

Association Supporting Computer Users in Education “Our Third Quarter Century of Resource Sharing”

Proceedings of the 2023 ASCUE Summer Conference
55th Annual Conference
June 11 – 14, 2023

The 2023 hybrid conference will include online and onsite components.

Web: <http://www.ascue.org>

ABOUT ASCUE

ASCUE, the Association Supporting Computer Users in Education, is a group of people interested in small college computing issues. It is a blend of people from all over the country who use computers in their teaching, academic support, and administrative support functions. Begun in 1968 as CUETUG, the College and University Eleven-Thirty Users’ Group, with an initial membership requirement of sharing at least one piece of software each year with other members, ASCUE has a strong tradition of bringing its members together to pool their resources to help each other. It no longer requires its members to share homegrown software, nor does it have ties to a particular hardware platform. However, ASCUE continues the tradition of sharing through its national conference held every year in June, its conference proceedings, and its newsletter. ASCUE proudly affirms this tradition in its motto: “Our Third Quarter Century of Resource Sharing”

ASCUE’s LISTSERVE

Subscribe by visiting the site <http://groups.google.com/a/ascue.org/group/members> and follow the directions. To send an e-mail message to the Listserve, contact: members@ascue.org Please note that you must be a subscriber/member in order to send messages to the listserv.

NEED MORE INFORMATION

Direct questions about the contents of the 2022 Conference to the chair: Chelsie Dubay, East Tennessee State University, 1276 Gilbreath Dr, Box 70300, Johnson City, TN 37614, conference@ascue.org, Web: <http://www.ascue.org>

“We hereby grant ERIC non-exclusive permission to reproduce this document.”

Association Supporting Computer Users in Education

ASCUE 2021-2022 Board Members

(years remaining in office including current year)

PRESIDENT

Nicole Lipscomb-King (1 year)
Emory University
Atlanta, GA 30322
336-253-0773
president@ascue.org

SECRETARY

Dmitri Gusev (2 years)
Purdue Polytechnic Columbus
Columbus, IN 47203
812-348-2029
dgusev@purdue.edu

PAST PRESIDENT

Jacqueline Stephen (1 year)
Mercer University
Atlanta, GA 30341
678-547-6017
stephen_js@mercer.edu

PUBLIC RELATIONS DIRECTOR

Tom Marcais (1 year)
Washington and Lee University
Lexington, VA 24450
540-456-8620
tmarcais@wlu.edu

TREASURER

Brad Weaver (1 year)
Wabash College
Crawfordsville, IN 47933
540-375-2403
weaverb@wabash.edu

PROGRAM CHAIR

Elif Gokbel (1 year)
Thomas Jefferson University
Philadelphia, PA 19107
215-955-1533
conference@ascue.org

BOARD MEMBER AT LARGE

Chelsie Dubay (2 years)
East Tennessee State University
Johnson City, TN 37614
423-439-6959
dubayc@mail.etsu.edu

BOARD MEMBER AT LARGE

Irene Knokh (1 year)
University of Michigan
Ann Arbor, MI 48109
734-763-8035
iknokh@med.umich.edu

EQUIPMENT COORDINATOR

George Warriner III (1 year)
Coastal Carolina University
Conway, SC 29528
843-349-2383
ghwarrin@coastal.edu

WEB COORDINATOR

Blair Benjamin (1 year)
Cairn University
Langhorne, PA 19047
215-702-4299
webmaster@ascue.org

SPONSOR RELATIONS COORD.

