

Mark Floryan

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University of Virginia
Department of Computer Science
85 Engineer's Way
Charlottesville, VA 22903

Education

University of Massachusetts: Amherst, MA

Fall 2008 – Spring 2013

M.S. / Ph.D. Computer Science

University of Virginia: Charlottesville, VA

Fall 2004 – Spring 2008

B.S. Computer Science

Appointments

Co-Director: Game Design Research Group

University of Virginia; Charlottesville, VA

<http://gamedesign.cs.virginia.edu>

August 2014 – present

Lecturer; Computer Science

University of Virginia; Charlottesville, VA

August 2013 – present

HitPoint Studios, Inc.

Lead Game Developer

March 2012 – August 2013

Lab Instructor; Computer Science

Mount Holyoke College; South Hadley, MA

August 2011 – May 2012

Active Research Projects

Gamification of Internet Interventions

Game Design Research Group & Center for Behavioral Health Technology

This project involves the gamification of two active online internet interventions. One is an insomnia program for adults, the other a skin cancer prevention program.

April 2016 – present

Gamifying the Process of Energy Saving

Game Design Research Group; University of Virginia

This project involves building a mobile application that utilizes gamification techniques to motivate residents in Charlottesville, VA to save energy. This project is a partnership between our group and the City of Charlottesville in an attempt to win the \$5 million Georgetown Energy Prize.

August 2015 – present

Dr. Doctor: A Knowledge Refinement Game

University of Virginia / University of Massachusetts, Amherst

This project involves the study of *knowledge refinement games*, which are developed as an attempt to abstract away the improvement of an expert model. The system stores a partially valid model, and the game is designed to allow players to actively improve parts of the model detected to be potentially inaccurate.

August 2012 – present

Gamer Card: Gamification Platform for Education

Game Design Research Group; University of Virginia

Gamer Card is a platform for XP/gamification in a course setting. The system provides a domain-independent, out-of-box solution for teachers who wish to easily apply gamification to courses.

August 2014 – present

Emergence: A Serious Game for Medical Diagnosis

University of Virginia

Emergence is an attempt to explore the effects of various game mechanics on a student's ability to acquire medical diagnosis skills as well as proper inquiry technique.

May 2014 – present

Other Research Projects

Bookmark: Critical Reading Game

Game Design Research Group; University of Virginia

August 2015 – present

Evolving Expert Knowledge Bases <i>University of Massachusetts, Amherst / University of Virginia</i>	<i>August 2012 – Present</i>
Rashi: Collaborative Tutoring in Ill-Defined Domains <i>University of Massachusetts, Amherst / University of Virginia</i>	<i>January 2011 – Present</i>
CIRCE: An Electronic Circuit Analysis Tutor <i>University of Massachusetts, Amherst</i>	<i>January 2011 – August 2013</i>
Examining Educational Benefits of Intelligent Interactive 3D Games <i>University of Massachusetts, Amherst</i>	<i>January 2010 – present</i>
4Mality: Intelligent Tutoring for Fourth Grade Standardized Math Tests <i>University of Massachusetts, Amherst</i>	<i>June 2010 – November 2010</i>
Nancy's Pantry: User Interfaces for the Blind <i>University of Virginia</i>	<i>May 2007 - May 2008</i>

Game Development Experience

Fablewood** A fantasy-based, social, hidden object game <i>HitPoint Studios Inc.</i> (https://apps.facebook.com/fablewood/)	<i>Release: November 2013</i>
Disney Fairies: Hidden Treasures* Story based adventure featuring Disney's <i>Tinker Bell</i> <i>HitPoint Studios Inc., Microsoft Game Studios, Disney Interactive Studios</i>	<i>Release: March 2013</i>
Adera Story / puzzle based adventure game <i>HitPoint Studios Inc., Microsoft Game Studios, Disney Interactive Studios</i>	<i>Release: October 2012</i>
Seaside Hideaway** A seaside town based, social, hidden object game <i>HitPoint Studios Inc.</i> (https://apps.facebook.com/seasidehideaway/)	<i>Release: May 2012</i>
A Light in the Dark** Hide and seek game utilizing facial recognition technology <i>Independent: Mount Holyoke College Global Game Jam</i>	<i>Release: January 2012</i>
Fruit Simon* A memory game utilizing physical motion based interaction <i>Independent: Mount Holyoke College Global Game Jam</i>	<i>Release: January 2012</i>
Rashi Game** A 3-D medical diagnosis and inquiry based game <i>University of Massachusetts Amherst; Center for Knowledge Communication</i>	<i>Release: October 2011</i>

