Austin Cory Bart
Curriculum Vitae

PERSONAL DETAILS

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SUMMARY

Researcher in Computer Science and Learning Science. Seeking a position as Research Professor, Teaching Faculty, 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

PhD. Computer Science   2012-2017
Virginia Tech

> Dissertation: *Motivating Introductory Students with Pedagogical Datasets*
> Coursework GPA: 4.00

Certification in Learning Sciences   2013-2015
Virginia Tech

> 4 courses on learning, academic motivation, educational technology, and instructional design.
> Coursework GPA: 4.00

Honors Bachelor with Distinction in Computer Science   2008-2012
University of Delaware

> Thesis: *Exploring the XO Laptop as a Platform for Encouraging Creative Writing by Children*
> Coursework GPA: 3.85

HONORS AND AWARDS

Outstanding Graduate TA Award   2017
Virginia Tech Computer Science Department

> Awarded by the Virginia Tech Computer Science department to the graduate student who has shown the most exemplary teaching that year.

NSF Graduate Research Program Fellowship   2014-2017
National Science Foundation

> 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.

Best CS Education Research Paper   2017
SIGCSE 2017

> Awarded to the paper considered to have the Best CS Education Research by the program committee.

XCaliber Award for Excellence in Technology Assisted Teaching and Learning   2016

Virginia Tech TLOS Organization

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.

Davenport Leadership Award 2015
Virginia Tech Computer Science Department

Virginia Tech Computer Science Department award that annually acknowledges strong academic performance and recognition as a Davenport Leadership Scholar. Also includes a $2000 stipend.

3rd Place in the Graduate Level Student Research Competition 2015
SIGCSE 2015

Competed at the 2015 SIGCSE (Special Interest Group for Computer Science Education) Student Research Competition, winning third place at the graduate level.

NSF Graduate Research Program Honorable Mention 2013
National Science Foundation

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.

2nd Place in the Graduate Level Student Research Competition 2013
SIGCSE 2013

Competed at the 2013 SIGCSE (Special Interest Group for Computer Science Education) Student Research Competition, winning second place at the graduate level although the work presented was completed during my undergraduate.

Eugene DuPont Memorial Scholar 2008-2012
University of Delaware Honors Department

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.

Citizen of the Year, Upper Division 2011
University of Delaware Residence Life

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.

Outstanding Sophomore Award 2009
University of Delaware Computer Science Department

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.

WORK EXPERIENCE

Visiting Assistant Professor 2017-present
Virginia Tech Computer Science Department, Blacksburg, VA

Instructor 2016-2017
Virginia Tech Computer Science Department, Blacksburg, VA

Associate Instructor 2015-2016
Virginia Tech Computer Science Department, Blacksburg, VA

COURSES TAUGHT

CS1014 - Introduction to Computational Thinking 2014-Present
Virginia Tech, Blacksburg, VA
   Instructor, Associate Instructor

CS1064 - Introduction to Programming in Python 2017-Present
Virginia Tech, Blacksburg, VA
   Instructor

CISC108 - Introduction to Computer Science I 2011-2012
Virginia Tech, Blacksburg, VA
   Undergraduate Teaching Assistant, Undergraduate Lab Assistant

PUBLICATIONS AND PRESENTATIONS

Publications

- A. C. Bart, E. Tilevich, C. A. Shaffer, D. Kafura, Reconciling the Promise and Pragmatics of Enhancing Computing Pedagogy with Data Science, SIGCSE '18, Baltimore, MD. February, 2018.

- L. Gusukuma, A. C. Bart, D. Kafura, Instructional Design + Knowledge Components: A Systematic Method for Refining Instruction, SIGCSE '18, Baltimore, MD. February, 2018.

- B. Chowdhury, A. C. Bart, D. Kafura, Analysis of Collaborative Learning in a Computational Thinking Class, SIGCSE '18, Baltimore, MD. February, 2018.

- A. C. Bart, L. Gusukuma, D. Kafura, Really Pushing My Buttons: Affordances in Block-based Languages (Position Paper), Blocks & Beyond 2018, Raleigh, North Carolina. October 2018.

- L. Gusukuma, A. C. Bart, D. Kafura, Authoring Feedback for Novice Programmers in a Block-based Language (Position Paper), Blocks & Beyond 2018, Raleigh, North Carolina. October 2018.

- A. C. Bart, Motivating Introductory Students with Pedagogical Datasets, Dissertation. March, 2017.