Keith Fowlkes (1 year)
E&I Cooperative Services
Jerico, NY 11753
800-283-2634
kfowlkes@eandi.org

HISTORIAN/LOCAL ARRANGEMENTS

Jack Cundiff (1 year)
1513 Magnolia Drive North
Surfside Beach, SC 29575
843-238-3307
cundiffj@sccoast.net

Table of Contents

ABOUT ASCUE	1
ASCUE’s LISTSERVE	1
NEED MORE INFORMATION	1
ASCUE 2021-2022 Board Members	2
Table of Contents	3
Keynote Speaker	6
ORGANIZATION FOR THE PROCEEDINGS	6
ASCUE BOARD OF DIRECTORS FROM 1967 to 2022	6
Recruiting the Next Generation of Information Technology Professionals	21
<i>Dmitri A. Gusev</i>	21
<i>Dewey A. Swanson</i>	21
<i>Melissa R. Casner</i>	21
<i>Purdue Polytechnic Columbus</i>	21
Round Table Panel Discussion: LMS Plugins and LTI Integrations	32
<i>Anthony Basham</i>	32
<i>Berea College</i>	32
Amazon Web Services Program - Lessons Learned	33
<i>Randolph Cullen</i>	33
Ashland Community and Technical College	33
Computer Simulations in Business Education	34
<i>David Doerring</i>	34
Coastal Carolina University.....	34
Opening the Door to Open Access	35
<i>Samantha Duncan</i>	35
<i>Ariana Baker</i>	35
Coastal Carolina University.....	35
New and Improved Updating of a Curriculum Collection for Pre-service Teachers	36

Kimberly Foster36
Coastal Carolina University.....36

Responsible, Equitable and Empathetic Integration of Technology in Remote Work and Learning and equitable use of Automation & Technology37
Ashley Fru.....37
Mercer University.....37

A Review of Modern Music Software38
Dmitri A. Gusev38
Purdue Polytechnic Columbus.....38

Digital Literacy Initiative Empowers Equitable Hybrid Learning.....39
Chelsy Hooper39
Auburn University39

The New FTC SafeGuards requirements for Higher Education.....40
Brian Kirk40
Strata Information Group.....40

Creative Teaching of Computer Science in the Age of AI41
Feng Liu.....41
Mercer University.....41

Quantum Decryption Is Coming - Be Prepared!42
Tom Marcais42
Washington and Lee University.....42

Leveling up! Esports and Video Games in Academia43
Nick Matawa43
Coastal Carolina University.....43

The Future of AI in Education: Implications for Teachers and Students.....44
Michael McKenzie44
Alex Fegely.....44
Coastal Carolina University.....44

Equitable Solutions for Students’ Virtual Reality Access.....45
Michael McKenzie45

Alex Fegely.....45
 Coastal Carolina University.....45

Reviewing Educational Virtual Reality Experiences for Science.....46
Michael McKenzie46
Alex Fegely.....46
 Coastal Carolina University.....46

From Compliance to Inclusion: How Website Accessibility Helps You Reach a Wider Audience47
Brad Weaver47
Wabash College47

**Supporting the whole student: Well-being as an ecological practice to elevate students facing housing in-
 security in higher education.....48**
Christel Young48
 East Tennessee State University.....48

Presenters Index.....49

Keynote Speaker

We're excited to announce that our 2022 Keynote Speaker will be Dr. Derek Bruff

ABOUT DEREK

Derek Bruff is an educator, author, and higher ed consultant. He directed the Vanderbilt University Center for Teaching for more than a decade, where he helped faculty and other instructors develop foundational teaching skills and explore new ideas in teaching.

Bruff consults regularly with faculty and administrators across higher education on issues of teaching, learning, and faculty development. Bruff has written two books, *Intentional Tech: Principles to Guide the Use of Educational Technology in College Teaching* (West Virginia University Press, 2019) and *Teaching with Classroom Response Systems: Creating Active Learning Environments* (Jossey-Bass, 2009).

He writes a weekly newsletter called **Intentional Teaching** and produces the **Intentional Teaching podcast**. Bruff has a PhD in mathematics and has taught math courses at Vanderbilt and Harvard University.

ORGANIZATION FOR THE PROCEEDINGS

ASCUE initiated a refereed track for paper submissions to the conference in 2008. In fact, at the 2008 business meeting, the membership approved three different presentation tracks: refereed with 3 blind reviews for each paper, session with paper where the author submits a paper but it is not reviewed, and session where no paper is submitted and only the abstract is included in the proceedings. To reflect this division, we will divide the proceedings into three sections. The first section had no entries this year. The second section, up to page 31, will hold the papers from the sessions with non-refereed papers, and the last section will list the abstracts for the other sessions.

