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 *August 2014 – present*
University of Virginia; Charlottesville, VA
http://gamedesign.cs.virginia.edu

Lecturer; Computer Science *August 2013 – present*
University of Virginia; Charlottesville, VA

HitPoint Studios, Inc. *March 2012 – August 2013*
Lead Game Developer

Lab Instructor; Computer Science *August 2011 – May 2012*
Mount Holyoke College; South Hadley, MA

Active Research Projects

Gamification of Internet Interventions *April 2016 – present*
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.

Gamifying the Process of Energy Saving *August 2015 – present*
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.

Dr. Doctor: A Knowledge Refinement Game *August 2012 – present*
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.

Gamer Card: Gamification Platform for Education *August 2014 – present*
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.

Emergence: A Serious Game for Medical Diagnosis *May 2014 – present*
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.

Other Research Projects

Bookmark: Critical Reading Game *August 2015 – present*
Game Design Research Group; University of Virginia

Evolving Expert Knowledge Bases *August 2012 – Present*
University of Massachusetts, Amherst / University of Virginia

Rashi: Collaborative Tutoring in Ill-Defined Domains *January 2011 – Present*
University of Massachusetts, Amherst / University of Virginia

CIRCE: An Electronic Circuit Analysis Tutor *January 2011 – August 2013*
University of Massachusetts, Amherst

Examining Educational Benefits of Intelligent Interactive 3D Games *January 2010 – present*
University of Massachusetts, Amherst

4Mality: Intelligent Tutoring for Fourth Grade Standardized Math Tests *June 2010 – November 2010*
University of Massachusetts, Amherst

Nancy's Pantry: User Interfaces for the Blind *May 2007 - May 2008*
University of Virginia

Game Development Experience

Fablewood** *Release: November 2013*
A fantasy-based, social, hidden object game
HitPoint Studios Inc.
(https://apps.facebook.com/fablewood/)

Disney Fairies: Hidden Treasures* *Release: March 2013*
Story based adventure featuring Disney's *Tinker Bell*
HitPoint Studios Inc., Microsoft Game Studios, Disney Interactive Studios

Adera *Release: October 2012*
Story / puzzle based adventure game
HitPoint Studios Inc., Microsoft Game Studios, Disney Interactive Studios

Seaside Hideaway** *Release: May 2012*
A seaside town based, social, hidden object game
HitPoint Studios Inc.
(https://apps.facebook.com/seasidehideaway/)

A Light in the Dark** *Release: January 2012*
Hide and seek game utilizing facial recognition technology
Independent: Mount Holyoke College Global Game Jam

Fruit Simon* *Release: January 2012*
A memory game utilizing physical motion based interaction
Independent: Mount Holyoke College Global Game Jam

Rashi Game** *Release: October 2011*
A 3-D medical diagnosis and inquiry based game
University of Massachusetts Amherst; Center for Knowledge Communication

*** 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: *December 2015*
Towards Automation of the Course Development Lifecycle
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 *August 2016 – May 2017*
Senior Thesis Project
Joseph Baik; University of Virginia

Use of Virtual Reality for History Education *August 2016 – May 2017*
Senior Thesis Project
Anthony Uitz; University of Virginia

Gamifying an Insomnia Intervention for Older Adults *August 2016 – May 2017*
Senior Thesis Project
Cindy Park, Alyssa Lambert; University of Virginia

Developing Algorithms for Graph Combinations with Noisy Data *August 2015 – May 2016*
Senior Thesis Project
Ryan Duffin; University of Virginia

Prediction Algorithms for Forecasting NCAA Tournament Games *August 2015 – May 2016*
Independent Study Project
Max Reinsel; University of Virginia

Leveraging Social Game Mechanics to Enhance Mathematics Literacy *August 2014 – May 2015*
Senior Thesis Project
Courtney Maimon, Kevin Whelan; University of Virginia

