poster abstract).
 - Tomai, E., Salazar, R. and Flores, R. (2013). Mimicking Human-like Agent Movement in Open World Games with Path-Relative Recursive Splines. In *Proceedings of the Ninth AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*. Boston, MA.
 - Reilly, C. and Tomai, E. (2013). Should College Algebra be a Corequisite for Computer Science 1? In *Proceedings of the 9th International Conference on Frontiers in Education: Computer Science and Computer Engineering*. Las Vegas, NV.
 - Silcox, L. and Tomai, E. (2013). Identification of Temporal Event Relationships in Biographical Accounts. In *Proceedings of the 2013 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*. Atlanta, GA.
 - Tomai, E., Salazar, R. and Flores, R. (2013). Simulating Aggregate Player Behavior With Learning Behavior Trees. In B. Kennedy, D. Reitter, R. St. Amant (Eds.), *Proceedings of the 22nd Annual Conference on Behavior Representation in Modeling and Simulation*. Ottawa, Canada: BRIMS Society.
 - Tomai, E. and Salazar, R. (2012). Simulating Adaptive Quests for Increased Player Impact in MMORPGs. In *Proceedings of the Eight AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*. Palo Alto, CA.
 - Tomai, E. (2012). Towards Adaptive Quest Narrative in Shared, Persistent Virtual Worlds. In *Proceedings of the Intelligent Narrative Technologies V Workshop*. Palo Alto, CA.
 - Tomai, E., Salazar, R. and Salinas, D. (2012). Adaptive Quests for Dynamic World Change in

- MMORPGs. In *Proceedings of the International Conference on the Foundations of Digital Games 2012*. Raleigh, NC.
- Tomai, E., Salazar, R. and Salinas, D. (2012). A MMORPG Prototype for Investigating Adaptive Quest Narratives and Player Behavior. In *Proceedings of the Workshop on Research Prototyping in Games 2012*. Raleigh, NC.
 - Tomai, E., Thapa, L., Gordon, A. and Kang, S. (2011). Causality in Hundreds of Narratives of the Same Events. In *Proceedings of the Intelligent Narrative Technologies IV Workshop*, Palo Alto, CA.
 - Tomai, E., Salinas, D. and Salazar, R. (2011). A Rule-Based Framework for Modular Development of In-Game Interactive Dialogue Simulation. In *Proceedings of the Intelligent Narrative Technologies IV Workshop*, Palo Alto, CA.
 - Tomai, E. and Forbus, K. (2010). Using narrative functions as a heuristic for relevance in story understanding. *Proceedings of the Intelligent Narrative Technologies III Workshop*, Monterey, CA.
 - Tomai, E. and Forbus, K. (2009). EA NLU: Practical Language Understanding for Cognitive Modeling. In *Proceedings of the 22nd International Florida Artificial Intelligence Research Society Conference*. Sanibel Island, FL.
 - Tomai, E. and Forbus, K. (2009). What Are You Going to Do, Talk Me to Death? Exploring the Narrative State in Interactive Entertainment. In *Proceedings of the 2009 AAAI Spring Symposium on Intelligent Narrative Technologies II*, Stanford, CA.
 - Tomai, E., Forbus, K. (2008). Using Qualitative Reasoning for the Attribution of Moral Responsibility. In *Proceedings of CogSci-08: the 30th Annual Conference of the Cognitive Science Society*, Washington, D.C.
 - Dehghani, M., Tomai, E., Forbus, K., Klenk, M. (2008). Order of Magnitude Reasoning in Modeling Moral Decision-Making. In *Proceedings of QR-08: the 22nd International Workshop on Qualitative Reasoning*, Boulder, CO.
 - Dehghani, M., Tomai, E., Forbus, K., Klenk, M. (2008). An Integrated Reasoning Approach to Moral Decision-Making. In *Proceedings of AAAI-08: the 23rd National Conference on Artificial Intelligence*.
 - Dehghani, M., Tomai, E., Forbus, K., Iliev, R., Klenk, M. (2008). MoralDM: A Computational Modal of Moral Decision-Making. In *Proceedings of CogSci-08: the 30th Annual Conference of the Cognitive Science Society*.
 - Tomai, E. and Forbus, K. (2007). Narrative Presentation and Meaning. In *Proceedings of the 2007 AAAI Fall Symposium on Intelligent Narrative Technologies*, Arlington, VA.
 - Forbus, K., Lockwood, K., Tomai, E., Dehghani, M. and Cxyz, J. (2007). Machine Reading as a Cognitive Science Research Instrument. In *Proceedings of the 2007 AAAI Spring Symposium on Machine Reading*, Stanford, CA.
 - Tomai, E. and Forbus, K. (2007). Plenty of Blame to Go Around: A Qualitative Approach to Attribution of Moral Responsibility. In *Proceedings of QR-07: the 21st International Workshop on Qualitative Reasoning*, Aberystwyth, UK.
 - Tomai, E., Lovett, A., Forbus, K., & Usher, J. (2005). A Structure Mapping Model for Solving Geometric Analogy Problems. In *Proceedings of CogSci-05: the 27th Annual Conference of the Cognitive Science Society*.
 - Klenk, M., Forbus, K., Tomai, E., Kim, H., and Kyckelhahn, B. (2005). Solving Everyday Physical Reasoning Problems by Analogy using Sketches. In *Proceedings of AAAI-05: the 20th National Conference on Artificial Intelligence*.
 - Forbus, K., Usher, J. and Tomai, E. (2005). Analogical learning of visual/conceptual relationships in sketches. In *Proceedings of AAAI-05: the 20th National Conference on Artificial Intelligence*.
 - Forbus, K., Lockwood, K., Klenk, M., Tomai, E., and Usher, J. (2004). Open-domain sketch understanding: The nuSketch approach. In *Proceedings of the 2004 AAAI Fall Symposium on Making Pen-based Interaction Intelligent and Natural*, Washington, DC.
 - Tomai, E., Forbus, K., and Usher, J. (2004). Qualitative spatial reasoning for geometric analogies. In *Proceedings of the 18th International Qualitative Reasoning Workshop*, Evanston, IL.
 - Forbus, K., Tomai, E., and Usher, J. (2003). Qualitative spatial reasoning for visual grouping in