ASCUE BOARD OF DIRECTORS FROM 1967 to 2022

At this conference we celebrate the 53rd anniversary of the founding of ASCUE at a meeting in July, 1968, at Tarkio College in Missouri of representatives from schools which had received IBM 1130 computers to help them automate their business functions and teach students how to use computers. They decided to form a continuing organization and name it CUETUG, which stood for "College and University Eleven-Thirty Users Group." By 1975, many of the member schools were no longer using the IBM 1130, and were requesting to be dropped from the membership lists. At the same time, other small schools were looking for an organization that could allow them to share knowledge and expertise with others in similar situations. At the 1975 business meeting the name was changed from CUETUG to ASCUE which stood for "Association of Small Computer Users in Education," and we opened membership to all institutions that agreed with our statement of purpose. In 2015, we decided that the word "Small" was misleading and changed our name to "Association Supporting Computer Users in Education" with the same acronym.

Our historian, Jack Cundiff, has collected the names and schools of the officers for ASCUE and its predecessor CUETUG for the last fifty years and we have printed these names on the following pages.

ASCUE BOARD OF DIRECTORS FROM 1967 to 1972

	1967-68	1969-70	1970-71	1971-72
President	Ken Zawodny St. Joseph's College	Howard Buer Principia College	Jack Cundiff Muskingum College	Wally Roth Taylor University.
Program Chair	Wally Roth Taylor University	Jack Cundiff Muskingum College	Wally Roth Taylor University	James McDonald Morningside College
Past President	Al Malveaux Xavier, New Orleans	Ken Zawodny St. Joseph's College	Howard Buer Principia College	Jack Cundiff Muskingum College
Treasurer	Howard Buer Principia College	Al Malveaux Xavier University	Al Malveaux Xavier University	Al Malveaux Xavier University
Secretary	John Robinson	Dorothy Brown South Carolina State	Dorothy Brown South Carolina State	Dick Wood Gettysburg College
Board Members	James Folt Dennison University	James Folt Dennison University	James Foit Dennison University	John Orahood U. of Arkansas, LR
At Large	Don Glaser Christian Brothers C.	Don Glaser Christian Brothers	Don Glaser Christian Brothers	N. Vosburg Principia College
Public Relations				Dan Kinnard Arizona Western
Librarian				Jack Cundiff Muskingum College
Equip. Coordinator				
Web Coordinator				
Sponsor Relations Coordinator				
Location:	Tarkio College	Principia College	Muskingum College	Christian Brothers

ASCUE 2023

ASCUE BOARD OF DIRECTORS FROM 1972 to 1976

	1972-73	1973-74	1974-75	1975-76
President	James McDonald Morningside College	Dan Kinnard Arizona Western	T. Ray Nanney Furman University	Larry Henson Berea College
Program Chair	Dan Kinnard Arizona Western	T. Ray Nanney Furman University	Larry Henson Berea College	Jack McElroy Oklahoma Christian
Past President	Wally Roth Taylor University	James McDonald Morningside College	Dan Kinnard Arizona Western	T. Ray Nanney Furman University
Treasurer	J. Westmoreland U. Tenn Martin	J. Westmoreland U. Tenn Martin	Jim Brandl Central College	Jim Brandl Central College
Secretary	Ron Anton Swathmore College	Ron Anton Swathmore College	Harry Humphries Albright College	Harry Humphries Albright College
Board Members	John Orahod U. of Arkansas, LR	Al Malveaux Xavier, New Orleans	Sister Keller Clarke College	Sister Keller Clarke College
At Large	N. Vosburg Principia College	Wally Roth Taylor University	Wally Roth Taylor University	Mike O'Heeron
Public Relations	Dan Kinnard Arizona Western	Dan Kinnard Arizona Western	Dan Kinnard Arizona Western	Dan Kinnard Arizona Western
Librarian	Jack Cundiff Muskingum College	Jack Cundiff Muskingum College	Jack Cundiff Muskingum College	Jack Cundiff Muskingum College
Equip. Coordinator				
Web Coordinator				
Sponsor Relations Coordinator				
Location:	Georgia Tech	Morningside	Furman	Berea