** Indicates lead role of given project

* Indicates significant (non-lead) contribution to project

Publications

Mark Floryan, Lee Ritterband. "A Gamification Model for Internet Interventions". *Journal of Medical Internet Research* (2017). (In Preparation)

*Nicholas Lytle**, **Mark Floryan**, *David Amin**. "Design Frameworks for Experiential Educational Games". *International Journal of Serious Games* (2017). (In Editing)

Toby Dragon, **Mark Floryan**, *Grayson Wilkins**, *Thomas Sparks**. "Efficiency vs. Immersion: Design Trade-offs for an Exploratory Learning Environment". *ITS Workshop on Exploratory Learning Environments*. Zagreb, Croatia (2016).

Mark Sherriff, **Mark Floryan**, David Wert*. "Achievement Unlocked: Investigating Which Gamification Elements Motivate Students". 123rd Annual ASEE Conference and Exposition. New Orleans, LA (2015).

Nicholas Lytle*, **Mark Floryan**. "A Design Framework for Experiential Educational Games". Proceedings of the Games and Learning Alliance (GALA) Conference. Rome, Italy (2015).

Mark Floryan, Toby Dragon, Nada Basit, Suellen Dragon, Beverly Park Woolf. "Who Needs Help? Automating Student Assessment within Exploratory Learning Environments". Proceedings of the 17th International Conference on Artificial Intelligence in Education. Madrid, Spain (2015).

Enid K. Sichel, Beverly Park Woolf, **Mark Floryan**. "Web-based Personalized Laboratories for Engineering Students". Proceedings of the 2014 Zone 1 Conference of the American Society for Engineering Education. Bridgeport, CT (2014). ***Nominated for Best Paper Award**

Enid K. Sichel, Beverly Park Woolf, **Mark Floryan**. "Personalized Intelligent Software Responses for Engineering Students". Proceedings of the 2014 IEEE-USA Annual Meeting and Innovations in Technology Conference. Providence, RI (2014).

Beverly Park Woolf, Winslow Burleson, Bradley Henry, **Mark Floryan**, Avron Barr. "White House Pull Mechanisms for Education". United States Office of Science and Technology Policy; Request for Information: Advancing Learning Technology through Pull Mechanisms. (2014).

Mark Floryan, Beverly Woolf. "Improving the Efficiency of Automatic Knowledge Generation through Games and Simulations". Proceedings of the 16th International Conference on Artificial Intelligence in Education. Memphis, TN (2013).

Mark Floryan, Beverly Woolf. "Authoring Expert Knowledge Bases for Intelligent Tutors through Crowdsourcing". Proceedings of the 16th International Conference on Artificial Intelligence in Education. Memphis, TN (2013). ***Best Poster Award Winner**

Mark Floryan. "Evolving Expert Knowledge Bases: Applications of Crowdsourcing and Serious Gaming to Advance Knowledge Development for Intelligent Tutoring Systems". Ph.D. Dissertation. University of Massachusetts, Amherst (2013).

Mark Floryan, Toby Dragon, Beverly Woolf. "When Less is More: Focused Pruning of Knowledge Bases to Improve Recognition of Student Conversation". Proceedings of the 11th International Conference on Intelligent Tutoring Systems. Chania, Crete (2012).

Mark Floryan, Beverly Woolf. "Students that Benefit from Educational 3D Games". Proceedings of the IEEE International Conference on Advanced Learning Technologies. Athens, GA (2011).

Mark Floryan, Beverly Woolf. "Optimizing the Performance of Educational Web Services". Proceedings of the IEEE International Conference on Advanced Learning Technologies. Athens, GA (2011).

Mark Floryan, Beverly Woolf. "Rashi Game: Towards an Effective Educational 3D Gaming Experience". Proceedings of the IEEE International Conference on Advanced Learning Technologies. Athens, GA (2011).

Toby Dragon, **Mark Floryan**, Beverly Woolf, Tom Murray. "Recognizing Dialogue Content in Student Collaborative Conversation". Proceedings of the International Conference on Intelligent Tutoring Systems. Pittsburgh, PA (2010).

