Steven Clontz - Curriculum Vitae

2428 E University Dr. #910

Auburn, AL 36830

`http://www.stevenclontz.com`

steven.clontz@gmail.com

BIOGRAPHY

Doctoral candidate in Mathematics at Auburn University, studying limited information strategies in topological games. Has a strong emphasis on pedagogy and outreach in addition to research.

Professional web developer, using languages including Python and Ruby, and frameworks including Django, Rails, and nanoc.

Accomplished puzzle and game designer, organizing several puzzlehunts in the Auburn, AL area as well as founding the Auburn Mathematical Puzzle Challenge outreach event for Auburn University.

Experienced leader, including roles as AU Graduate Student Council President and course director of a BSA National Youth Leadership Training camp at age 19.

EDUCATION

Auburn University (Auburn, AL)

Bachelor of Science in Mathematics (2004-2008)

- ▸ Summa Cum Laude | University Honors Scholar | Dean's Medalist
  Phi Kappa Phi | Phi Beta Kappa
- ▸ Honors thesis on unfoldings of convex polyhedra | Undergraduate Research Fellow

Master of Science in Mathematics (2008-2010)

- ▸ Thesis on stationary subsets of linearly ordered topological spaces (LOTS)

Doctoral Candidate in Mathematics (2010-present)

- ▸ Dissertation being written on limited information strategies in topological games
- ▸ 2013 Fitzpatrick Fellow for Auburn graduate students excelling in the field of topology

RESEARCH

Research interests include set theoretic topology and game theory, particularly using the existence of perfect or limited-information strategies in topological games to characterize topological properties of spaces. Past research includes polyhedral unfoldings within solid geometry and the structure of linearly ordered topological spaces.

Papers

- ▸ *The Edge Unfolding of Generalized Pyramids* (Undergraduate honors thesis, April 2008)
  Advisor: Andras Bezdek

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- *Applications of Stationary Sets in Set Theoretic Topology* (Masters thesis, October 2010)
  Advisor: Gary Gruenhage
- *Proximal Compact Spaces are Corson Compact* (Journal article, submitted)
  Co-author: Gary Gruenhage
- *Limited Information Strategies for Topological Games* (PhD dissertation, in progress)
  Advisor: Gary Gruenhage

Presentations

- *Limited Information Strategies for Topological Games* (February 2013)
  AU Research Week 2013
- *Mathematics is All Fun and Games* (October 2013)
  AU COSAM Graduate Student Colloquium; AU DMS Graduate Student Colloquium
- Frequent speaker in AU Set-Theoretic Topology Seminar

Awards

- COSAM Research Travel Award, Fall 2013
- Department of Mathematics and Science Travel Award, Fall 2013
- Graduate School Travel Award, Fall 2013
- 2013 Fitzpatrick Fellow for Auburn graduate students excelling in the field of topology

Research available online: `http://github.com/StevenClontz/Research`

INSTRUCTION

Courses Taught

- Elementary Algebra | MTH 098 (Hybrid course using ALEKS)
- (Honors) Calculus I | MATH 1610/7
- Calculus II | MATH 1620
- (Honors) Calculus III | MATH2630/7
- Intermediate Euclidean Geometry | MATH 5380

Student Evaluation Excerpts

`http://www.stevenclontz.com/teaching`

Lecture Notes

Notes for multiple courses released open-source online:

- *University Calculus* by Hass, et al `https://github.com/StevenClontz/HassNotes-10to14`
- *Calculus: Early Transcendentals* by Stewart `https://github.com/StevenClontz/Stewart-12to16`

Private tutoring

For both high school and college students; subjects ranging from ACT/AP preparation, finite mathematics, and Calculus courses.

OUTREACH

A.M.P.'d (Auburn Mathematical Puzzle) Challenge

- Co-created annual puzzlehunt-inspired mathematics competition for 7th/8th grade students, serving as Event Director since its inception.
- Served as writer, director, actor, videographer, and editor for videos featuring the "Auburn Math Police" Commissioner and various villains framing the scenario for the competition, as well as designing all documentation to match the theme
- Wrote several mathematical puzzles (including subjects like graph theory, number theory, game theory, geometry, etc.) to be solved by teams of 6-8 students, and presented to mathematics graduate student judges.
- Coordinated a staff of 35 graduate and undergraduate student volunteers along with AU COSAM Outreach leadership.

AU Explore - Math EXPO

- Annual workshop for 5th grade students to play while using and learning mathematics
- Event coordinator for 2013-2014, volunteer from 2009-2012

Other outreach volunteer work

- War Eagle BEST Robotics Competition (judge)
- Science Olympiad for Elementary School (event designer)
- Science Olympiad for Middle School (event assistant)

SOFTWARE ENGINEERING

GitHub: @StevenClontz

Portfolio: `http://www.stevenclontz.com/webdev/`

CMS Development

- Wordpress-based CMS for the Auburn University Bands
- WolfCMS-based CMS for the Auburn University Graduate Student Council

Static Sites and Generators

- StevenClontz.com: built upon Octopress
- GradeCalc: a simple single-page, server-side Javascript application for final grade calculations
- nanoc-au: a static site generator for AU-themed websites

Web Applications

- Co-developed Puzzle Console web app for the online administration of puzzlehunt competitions
- Co-founded Teloga, LLC and co-developed Teloga.com Musician Networks website for musician networking and event/ensemble registration for high school and college music organizations

Technology and Data Specialist (Auburn Univeristy)

- Responsible for the management and analysis of assessment data for the Office of University Writing as Specialist IV - Info Tech

PUZZLE AND GAME DESIGN

Auburn Puzzler

- ▶ Co-organized an informal Alternate Reality Game (ARG) featuring an enigmatic "Puzzler" who left several mini puzzlehunts on Auburn University's campus
- ▶ Ran from Spring to Summer 2009.

Auburn Puzzle Party `http://auburnpuzzleparty.wikia.com`

- ▶ Led a staff of more than ten volunteers to design and run the Auburn Puzzle Party puzzlehunt events APP4 (2010) and APP5 (2012)
- ▶ Created several videos and web applications as a part of both events
- ▶ Team captain of the winning APP3, APP6, and Eric's Puzzle Party 13 teams

A.M.P.'d Challenge

- ▶ Created mathematical puzzle competition at Auburn University. (See Outreach.)

LEADERSHIP

Boy Scouts of America

- ▶ Eagle Scout
- ▶ National Youth Leadership Training staffer 2003-2011, course leader in 2006

Auburn University

- ▶ Auburn University Bands Freshman Advisor ("R.A.T. Leader") in 2007
- ▶ Founded Math Club in 2008, serving as Vice President in its first year
- ▶ Appointed Graduate Student Council Webmaster in 2010
- ▶ Elected Graduate Student Council President in 2011

LIST OF SKILLS AND INTERESTS

Mathematics

Set theoretic topology, game theory, graph theory, geometry, calculus, proof techniques

Programming

HTML5, CSS (LESS, SASS), Javascript (jQuery, Coffeescript), PHP (Wordpress, Wolf CMS), Python (Django), .NET (MVC4), Ruby (Rails, nanoc), SQL, LaTeX, Git

REFERENCES

Available upon request.

CONTACT INFORMATION

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