Austin Cory Bart, PhD.

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Summary

· Researcher in **Computer Science** and **Learning Science**. Seeking a position as Research Professor, Collegiate Faculty, Curriculum Developer, or Educational Software Developer. Passionate about teaching and developing technology to support education by leveraging the latest learning theory and computational techniques. Equally comfortable as both Software Architect and Educational Researcher, having developed a significant amount of sophisticated software and taught in many contexts. Committed to supporting education and diversity in every discipline, especially Computer Science.

Education

COMPUTER SCIENCE PhD, LEARNING SCIENCES CERTIFICATION ~ VIRGINIA TECH
SEPTEMBER 2012 - PRESENT (EXPECTED GRADUATION: MAY 2017)
COURSEWORK: 4.0 GPA

HONORS BACHELOR OF COMPUTER SCIENCE WITH DISTINCTION ~ UNIVERSITY OF DELAWARE
SEPTEMBER 2008 - MAY 2012
COURSEWORK: 3.850 GPA

Honors and Awards

2016: XCALIBER AWARD FOR EXCELLENCE IN TECHNOLOGY ASSISTED TEACHING AND LEARNING
Received as part of a team with Dr. Dennis Kafura for the creation of a new on Computational Thinking for non-majors. The XCaliber award recognizes the application of novel pedagogy and innovative technology in course design across the Virginia Tech community. Includes a $1000 stipend to further develop curricular resources.

2015: VIRGINIA TECH DAVENPORT LEADERSHIP AWARD
Virginia Tech Computer Science Department award that annually acknowledges strong academic performance and recognition as a Davenport Leadership Scholar. Also includes a $2000 stipend.

2015: 3RD PLACE IN THE GRADUATE LEVEL STUDENT RESEARCH COMPETITION AT SIGCSE '15
Competed at the 2015 SIGCSE (Special Interest Group for Computer Science Education) Student Research Competition, winning third place at the graduate level.

2014-PRESENT: NATIONAL SCIENCE FOUNDATION GRADUATE RESEARCH PROGRAM FELLOW
A $96,000 stipend given over three years to pursue the student's own graduate-level research agenda. Given to less than 2,000 of the 13,000 submitted applications from PhDs in varying fields across the entire US, and considered one of the most prestigious scholarships offered through the NSF.

2013: NATIONAL SCIENCE FOUNDATION GRADUATE RESEARCH PROGRAM HONORABLE MENTION
Given to less than 2,000 of the 13,000 submitted applications from PhDs across the entire US, this award recognizes a promising application for this prestigious fellowship.

2013: 2ND PLACE IN THE GRADUATE LEVEL STUDENT RESEARCH COMPETITION AT SIGCSE '13
Competed at the 2013 SIGCSE (Special Interest Group for Computer Science Education) Student Research Competition, winning second place at the graduate level.

2008-2012: UNIVERSITY OF DELAWARE EUGENE DUPONT MEMORIAL SCHOLAR
Awarded annually to a dozen applicants of the University of Delaware and provides four years of full tuition, housing, dining, books, and an additional research stipend. Recognizes not only academic excellence in high school, but strong extra-curricular involvement. Considered one of the most prestigious scholarships available at the University of Delaware.

2011: UNIVERSITY OF DELAWARE CITIZEN OF THE YEAR, UPPER DIVISION
Awarded by Residence Life at the University of Delaware, one student in the entire upper-class, on-campus community is chosen by their fellow residents to receive recognition for their work in developing community spirit.

2009: UNIVERSITY OF DELAWARE COMPUTER SCIENCE OUTSTANDING SOPHOMORE AWARD
This monetary award is given to a student who showed exemplary academic performance in their freshman year. The winner of the award is chosen by the department faculty. Because of equally excellent achievements, I shared the award with my fellow computer science major Diane Kiser.

Teaching and Professional Expertise

- Virginia Tech CS 1014 – "Introduction to Computational Thinking": Instructor, formerly Associate Instructor. Helped to develop new course. As instructor, lectured and led class sessions, hosted office hours, and assigned grades.

- University of Delaware CISC 108 – "Introduction to Computer Science I": Teaching assistant, lab assistant. Ran lab sessions and graded assignments for my section. Held office hours for all students and made myself available in-person outside of office hours.

