

Nancy N. Blackburn

Curriculum Vitae, March 2021

School of Computing | Entertainment Arts &
Engineering Program
University of Utah
Salt Lake City, UT 84112, USA

(801)-683-9132
nbburn@cs.utah.edu
<https://www.cs.utah.edu/~nbburn/>

Education

| | | | |
|--|--|--|---------------------------------|
| Ph.D. | Human-centered Computing Focus: Games and Meaningful Play | University of Utah (GPA: 4.00) Adviser: Dr. Rogelio E. Cardona-Rivera | 2024 (expected) 2019–present |
| Master's of Entertainment Arts and Engineering | | University of Utah (GPA: 3.92) | 2018 |
| B.S. | Mathematics (Scientific Computing) | University of Utah (GPA: 3.66) | 2007 |

Research Interests

Computational models, serious game design, game design, educational games, game-based learning, psychotherapy games, psychology diagnosis games, artificial intelligence (AI), human-centered computing, human-computer interaction, cognitive science, learning science, design science.

Academic Experience

University of Utah

School of Computing

Graduate Research Assistant, Laboratory for Quantitative Experience Design 2019–present
Project CODE Switch, lead student researcher.
Presently developing novel game design science around reliably achieving serious game objectives outcomes through meaningful play, by combining cognitive, learning, and design science with artificial intelligence.

University of Tennessee in Knoxville

Department of Mathematics

Undergraduate Research Assistant, REU (Research Experience for Undergraduates) Summer 2006
Developed a mathematical theory for the augmentation of endangered mammals based on existing fishery and mammal population growth models; used Matlab to model the expected population growth.

University of Utah

Department of Mathematics

Undergraduate Research Assistant, RTG (Research Training Grant) Fall 2005-Spring 2006
Collaborated with a team of three mathematicians and two biologists to create and analyze a tri-trophic parasitoid-host mathematical model from observing our live colonies; had the second self-sustaining colony of parasitoid wasps in the world. Assisted in designing new experimental methods.

Undergraduate Research Assistant, REU (Research Experience for Undergraduates) Summer 2005
Programmed numerical methods in Matlab to solve inverse equations of linearized coupled ODEs.

Undergraduate Research Assistant, REU (Research Experience for Undergraduates) Spring 2003
Modeled the fibrin architecture of blood clots using a system of linearized coupled ODEs in Matlab.

Presentations and Scholarly Work

2006 Wild Population Augmentation from Reserve Populations
National Conference for Undergraduate Women in Mathematics

2006 A Mathematical Model for Tri-trophic Interactions
Invited speaker for the University of Utah Math Department's Annual Awards Ceremony

- 2005 A Mathematical Model of Tri-Trophic Interactions of Predator, Prey/Herbivore, Producer
National Conference for Undergraduate Women in Mathematics
- 2005 A mathematical look into the interactions of a tri-trophic system
Undergraduate Colloquium for the University of Utah Math Department
- 2004 HPC Genetic Algorithm for Multiple Sequence Alignment
National Conference for Undergraduates (Poster)
- 2002 Measuring the breakdown of aspartame into its components utilizing HPLC chromatography
Intermountain Junior Science & Humanities Symposium (Poster)

Grants, Fellowships, and Scholarships

| | | | |
|------|---|---|-----------------|
| 2019 | Ph.D. First Year Fellowship | University of Utah, School of Computing | \$17,500 |
| 2019 | Graduate Travel Award | NSF Workshop for Game-based Assessment | \$1,000 |
| 2006 | Scholarship for Women in the Sciences | Intel Corporation | \$600 |
| 2006 | C. Bryant and Clara C. Copley Scholarship for Excellence in Mathematics | University of Utah, Department of Mathematics | \$600 |
| 2005 | Dean's Scholarship | University of Utah, College of Science | \$1,500 |
| 2003 | C. Bryant and Clara C. Copley Scholarship for Excellence in Mathematics | University of Utah, Department of Mathematics | \$600 |
| 2002 | Honors at Entrance Scholarship | University of Utah, College of Science | 4 Years Tuition |
| 2002 | ACCESS Scholarship for Women in Science | University of Utah, College of Science | \$3,000 |
| 2001 | Henry B. Eyring Chemistry Scholar | University of Utah, Department of Chemistry | Tuition |

Honors

| | | |
|------|------------------------------|--|
| 2001 | National Science Merit Award | National Merit Scholarship Corporation |
|------|------------------------------|--|

Games Published (Credited)

| | | | |
|------|--|---|-----------------|
| 2018 | Logout <i>Intel University Showcase Finalist</i> | Technical Game Designer PlayWrite Studios, LLC | Steam |
| 2015 | Waterford Early Learning <i>Deployed in schools nationwide</i> | Unity Developer Waterford Institute | iPad/WebGL |
| 2014 | Schrodinger's Uncertain Butterfly <i>Judges Choice, Global Game Jam</i> | Team Lead/Original Concept Indie | PC |
| 2013 | Armadillo Smash N' Roll <i>Editor's Pick Award</i> | Gameplay Programmer Indie | Windows 8 Store |

Teaching Experience

University of Utah

Entertainment Arts and Engineering Program

Associate Instructor, EAE 4900-006: Psychology of Games

Spring 2021

Mentored and educated 38 students as instructor of record.

Co-created this brand new special topics course.

Designed online instructional design, course materials, and curriculum.

Oversaw TA's tasks ensuring new course content and assignments were created and graded in a timely and efficient manner.

School of Computing

Graduate Teaching Mentor, CS 5360/6360: Virtual Reality

Fall 2020

Developed online instructional design, course materials, led class discussions.

Entertainment Arts and Engineering Program
Graduate Teaching Assistant, EAE 5360: Game Engineering III Fall 2020
Developed online instructional design, course materials.
Guest Lecture: Formal Game Design Frameworks, November 24

Youth Education Program
Associate Instructor, Game Design and Programming Summer 2020
Designed and taught 5 iterations of the course as Instructor of Record, for youth ages 7-14.

Non-Academic Work Experience

Waterford Institute
Unity Developer / Gameplay Programmer March 2015–January 2016
Independently designed and developed features for improved user experience, gameplay mechanics, storytelling, simple animations, and visual effects; engineered 6 pick-up-and-play mini games for prekindergarten curriculum, for iPad and WebGL in 2D and 3D.

Electronic Arts, Inc. / Maxis
Gameplay Engineer Intern May 2014–October 2014
Independently designed and developed features for improved user experience, gameplay mechanics, storytelling, simple animations, and visual effects; engineered 6 pick-up-and-play mini games for prekindergarten curriculum, for iPad and WebGL in 2D and 3D.

Rockwell Collins (now Collins Aerospace)
Game Engineer Intern Feb 2014–May 2014
Pioneered the integration of game development tools into commercial and government pilot training via prototyping an underwater search and rescue serious game scenario.

BaseCamp Franchising
Software Developer Jan 2013-Feb 2014, May 2017-July 2019
Go-to for quickly acquiring new technological skills for the team, improving program efficiency, and UX (User Experience). Centralized corporate website workflow: delivered four months in advance & reduced hosting costs by 66%. Initiated and designed normalization database update: significantly reduced bugs and boosted efficiency.

Service to Profession

Sub-reviewer
2021 Foundations of Digital Games (FDG), Game AI Track

Affiliations

2003 Pi Mu Epsilon, Mathematics Honor Society (Top 10% of math department)
2002 Golden Key International Honor Society (Top 15% of University for Bachelor's, Master's, & Doctorate)