- A. C. Bart, J. Tibau, D. Kafura, E. Tilevich, C. A. Shaffer, Design and Evaluation of a Block-based Environment with a Data Science Context, IEEE Transactions on Emerging Topics in Computing. May, 2017.

- A. C. Bart, J. Tibau, E. Tilevich, C. A. Shaffer, D. Kafura, BlockPy: An Open Access Data-Science Environment for Introductory Programmers, IEEE Computer '17. May, 2017.

- A. C. Bart, R. Whitcomb, D. Kafura, A. A. Shaffer, E. Tilevich. Computing with CORGIS: Diverse, Real-world Datasets for Introductory Computing. ACM Inroads 8, 2 (March 2017), 66-72. [Reprint]

- A. C. Bart, R. Whitcomb, E. Tilevich, C. A. Shaffer, D. Kafura, Computing with CORGIS: Diverse, Real-world Datasets for Introductory Computing **(Best Paper Award)**, SIGCSE '17, Seattle, Washington. March, 2017.

- 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.

- 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.

- <u>A. C. Bart</u>, 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.

Panels and Talks

- <u>A. C. Bart</u>, K. Subramanian, R. E. Anderson, N. A. Hamid, Preparing, Visualizing, and Using Real-world Data in Introductory Courses, SIGCSE'18, Baltimore, Maryland. February, 2018.

- <u>A. C. Bart</u>, C. A. Shaffer. Instructional Design is to Teaching as Software Engineering is to Programming. SIGCSE '16. Kansas City, MO. March 2-5, 2016.

- <u>A. C. Bart</u>, 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.

- <u>A. C. Bart</u>, 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.

Workshops and Demos

- <u>A. C. Bart</u>, L. Gusukuma, D. Kafura. Pushing My Buttons: Talking about Affordances in Block Interfaces. Blocks & Beyond 2017. Raleigh, NC. October 2017.

- <u>A. C. Bart</u> and D. Kafura. BlockPy Interactive Demo: Dual Text/Block Python Programming Environment for Guided Practice and Data Science (Abstract Only). SIGCSE'17. Seattle, Washington. March 2017.

- E. Tilevich, C. A. Shaffer, <u>A. C. Bart</u>. 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, <u>A. C. Bart</u>. Creating Stimulating, Relevant, and Manageable Introductory Computer Science Projects that Utilize Real-Time, Web-Based Datasets , SIGCSE'14, Atlanta, GA. 2013.

Posters

- L. Gusukuma, <u>A. C. Bart</u>, D. Kafura, Authoring Feedback for Novice Programmers in a Block-based Language. Blocks & Beyond 2017. Raleigh, NC. October 2017.

- <u>A. C. Bart</u>. Applying Formal Models of Instructional Design to Measurably Improve Learning in Introductory Computing. SIGCSE '16. Kansas City, MO. March 2-5, 2016.

- <u>A. C. Bart</u>, E. M. Bart, Teaching Animal Science with Minecraft: AnimalScienceCraft. GSA Research Symposium at Virginia Tech, Blacksburg, VA, March 2015.

- <u>A. C. Bart</u>, 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.

- <u>A. C. Bart</u>, 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.

- <u>A. C. Bart</u>, 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.

- <u>A. C. Bart</u>, 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.

- <u>A. C. Bart</u>, R. Deaton, E. McGinnis, Lowering Development Barriers in Educational Game Design, Conference on Higher Education Pedagogy, Virginia Tech, Blacksburg, VA, Feburary 2013.

- <u>A. C. Bart</u>, 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.

VOLUNTEER AND SERVICE ACTIVITIES

- Served on Undergraduate Program Committee for the Computer Science Department (Virginia Tech, fall 2017 - Present)

- Publicity and Web Chair in Organizing Committee (SPLASH 2015 SPLASH-E) - reviewed submissions, organized website, and coordinated emails.

- 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.

- 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.

- 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.

NOTABLE PROJECTS

CORGIS Dataset Project   2014-Present
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

BlockPy Project   2015-Present
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.

Platipy Project   2011-2014
https: // platipy. com

- 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

ADVISING

Graduate

- Luke Gusukuma, Ph.D. Computer Science

Undergraduate

- Edward McEnrue, B.S. Computer Science
- Ryan Whitcomb, B.S. Computational Modeling and Data Analytics
- Ishita Ganotra, B.S. Computer Science
- Omar Saleem, B.S. Computer Science
- Jason Riddle, B.S. Computer Science

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

REFERENCES

References available on request.