Publications and Presentations

PUBLICATIONS

- A. C. Bart, Motivating Introductory Students with Pedagogical Datasets, Dissertation. March, 2017.
- A. C. Bart, J. Tibau, E. Tilevich, C. A. Shaffer, D. Kafura, Implementing an Open-access, Data Science Programming Environment for Learners, IEEE Computer, Special Issue on the Future of eLearning Technologies. *(Accepted)*
- A. C. Bart, J. Tibau, D. Kafura, C. A. Shaffer, E. Tilevich. Design and Evaluation of an Open-access, Data Science Programming Environment for Learners, IEEE Transactions on Emerging Topics in Computing. *(Under revision)*
- A. C. Bart, R. Whitcomb, E. Tilevich, C. A. Shaffer, D. Kafura, Computing with CORGIS: Diverse, Real-world Datasets for Introductory Computing, SIGCSE'17, Seattle, WA. *(Best Paper)*
- A. C. Bart, J. Tibau, E. Tilevich, C. A. Shaffer, D. Kafura, Implementing an Open-access, Data Science Programming Environment for Learners, COMPSAC '16, Atlanta, Georgia. June 10-15, 2016. *(Abstract only)*
- A. C. Bart, E. Tilevich, C. A. Shaffer, D. Kafura, Position Paper: from Interest to Usefulness with BlockPy, a Block-based, Educational Environment, Blocks & Beyond '15, Atlanta, Georgia. October 21-23, 2015.
- D. Kafura, A. C. Bart, B. Chowdhury, Design and Preliminary Results from a Computational Thinking Course. ITiCSE'15, Vilnius, Lithuania. July 6-8, 2015.
- A. C. Bart, E. Tilevich, T. Allevato, S. Hall, C. A. Shaffer, Transforming Introductory Computer Science Projects via Real-Time Web Data, SIGCSE '14, Atlanta, Georgia. March 5-8, 2014.

WORKSHOPS & DEMOS

- A. C. Bart, D. Kafura. BlockPy Interactive Demo: Dual Text/Block Python Programming Environment for Guided Practice and Data Science. SIGCSE'17, Seattle, WA. 2017.
- E. Tilevich, C. A. Shaffer, A. C. Bart. Creating Stimulating, Relevant, and Manageable Introductory Computer Science Projects that Utilize Real-Time, Large, Web-Based Datasets, SIGCSE'15, Kansas City, MO. 2014.
- E. Tilevich, C. A. Shaffer, A. C. Bart. Creating Stimulating, Relevant, and Manageable Introductory Computer Science Projects that Utilize Real-Time, Web-Based Datasets, SIGCSE'14, Atlanta, GA. 2013.

CONFERENCE TALKS

- A. C. Bart, C. A. Shaffer. Instructional Design is to Teaching as Software Engineering is to Programming. SIGCSE '16. Kansas City, MO. March 2-5, 2016.
- A. C. Bart, J. Riddle, O. Saleem, B. Chowdhury, E. Tilevich, C. A. Shaffer, D. Kafura, Motivating Students with Big Data: CORGIS and MUSIC, Splash-E '14, Portland, Oregon. October 21-23, 2014.
- A. C. Bart, E. Tilevich, C. A. Shaffer, T. Allevato, S. Hall, Using Real-Time Web Data to Enrich Introductory Computer Science Projects, Splash-E '13, Indianapolis, Indiana. October 26-31, 2013.

POSTERS

- A. C. Bart. Applying Formal Models of Instructional Design to Measurably Improve Learning in Introductory Computing. SIGCSE '16. Kansas City, MO. March 2-5, 2016.
- A. C. Bart, E. M. Bart, Teaching Animal Science with Minecraft: AnimalScienceCraft. GSA Research Symposium at Virginia Tech, Blacksburg, VA, March 2015.
- A. C. Bart, Situating Computational Thinking with Big Data: Pedagogy and Technology, SIGCSE 45th ACM technical symposium on Computer Science Education Graduate Research Poster Competition, Kansas City, MO, March 2015.
- A. C. Bart, E. Tilevich, C. A. Shaffer, T. Allevato, S. Hall, Teaching Computational Thinking with Real-Time Data, Conference on Higher Education Pedagogy, Virginia Tech, Blacksburg, VA, Feburary 2014.
- A. C. Bart, E. Tilevich, C. A. Shaffer, T. Allevato, S. Hall, Transforming Introductory Computer Science Projects via Real-Time Web Data, Graduate Student Poster Symposium, Virginia Tech, Blacksburg, VA, May 2013.
- A. C. Bart, L. Pollock, Wacky Writing: Enhancing the XO Laptop Platform to Motivate Creative Writing by Children, SIGCSE 44th ACM technical symposium on Computer Science Education Graduate Resaerch Poster Competition, Denver, CO, March 2013.
- A. C. Bart, R. Deaton, E. McGinnis, Lowering Development Barriers in Educational Game Design, Conference on Higher Education Pedagogy, Virginia Tech, Blacksburg, VA, Feburary 2013.
- A. C. Bart, G. Sridhara, L. Pollock, V. Shanker, Reverse Engineering from Java Identifier Names: Conventions and a Grammar, Summer Scholars Poster Presentation, University of Delaware, Newark, DE, August 2011.