ASCUE BOARD OF DIRECTORS FROM 1976 to 1980

	1976-77	1977-78	1978-79	1979-80
President	Jack McElroy Oklahoma Christian	Harry Humphries Albright College	Fred Wenn Casper College	Doug Hughes Dennison University
Program Chair	Harry Humphries Albright College	Fred Wenn Casper College	Doug Hughes Dennison University	J. Westmoreland U. Tenn Martin
Past President	Larry Henson Berea College	Jack McElroy Oklahoma Christian	Harry Humphries Albright College	Fred Wenn Casper College
Treasurer	William Roeske Houghton College	William Roeske Houghton College	James Foit Central Ohio Tech	James Foit Central Ohio Tech
Secretary	Doug Hughes Dennison University	Doug Hughes Dennison University	Dave Dayton Grove City College	John Jackobs Coe College
Board Members	Dave Dayton Grove City College	Dave Dayton Grove City College	Jan C. King Chatham College	Wally Roth Taylor University
At Large	Fred Wenn Casper College	John Jackobs Coe College	John Jackobs Coe College	Jan C. King Chatham College
Public Relations	Dan Kinnard Arizona Western	Sister Keller Clarke College	Sister Keller Clarke College	Sister Keller Clarke College
Librarian	Jack Cundiff Muskingum College	Jack Cundiff Muskingum College	Jack Cundiff Muskingum College	Jack Cundiff Muskingum College
Equip. Coordinator				
Web Coordinator				
Sponsor Relations Coordinator				
Location:	OK Christian	Albright College	Casper College	Dennison Universit

ASCUE 2023

ASCUE BOARD OF DIRECTORS FROM 1980 to 1984

	1980-81	1981-82	1982-83	1983-84
President	J. Westmoreland U. Tenn Martin	John Jackobs Coe College	Jan Carver Chatham College	Wally Roth Taylor University
Program Chair	John Jackobs Coe College	Jan Carver Chatham College	Wally Roth Taylor University	Dudley Bryant Western Kentucky
Past President	Doug Hughes Dennison University	J. Westmoreland U. Tenn Martin	John Jackobs Coe College	Jan Carver Chatham College
Treasurer	Ron Klausewitz W. Virginia Weslyan	Ron Klausewitz W. Virginia Weslyan	Harry Lykens Mary Institute, St L.	Harry Lykens Mary Institute, St. L.
Secretary	Jan Carver Chatham College	Ken Mendenhall Hutchinson CC, KS	Ken Mendenhall Hutchinson CC, KS	John Jackobs Coe College
Board Members	Dudley Bryant Western Kentucky	Dudley Bryant Western Kentucky	William Roeske Houghton University	William Roeske Houghton University
At Large	Wally Roth Taylor University	Chuck McIntyre Berea College	Chuck McIntyre Berea College	Bob Renners Kenyon College
Public Relations	Sister Keller Clarke College	Sister Keller Clarke College	Sister Keller Clarke College	Sister Keller Clarke College
Librarian	Jack Cundiff Muskingum College	Jack Cundiff Muskingum College	Jack Cundiff Muskingum College	Jack Cundiff Muskingum College
Equip. Coordinator				
Web Coordinator				
Sponsor Relations Coordinator				
Location:	U. Tenn Martin	Coe College	Chatham College	Taylor University

