

Austin Cory Bart

Curriculum Vitae

PERSONAL DETAILS

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SUMMARY

Assistant Professor studying Computer Science Education. 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. Background in CS and Education.

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

WORK EXPERIENCE

Assistant Professor 2018-present
University of Delaware, Newark, DE

Visiting Assistant Professor 2017-2018
Virginia Tech Computer Science Department, Blacksburg, VA

Instructor 2015-2017
Virginia Tech Computer Science Department, Blacksburg, VA

Undergraduate Teaching Assistant 2011-2012
University of Delaware Computer Science Department, Newark, DE

HONORS AND AWARDS

3rd Best Curriculum Issues Paper

2019

SIGCSE 2019

Awarded to the paper considered third best in the Curriculum Issues track by the program committee.

Best CS Education Research Paper

2017

SIGCSE 2017

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

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.

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.

COURSES TAUGHT

CISC108 - Introduction to Computer Science

2018-Present

University of Delaware, Newark, DE

Instructor

CISC320 - Introduction to Algorithms

2018-Present

University of Delaware, Newark, DE

Instructor

CISC357 - Engaging Youth in Computing

2019-Present

University of Delaware, Newark, DE

Instructor

CISC374 - Educational Game Development

2020-Present

University of Delaware, Newark, DE

Instructor

CS1014 - Introduction to Computational Thinking

2014-2018

Virginia Tech, Blacksburg, VA

Instructor, Associate Instructor

CS1064 - Introduction to Programming in Python

2017-2018

Virginia Tech, Blacksburg, VA

Instructor

PUBLICATIONS AND PRESENTATIONS

Conference and Journal Publications

- L. Gusukuma, [A. C. Bart](#), and D. Kafura. Pedal: An Infrastructure for Automated Feedback Systems. SIGCSE'20, Portland, Oregon. March, 2020.
- T. Price, D. Hovemeyer, K. Rivers, [A. C. Bart](#), G. Gao, A. M. Kazerouni, B. Becker, A. Petersen, L. Gusukuma, S. H. Edwards and D. Babcock. "ProgSnap2: A Flexible Format for Programming Process Data." ITiCSE'20, Trondheim, Norway, 17-19 June 2020. 2020.
- T. Price, D. Hovemeyer, K. Rivers, [A. C. Bart](#), A. Petersen, B. Becker and J. Lefever, ProgSnap2: A Flexible Format for Programming Process Data, CSEDM'19, Tempe, Arizona. March, 2019.
- [A. C. Bart](#), A. Sarver, M. Friend, L. Cox, PythonSneks: An Open-Source, Instructionally-Designed Introductory Curriculum with Action-Design Research (won 3rd Best Paper in Curriculum track!), SIGCSE'19, Minneapolis, Minnesota. February, 2019.
- [A. C. Bart](#), C. A. Shaffer, What Have We Talked About?, SIGCSE'19, Minneapolis, Minnesota. February, 2019.
- L. Gusukuma, [A. C. Bart](#), D. Kafura, Misconception-Driven Feedback: Results from an Experimental Study, ICER '18, Finland. August, 2018.
- [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 2017, 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 2017, 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.
- 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.

Panels and Talks

- A. C. Bart. Is My Course Effective? Data Science Institute 2019. Newark, DE. November 2019.
- A. C. Bart. Curricular Material Packaging Working Group Report. CSSPLICE'19. Minneapolis, MN. February 27, 2019.
- A. C. Bart, K. Subramanian, R. E. Anderson, N. A. Hamid, Preparing, Visualizing, and Using Real-world Data in Introductory Courses, SIGCSE'18, Baltimore, Maryland. February, 2018.
- 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.

Workshops, Birds of a Feather, and Demos

- A. C. Bart, P. Conrad, M. Hilton, B. Edmison. The Problem of Packaging Curricular Materials. SIGCSE 2019. Minneapolis, MN. February 2019.
- A. C. Bart, L. Gusukuma, D. Kafura. Pushing My Buttons: Talking about Affordances in Block Interfaces. Blocks & Beyond 2017. Raleigh, NC. October 2017.
- A. C. Bart 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, 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.

Posters

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

PROFESSIONAL SERVICE ACTIVITIES

Departmental Committees

- CISC Undergraduate Program Committee (University of Delaware, Fall 2019-Present)
- CISC Broadening Participation Planning Committee (University of Delaware, Fall 2019-Present)
- CISC Education-enhancing Infrastructure Committee (University of Delaware, Fall 2019-Present)

- CS Faculty Learning Community on Teaching (University of Delaware, Fall 2019-Present)
- CISC Undergraduate Recruiting (University of Delaware, Fall 2018-Present)
- CISC CT Faculty Recruiting (University of Delaware, Fall 2018-2019)
- CS Undergraduate Program Committee (Virginia Tech, fall 2017 - 2018)

University/College Committees

- Serving in College of Engineering Undergraduate Diversity Working Group (University of Delaware, Fall 2019-Present).
- Serving on Honors Faculty Advisory Board (University of Delaware, Fall 2019-Present).

External Service

- Volunteer Instructor for Partner4CS at Partner4CS 2019 Summer Workshop for CS K-12 PD of In-service teachers and CS Summit 2019 for Partner4CS (Summer 2019).
- Leading one CSSPLICE Working Group (Curricular Materials Packaging) and serving as member on two others (Programming Snapshot Data and Programming Exercise Representation). (Fall 2017-Present).
- `r/CSEducation` Subreddit Moderator - a major digital CS Education communities (2018-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

Pedal Project

2018-Present

<https://pedal-edu.github.io/pedal>

- Framework to analyze student's code and provide feedback.
- Collection of powerful program analysis tools for type inferencing, sandboxed execution, and AST queries.
- Instructors can incorporate guided feedback to analyze students' code and provide immediate feedback
- Organize, label, and test code for providing students feedback.

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 (separately available at <https://github.com/blockpy-edu/BlockMirror/>)
- Instructors can incorporate guided feedback to analyze students' code and provide immediate feedback via Pedal.
- Data science tools for creating graphs and accessing real-world datasets using simple blocks.

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

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 at Virginia Tech (2017-2020) - Co-advisor with Dennis Kafura. Successfully defended in June 2020.

Undergraduate

- Kristina Holsapple, B.S. Computer Science at University of Delaware (2020-present)
- James Skripchuk, Honors B.S. Computer Science at University of Delaware (2019-2020)
- Darren Butler, B.S. Computer Science at Philander Smith College (2018-2019)
- Allie Sarvar, B.S. Computer Science at Virginia Tech (2016-2017)
- Michael Friend, B.S. Computer Science at Virginia Tech (2016-2017)
- Edward McEnrue, B.S. Computer Science at Virginia Tech (2015-2016)
- Ryan Whitcomb, B.S. Computational Modeling at Virginia Tech (2014-2016)
- Ishita Ganotra, B.S. Computer Science at Virginia Tech (2014-2015)
- Omar Saleem, B.S. Computer Science at Virginia Tech (2013-2014)
- Jason Riddle, B.S. Computer Science at Virginia Tech (2013-2014)

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, Educational Games, Educational Software Design

REFERENCES

References available on request.