TALKS

- A. C. Bart, "Getting Started with Real-Time Web Data", Association for Women in Computing First Annual Hackathon, Blacksburg, VA, April, 2014.
- A. C. Bart, "Educational Game Design", Students Teaching Students, Blacksburg, VA, April 24, 2013.
- A. C. Bart, L. Pollock, "Wacky Writing: Exploring the XO Laptop as a Platform for Encouraging Creative Writing by Children", Senior Thesis Symposium, Newark, DE, May 5, 2012.
- A. C. Bart, L. Pollock, Exploring the XO Laptop as a Platform for Encouraging Creative Writing by Children, Honors BS Thesis, University of Delaware. Defended May 9, 2012.

Volunteer Activities

- Digital Education Reading Group Organizer (Virginia Tech, fall 2016 – Present) – Organize and lead reading group meetings for a research group dedicated to Computer Science and Digital Education.
- Association for Women in Computing Webmaster (Virginia Tech, fall 2013 - Present) – Maintained and updated the AWC website, maintained and updated social media presence, organized and supported AWC events.
- CS Graduate Council Webmaster (Virginia Tech, fall 2013 - Fall 2014) – Maintained and updated the Grad Council Website, administered grad council listserv, organized and supported graduate council events, introduced a new system for making graduate student pages indexable and searchable.
- Senior Fellow (University of Delaware, fall 2011 - Spring 2012) – Planned and hosted a large number of community activities for Honors students. Also advised students on Honors degree progress.
- Governor's School for Agriculture - Computer Science elective (Blacksburg, VA Summer 2014 and 2015) – Taught a 1-week class (1 hour per day) on Computer Science to 20 high school students. Adapted our curriculum from the Computational Thinking course I am developing with Dr. Dennis Kafura. Students reported that this was their favorite class at governor's school, and that they were eager to continue learning about Computer Science.
- AWC Code Jam (Blacksburg, VA, Spring 2014) – Led a session on real-time web APIs to ~35 undergraduate computer science majors.
- AWC Women in Computing Day (Blacksburg, VA, Spring 2014) – Led a session on solving real-world problems with Computer Science to ~60 middle-school girls from around Blacksburg.
- Let's Code Blacksburg! (Blacksburg, VA, Spring 2013 - Fall 2013) – Taught 3 introductory sessions on Python and a class on Pygame to members of the Blacksburg community.

Notable Projects and Roles

CREATOR OF THE CORGIS DATASETS PROJECT | HTTPS://THINK.CS.VT.EDU/CORGIS
· A curated collection of Big Data sets for introductory programming

· Provides a contextualized experience to motivate students and increase comprehension

· Specially developed, innovative technology makes creating and working with real-time and massive datasets trivial even for beginner students

CREATOR OF THE BLOCKPY PROJECT | HTTPS://BLOCKPY.COM
· A web-based, open-access Python programming environment

· Features a dual block/text editor with mutual language translation – users can switch between the two interfaces at will

· Instructors can incorporate guided feedback to analyze students' code and provide immediate feedback

· Data science tools for creating graphs and accessing real-world datasets using simple blocks.

CO-FOUNDER OF THE PLATIPY PROJECT | HTTP://PLATIPY.ORG
· An organization committed to smooth XO laptop development, a laptop built for disadvantaged children in 3rd world countries and low socio-economic areas

· Most notable tool developed is Spyral, a sophisticated, Pythonic, Pygame-based framework for developing games quickly and efficiently

· Also publishes tutorials and articles on educational game development theory

COMPUTATIONAL THINKING DATA SCIENCE CURRICULUM | HTTPS://THINK.CS.VT.EDU/BOOK/
· Worked closely with Dr. Dennis Kafura to design entire curriculum for a new general education course, leveraging cutting edge pedagogical techniques

· Built a fully-integrated course website with interactive coding and real-time collaboration, based on the Runestone platform

· Created assignments, reading materials, course slides, and teaching guides for teaching the course.

ANIMAL SCIENCE EDUCATIONAL MINECRAFT MOD | HTTPS://GOO.GL/OC4G70
· A mod for the popular MineCraft video game that is designed to teach core introductory concepts in Animal Science

· Designed alongside FFA Learning Standards to ensure alignment between gameplay mechanics and learning objectives

· Also incorporates a subsystem named LearnCraft for delivering just-in-time instruction

OLPC CREATIVE WRITING GAMES FOR THE XO LAPTOP | HTTP://WIKI.LAPTOP.ORG/GO/BROADWAY
· Developed two creative writing education games created for the XO Laptop designed to motivate young students, named "Broadway" and "Wacky Writer".

· Honors Senior Thesis project with an accompanying research study and published dissertation

· All software freely available under open source

Undergraduate Mentees

· Edward McEnrue

· Ryan Whitcomb

· Ishita Ganotra

· Omar Saleem

· Jason Riddle

Current Research Interests:

Digital Education, Computer Science Education, Data Science, Academic Motivation, Instructional Design, Situated Learning Theory, Introductory Computing Experiences, Web-based Programming Environments, Guided Feedback, Program Analysis, Educational Data Mining, Learning Analytics