TREVOR MICHAEL TOMESH

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 University of Regina, Regina SK, Canada (306)-550-2369

EDUCATION

University of Regina   *September 2013 - June 2020*
PhD in Computer Science

University of Wisconsin River Falls   *September 2006 - May 2011*
BSc Physics

Minor in Mathematics

Member of Sigma Pi Sigma Physics Honors Society
Ronald E. McNair Scholar

RELEVANT COURSEWORK

Graduate

- CS 839 - Web Intelligence and Electronic Commerce

- CS 827 - Computer Audio

- CS 805 - Computer Graphics

- CS 807 - Building Interactive Gadgets

- CS 809 - Interactive Software

- CS 805 - Human Computer Interactions

Undergraduate

- General Physics I & II

- Modern Physics

- General/Intermediate Physics Laboratories

- Calculus I-III,

- Math For Physics and Engineering I & II

- Discrete Math

- Scientific Programming

- Mathematical Programming

- Differential Equations

- Astronomy

- Electronics (circuits)

- Advanced Physics Laboratory

- Thermodynamics

- Classical Mechanics

- Astrophysics

- Electricity and Mag.

- Linear Algebra

- Quantum Mechanics

- Numerical Analysis

- Independent Study In Computational Physics

RESEARCH

General Research Interests

- Research Interests

- General Systems Theory

- Amalgamated Systems

- Complex Systems

- Analogous Systems

- Analog Computing Systems

- Constrained Resource Computing

- Embedded Computing

- Information Theory

- Open Source Hardware

- Simulation Methods

- Games Studies

- Literate Programming

Research Assistant, IceCube Neutrino Detector - 2007

UW-River Falls Physics Department, River Falls, Wisconsin

- Built temperature stabilizing sunshades for digital optical modules, to be used at South Pole

- Constructed customized crates for materials to be shipped to Antarctica

- Learned and used AutoCAD to digitally document cargo crate design.

Technical Assistant, UW River Falls Physics Department - 2006-2011

UW River Falls Physics Department, River Falls, Wisconsin

- Assisted in technical and manual departmental work.

- Built demonstrations for Society of Physics Students outreach activities.

- Repaired and maintained laboratory equipment.

- Set up laboratory equipment.

- Construct Digital Displays.

- Graded physics homework / Tutored students

Researcher, UW River Falls Radio Telescope - 2009

UW River Falls Physics Department, River Falls, Wisconsin

- Constructed a functional Radio JOVE radio telescope to "listen" to radio signals from Jupiter's magnetosphere.

- Processed, analyzed and visualized data.

Researcher, Research Experience for Undergraduates Program - 2009

Vanderbilt University, Physics Department, Nashville, Tennessee

- Computationally modeled the effects of black hole kicks on the density of globular clusters by running an Nbody simulation on the ACCRE supercomputing cluster.
- Was responsible for writing a density profiling program in FORTRAN to analyzed the density of a globular cluster on a logarithmic scale.
- Wrote scripts in supermongo to produce movies of the physical evolution and the density evolution of these globular clusters.
- Appended to N-body simulation a routine to provide random gravitational wave recoils to pairs of merging black holes.

Interim Research Assistant - 2010

University of Worcester, Computing Department, Worcester, England

- Designed and developed simulations in the fields of waves and oscillations using video game technology for physics education
- Used the Unreal Tournament 2004 engine to model oscillators realized and developed effective models for the K-12 and undergraduate physics classrooms.
- Evaluated the fidelity of these models by comparing to theoretical and computational models.

Graduate Research in Educational Game Development - 2011-2012

University of Worcester, Computing Department, Worcester, England

- Developed a working prototype of an educational game targeted at high school physics students in the Blender Game Engine.
- Met with instructors to gather design specifications.
- Carried out student interviews to asses knowledge and experiences with educational games and interest in games for learning.
- Presented research at various conferences in Europe and the UK.

TEACHING EXPERIENCE

Sessional Lecturer - University of Regina (2014 - Present)

Courses Taught:

- CS 207 - Building Interactive Gadgets (2014 - Present)
- CS 427 / 827 - Computer Audio (Fall 2018)
- CS 330 - Intro to Operating Systems (Spring 2018)
- CS 290 AK - Topics in Data Acquisition and Analysis (Winter 2018)
- CS 290 AJ - Interactive Simulation Methods (Fall 2017, Winter 2019)
- CS 829 - Information Theory and Applications (Summer 2019)
- CS 890AC - Data Analysis from the Internet (Summer 2019)
- CS 455 / 855 - Mobile Computing (Fall 2019)
- CS 490 DB - Topics in Natural Science (Fall 2019)
- CTCH 310 AD - "Intro to Computer Game and VR Design" (Winter 2018, Winter 2019)

PUBLICATIONS

Tomesh, T. and Hepting, D. (2017). Environmental sensing with recycled materials. [online] O'Reilly Media. Available at: https://www.oreilly.com/ideas/environmentalsensing-with-recycled-materials [Accessed 27 Mar. 2019].

Tomesh, Trevor Michael, and Daryl H. Hepting. "DIY game console development." Proceedings of the first ACM SIGCHI annual symposium on Computer-human interaction in play. ACM, 2014.

Tomesh, Trevor M. "Teaching programming with Python and the Blender Game Engine."

Tomesh, Trevor, and Colin Price. "Design and development of physics simulations in the field of oscillations and waves suitable for k-12 and undergraduate instruction using video game technology." APS Meeting Abstracts. 2011.

Tomesh, Trevor. "Computational Simulation of a Simple Pendulum Driven by a Natural Chaotic Function." APS March Meeting Abstracts. 2010.

PEER REVIEW

Mouhoub, Malek, et al., eds. Recent Trends and Future Technology in Applied Intelligence: 31st International Conference on Industrial Engineering and Other Applications of Applied Intelligent Systems, IEA/AIE 2018, Montreal, QC, Canada, June 25-28, 2018, Proceedings. Vol. 10868. Springer, 2018.

Amine, Abdelmalek, et al., eds. Computational Intelligence and Its Applications: 6th IFIP TC 5 International Conference, CIIA 2018, Oran, Algeria, May 8-10, 2018, Proceedings. Vol. 522. Springer, 2018.