Mark Floryan, Beverly Woolf, Toby Dragon, Tom Murray. "Interactive Event: Collaboration and Content Recognition Features in an Inquiry Tutor". Proceedings of the International Conference on Intelligent Tutoring Systems. Pittsburgh, PA (2010).

Mark Floryan, Beverly Woolf, Rick Adrion. "Web Services and Serious Games: The Applications of Web Based Software Engineering Techniques for the Purpose of Developing Game Based Intelligent Tutoring Systems." (2010).

Mark Floryan, Beverly Woolf. "A Literature Review of the Field of Serious Games." (2009).

Mark Floryan. "Consolidating and Deriving HCI Techniques for Non-Visual User Interfaces". Honors Thesis. University of Virginia, University Press (2008).

* Indicates undergraduate student author

Invited Talks

Mark Floryan “Leveraging Computing to Provide Increased Efficacy for Educational Interventions” University of Virginia; Center for Behavioral Health Technology Seminar. April 15, 2016.

Mark Floryan “Video games and their applications to both teaching and learning.” University of Virginia; Student Game Developers Invited Talk. October 10, 2013.

Mark Floryan “Automatic construction of knowledge bases from student data, and how gaming can affect this process”. McGill University. July 30, 2013.

Mark Floryan “How can video games help humans and computers learn from one another?” Mount Holyoke College. April 17, 2013.

Mark Floryan “Life as a graduate student: What to expect.” Mount Holyoke College. October 11, 2011.

Grant Proposals

**Artificial Instructional Designers:
Towards Automation of the Course Development Lifecycle** *December 2015*
Mark Floryan, Beverly Park Woolf, Toby Dragon
National Science Foundation EXP Cyberlearning
Amount: \$550,000
Status: *Rejected*

Time Traveler: Learning Science and Engineering through Educational Games *February 2011*
Beverly Park Woolf, Alan Lukas, Mark Floryan
National Science Foundation STTR Proposal
Amount: \$150,000
Status: *Rejected*

Improving Educational Fluency by Expanding Access to Automatic Reading Technologies *October 2013*
Mark Floryan, Maryam Ghariban, Hollis Cate, Vignesh Kuppusamy
Hereford Scholars Independent Project Grants
Amount: \$2000
Status: *Awarded*

Teaching

University of Virginia *August 2013 – Present*

- CS 4730: Computer Game Design
- CS 4710: Artificial Intelligence
- CS 4102: Algorithms
- CS 3205: HCI in Software Development
- CS 2190: Computer Science Seminar
- CS 2150: Program and Data Representation
- CS 2501: Introduction to Game Design
- CS 1501: Neural Networks in Application **Student Taught Class*
- CS 1501: Cracking the Coding Interview **Student Taught Class*

Mount Holyoke College *August 2011 – May 2012*

- CS 101: Introduction to Computer Science
- CS 201: Introduction to Software Engineering

University of Massachusetts, Amherst (Teaching Assistant) *August 2008 – December 2010*

- CS 121: Introduction to Solving Problems with Computers
- Java Enrichment Laboratory (Founder)