The Dark Side of HCI; Analyzing Optimal Designs of Pirate Sites *August 2014 – May 2015*
Distinguished Majors Program; Capstone Project
Kevin Liu; University of Virginia

Machine Learning Algorithms for Categorizing User BAC Levels *August 2014 – May 2015*
Senior Thesis Project
Kyle Thornburgh, Praneeth Nadipalli, Sumit Narain; University of Virginia

Efficient Generation of a Medical Knowledge Base *August 2013 – May 2014*
Senior Thesis Project
Samuel Ogbe; University of Virginia

Decision Tree Modeling for ITS from Teacher Provided Data *August 2013 – May 2014*
Senior Thesis Project
Xinzhuo Dong; University of Virginia

Improved Designs for Knowledge Refinement Games *August 2013 – May 2014*
Senior Thesis Project
Tim Hammer; University of Virginia

Designing Games to Teach Domain Knowledge to Machines *August 2013 – May 2014*
Senior Thesis Project
Jared Baum; University of Virginia

The Addition of Haptic Feedback to LEAP Motion to Advance Desktop Interactions *August 2013 – May 2014*
Independent Research Project
Andy Barron, Justin Dao, Elizabeth Orrico, Alexander Kuck; University of Virginia

Automatic Grading Framework for Tutors in Ill-Defined Domains *August 2013 – May 2014*
Independent Research Project
Vishesh Choudhry; University of Virginia

CollegiateLoL: A Web-Based Collegiate E-Sports Management System *August 2013 – May 2014*
Independent Project
Garet Voit; University of Virginia

Circe: Introductory Circuit Analysis Tutor *August 2012 – May 2013*
Spiros Baltsavias; University of Massachusetts, Amherst

Professional Affiliations

Member: Serious Games Society (SGS) *March 2016 – Present*

Member: Special Interest Group, Computer Science Education (SIGCSE) *February 2014 – Present*

Member of the International Artificial Intelligence in Education Society *June 2013 – Present*

Service

ACM Student Chapter Faculty Advisor *August 2016 - Present*
University of Virginia

Program Committee: 13th International Conference on Intelligent Tutoring Systems (ITS) *July 2016*
Zagreb, Croatia

Program Committee: *July 2015*
6th International Workshop on Intelligent Support for Exploratory Learning Environments
Madrid, Spain

ACM Inter-Collegiate Programming Contest *August 2014 – Present*
Co-Coach; University of Virginia

ACM Inter-Collegiate Programming Contest World Finals *June 2014*
On-Site Coach; University of Virginia
Contest held at Ural Federal University; Yekaterinburg, Russian Federation

Undergraduate Curriculum Committee (UGCC) *August 2014 – Present*
University of Virginia; School of Engineering and Applied Sciences (SEAS)

Program Committee: 17th International Conference on Artificial Intelligence in Education (AIED) *July 2015*
Madrid, Spain

Program Committee: 12th International Conference on Intelligent Tutoring Systems (ITS) *July 2014*
University of Hawaii at Manoa; Honolulu, HI

Program Committee: 16th International Conference on Artificial Intelligence in Education (AIED) *July 2013*
University of Memphis; Memphis, TN

Program Committee: Workshop on Intelligent Support for Exploratory Learning Environments *July 2012*
Chania, Crete; Greece

Program Committee: 11th International Conference on Intelligent Tutoring Systems (ITS) *July 2012*
Chania, Crete; Greece

Volunteer: 10th International Conference on Intelligent Tutoring Systems (ITS) *June 2010*
Carnegie Mellon University; Pittsburgh, PA

New Student Committee; Social Committee; Message Meister *2008 - 2010*
University of Massachusetts, Amherst

Awards

ACM Professor of the Year *2013 - 2014*
University of Virginia

Best Paper Award (Nominated) *May 2014*
Zone 1 Conference of the American Society for Engineering Education. Bridgeport, CT

Best Poster Award *July 2013*
16th International Conference on Artificial Intelligence in Education. Memphis, TN