ASCUE BOARD OF DIRECTORS FROM 1984 to 1988

	1984-85	1985-86	1986-87	1987-88
President	Dudley Bryant Western Kentucky	Paul Pascoe Vincennes University	Jack Cundiff Horry-Georgetown	Keith Pothoven Central College
Program Chair	Paul Pascoe Vincennes University	Jack Cundiff Horry-Georgetown	Keith Pothoven Central College	David Cossey Union College
Past President	Wally Roth Taylor University	Dudley Bryant Western Kentucky	Paul Pascoe Vincennes University	Jack Cundiff Horry-Georgetown
Treasurer	Harry Lykens Mary Institute, St. L	Harry Lykens Mary Institute, St. L	Maureen Eddins Hadley School Blind	Maureen Eddins Hadley School Blind
Secretary	John Jackobs Coe College	John Jackobs Coe College	John Jackobs Coe College	Dudley Bryant Western Kentucky
Board Members	Keith Pothoven Central College	Keith Pothoven Central College	Robert Hodge Taylor University	Robert Hodge Taylor University
At Large	Bob Renners Kenyon College	Carol Paris Goshen College	Carol Paris Goshen College	Ann Roskow Ister CC
Public Relations	Dough Hughes Dennison University	Wally Roth Taylor University	Wally Roth Taylor University	Wally Roth Taylor University
Librarian	Jack Cundiff Muskingum College	Jack Cundiff Muskingum College	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown
Equip. Coordinator				
Web Coordinator				
Location:	W. Kentucky	Vincennet	Myrtle Beach	Myrtle Beach

ASCUE 2023

ASCUE BOARD OF DIRECTORS FROM 1988 to 1992

	1988-89	1989-90	1990-91	1991-92
President	David Cossey Union College	Tom Warger Bryn Mawr College	David Redlawsk Rudgers University	Bill Wilson Gettysburg College
Program Chair	Tom Warger Bryn Mawr College	David Redlawsk Rudgers University	Bill Wilson Gettysburg College	Carl Singer DePauw University
Past President	Keith Pothoven Central College	David Cossey Union College	Tom Warger Bryn Mawr College	David Redlawsk Rudgers University
Treasurer	Maureen Eddins Hadley School Blind	Maureen Eddins Hadley School Blind	Tom Pollack Duquesne University	Tom Pollack Duquesne University
Secretary	Dudley Bryant Western Kentucky	Kathy Decker Clarke College	Kathy Decker Clarke College	Dagrun Bennett Franklin College
Board Members	Kathy Decker Clarke College	Dagrun Bennett Franklin College	Dagrun Bennett Franklin College	Mary Connolly Saint Mary's College
At Large	Ann Roskow Ister CC	Rick Huston South Carolina/Aiken	Rick Huston South Carolina/Aiken	Rick Huston South Carolina/Aiken
Public Relations	Wally Roth Taylor University	Wally Roth Taylor University	Wally Roth Taylor University	Wally Roth Taylor University
Librarian	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown
Equip. Coordinator				
Web Coordinator				
Sponsor Relations Coordinator				
Location:	Myrtle Beach	Myrtle Beach	Myrtle Beach	Myrtle Beach

ASCUE BOARD OF DIRECTORS FROM 1992 to 1996

	1992-93	1993-94	1994-95	1995-96
President	Carl Singer DePauw University	Rick Huston South Carolina/Aiken	Mary Connolly Saint Mary's College	Paul Tabor Clarke College
Program Chair	Rick Huston South Carolina/Aiken	Mary Connolly Saint Mary's College	Paul Tabor Clarke College	Carl Singer DePauw University
Past President	Bill Wilson Gettysburg College	Carl Singer DePauw University	Rick Huston South Carolina/Aiken	Mary Connolly Saint Mary's College
Treasurer	Tom Pollack Duquesne University	Tom Pollack Duquesne University	Tom Pollack Duquesne University	Tom Pollack Duquesne University
Secretary	Dagrun Bennett Franklin College	Dagrun Bennett Franklin College	Dagrun Bennett Franklin College	Dagrun Bennett Franklin College
Board Members	Mary Connolly Saint Mary's College	Gerald Ball Mars Hill College	Gerald Ball Mars Hill College	Rick Huston South Carolina/Aiken
At Large	Tom Gusler Clarion University	Tom Gusler Clarion University	Tom Gusler Clarion University	Tom Gusler Clarion University
Public Relations	Don Armel Eastern Illinois U.	Don Armel Eastern Illinois U.	Don Armel Eastern Illinois U.	Peter Smith Saint Mary's College
Librarian	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown
Equip. Coordinator				
Web Coordinator				
Sponsor Relations Coordinator				
Location:	Myrtle Beach	Myrtle Beach	Myrtle Beach	Myrtle Beach