University of Virginia (Teaching Assistant) *January 2006 – December 2007*

- CS 202: *Discrete Mathematics*
- CS 216: *Data Structures*

Advising

Studying Competitive Features in a Gamified College Course Senior Thesis Project Joseph Baik; University of Virginia	<i>August 2016 – May 2017</i>
Use of Virtual Reality for History Education Senior Thesis Project Anthony Uitz; University of Virginia	<i>August 2016 – May 2017</i>
Gamifying an Insomnia Intervention for Older Adults Senior Thesis Project Cindy Park, Alyssa Lambert; University of Virginia	<i>August 2016 – May 2017</i>
Developing Algorithms for Graph Combinations with Noisy Data Senior Thesis Project Ryan Duffin; University of Virginia	<i>August 2015 – May 2016</i>
Prediction Algorithms for Forecasting NCAA Tournament Games Independent Study Project Max Reinsel; University of Virginia	<i>August 2015 – May 2016</i>
Leveraging Social Game Mechanics to Enhance Mathematics Literacy Senior Thesis Project Courtney Maimon, Kevin Whelan; University of Virginia	<i>August 2014 – May 2015</i>
The Dark Side of HCI; Analyzing Optimal Designs of Pirate Sites Distinguished Majors Program; Capstone Project Kevin Liu; University of Virginia	<i>August 2014 – May 2015</i>
Machine Learning Algorithms for Categorizing User BAC Levels Senior Thesis Project Kyle Thornburgh, Praneeth Nadipalli, Sumit Narain; University of Virginia	<i>August 2014 – May 2015</i>
Efficient Generation of a Medical Knowledge Base Senior Thesis Project Samuel Ogbe; University of Virginia	<i>August 2013 – May 2014</i>
Decision Tree Modeling for ITS from Teacher Provided Data Senior Thesis Project Xinzhuo Dong; University of Virginia	<i>August 2013 – May 2014</i>
Improved Designs for Knowledge Refinement Games Senior Thesis Project Tim Hammer; University of Virginia	<i>August 2013 – May 2014</i>
Designing Games to Teach Domain Knowledge to Machines Senior Thesis Project Jared Baum; University of Virginia	<i>August 2013 – May 2014</i>
The Addition of Haptic Feedback to LEAP Motion to Advance Desktop Interactions Independent Research Project Andy Barron, Justin Dao, Elizabeth Orrico, Alexander Kuck; University of Virginia	<i>August 2013 – May 2014</i>
Automatic Grading Framework for Tutors in Ill-Defined Domains Independent Research Project Vishesh Choudhry; University of Virginia	<i>August 2013 – May 2014</i>
CollegiateLoL: A Web-Based Collegiate E-Sports Management System Independent Project Garet Voit; University of Virginia	<i>August 2013 – May 2014</i>
Circe: Introductory Circuit Analysis Tutor Spiros Baltasvias; University of Massachusetts, Amherst	<i>August 2012 – May 2013</i>

Professional Affiliations

Member: Serious Games Society (SGS)	<i>March 2016 – Present</i>
Member: Special Interest Group, Computer Science Education (SIGCSE)	<i>February 2014 – Present</i>
Member of the International Artificial Intelligence in Education Society	<i>June 2013 – Present</i>

Service

ACM Student Chapter Faculty Advisor <i>University of Virginia</i>	<i>August 2016 - Present</i>
Program Committee: 13th International Conference on Intelligent Tutoring Systems (ITS) <i>Zagreb, Croatia</i>	<i>July 2016</i>
Program Committee: 6th International Workshop on Intelligent Support for Exploratory Learning Environments <i>Madrid, Spain</i>	<i>July 2015</i>
ACM Inter-Collegiate Programming Contest <i>Co-Coach; University of Virginia</i>	<i>August 2014 – Present</i>
ACM Inter-Collegiate Programming Contest World Finals <i>On-Site Coach; University of Virginia</i> <i>Contest held at Ural Federal University; Yekaterinburg, Russian Federation</i>	<i>June 2014</i>
Undergraduate Curriculum Committee (UGCC) <i>University of Virginia; School of Engineering and Applied Sciences (SEAS)</i>	<i>August 2014 – Present</i>
Program Committee: 17th International Conference on Artificial Intelligence in Education (AIED) <i>Madrid, Spain</i>	<i>July 2015</i>
Program Committee: 12th International Conference on Intelligent Tutoring Systems (ITS) <i>University of Hawaii at Manoa; Honolulu, HI</i>	<i>July 2014</i>
Program Committee: 16th International Conference on Artificial Intelligence in Education (AIED) <i>University of Memphis; Memphis, TN</i>	<i>July 2013</i>
Program Committee: Workshop on Intelligent Support for Exploratory Learning Environments <i>Chania, Crete; Greece</i>	<i>July 2012</i>
Program Committee: 11th International Conference on Intelligent Tutoring Systems (ITS) <i>Chania, Crete; Greece</i>	<i>July 2012</i>
Volunteer: 10th International Conference on Intelligent Tutoring Systems (ITS) <i>Carnegie Mellon University; Pittsburgh, PA</i>	<i>June 2010</i>
New Student Committee; Social Committee; Message Meister <i>University of Massachusetts, Amherst</i>	<i>2008 - 2010</i>

Awards

ACM Professor of the Year <i>University of Virginia</i>	<i>2013 - 2014</i>
Best Paper Award (Nominated) <i>Zone 1 Conference of the American Society for Engineering Education. Bridgeport, CT</i>	<i>May 2014</i>
Best Poster Award <i>16th International Conference on Artificial Intelligence in Education. Memphis, TN</i>	<i>July 2013</i>