sketches. In *Proceedings of the 17th International Workshop on Qualitative Reasoning*, Brasilia, Brazil.

HONORS AND AWARDS

- University of Texas Regents' Outstanding Teaching Award **2015**
- UTRGV Faculty Excellence Award in Teaching, COECS **2015**
- UTRGV Outstanding Faculty Award in Computer Science **2012,2013,2014,2015,2017**
- Walter P. Murphy Fellowship **2002**
- Eta Kappa Nu Electrical and Computer Engineering Honor Society **1996**

OTHER EXPERIENCE

Independent

Consultant

2000 – 2002

Worked with corporate and academic clients to assess technology needs and develop and deploy solutions. Clients included:

- *Braun Consulting, Chicago, IL*
- *Radium, Inc., Chicago, IL*
- *Northwestern Medical School, Chicago, IL*
- *Materials World Modules, Evanston, IL*
- *International Virtual Institute, Evanston, IL*

Braun Consulting, Chicago, IL

Senior Consultant

1997 – 2000

Designed and developed web-based intranet applications for corporate clients, managed projects as client liaison and lead developer. Clients included:

- *MacNeal Health Network, Berwyn, IL*
- *MasterCard International, St. Louis, MO*
- *Motorola, Inc., Schaumburg, IL*

Optimization Technology Center, Northwestern University, Evanston, IL

Software Developer, Web Designer

1995 – 1997

Made research software usable through web interfaces, designed and implemented research group website.

Distributed Systems Support, Northwestern University, Evanston, IL

Network Engineer, UNIX Administrator

1993 – 1996

Set up network infrastructure in departments and student dormitories, administered UNIX workstations and servers for department labs and IT test-beds, managed campus-wide domain name service.

Residential Networking, Northwestern University, Evanston, IL

Residential Consultant

1994 – 1996

Supported end-user networking and network applications in student dormitories.