ASCUE 2023

ASCUE BOARD OF DIRECTORS FROM 1996 to 2000

	1996-97	1997-98	1998-99	1999-2000
President	Carl Singer DePauw University	Carl Singer(acting) DePauw University	Bill Wilson Gettysburg College	Dagrun Bennett Franklin College
Program Chair	Chris Schwartz Ursuline College	Bill Wilson Gettysburg College	Dagrun Bennett Franklin College	Carol Smith DePauw University
Past President	Mary Connolly Saint Mary's College	Mary Connolly Saint Mary's College	Carl Singer DePauw University	Bill Wilson Gettysburg College
Treasurer	Tom Pollack Duquesne University	Tom Pollack Duquesne University	Tom Pollack Duquesne University	Tom Pollack Duquesne University
Secretary	Dagrun Bennett Franklin College	Dagrun Bennett Franklin college	Tom Gusler Clarion University	Nancy Thibeault Sinclair CC
Board Members	Richard Stewart Lutheran Theological	Richard Stewart Lutheran Theological	Nancy Thibeault Sinclair CC	Fred Jenny Grove City College
At Large	Rick Huston South Carolina/Aiken	Rick Rodger Horry-Georgetown	Rick Rodger Horry-Georgetown	George Pyo Saint Francis College
Public Relations	Peter Smith Saint Mary's College	Peter Smith Saint Mary's College	Peter Smith Saint Mary's College	Peter Smith Saint Mary's College
Librarian	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown
Equip. Coordinator				Rick Huston South Carolina/Aiken
Web Coordinator				
Sponsor Relations Coordinator				
Location:	Myrtle Beach	Myrtle Beach	Myrtle Beach	Myrtle Beach

ASCUE BOARD OF DIRECTORS FROM 2000 to 2004

	2000-01	2001-02	2002-03	2003-04
President	Carol Smith DePauw University	Fred Jenny Grove City College	Nancy Thibeault Sinclair CC	Barry Smith Baptist Bible College
Program Chair	Fred Jenny Grove City College	Nancy Thibeault Sinclair CC	Barry Smith Baptist Bible College	George Pyo Saint Francis College
Past President	Dagrun Bennett Franklin College	Carol Smith DePauw University	Fred Jenny Grove City College	Nancy Thibeault Sinclair CC
Treasurer	Tom Pollack Duquesne University	Tom Pollack Duquesne University	Tom Pollack Duquesne University	Tom Pollack Duquesne University
Secretary	Nancy Thibeault Sinclair CC	Kim Breighner Gettysburg College	Kim Breighner Gettysburg College	Kim Breighner Gettysburg College
Board Members	Barry Smith Baptist Bible College	Barry Smith Baptist Bible College	David Frace CC Baltimore County	David Frace CC Baltimore County
At Large	George Pyo Saint Francis College	George Pyo Saint Francis College	George Pyo Saint Francis College	Jim Workman Pikeville College
Public Relations	Peter Smith Saint Mary's College	Peter Smith Saint Mary's College	Peter Smith Saint Mary's College	Peter Smith Saint Mary's College
Librarian	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown
Equip. Coordinator	Rick Huston South Carolina/Aiken	Hollis Townsend Young Harris College	Hollis Townsend Young Harris College	Hollis Townsend Young Harris College
Web Coordinator			Carol Smith DePauw University	Carol Smith DePauw University
Sponsor Relations Coordinator				
Location:	Myrtle Beach	Myrtle Beach	Myrtle Beach	Myrtle Beach

ASCUE 2023

ASCUE BOARD OF DIRECTORS FROM 2004 to 2008

	2004-05	2005-06	2006-07	2007-08
President	George Pyo Saint Francis College	Jim Workman Pikeville College	Lisa Fears Franklin College	George Pyo Saint Francis College
Program Chair	Jim Workman Pikeville College	Lisa Fears Franklin College	George Pyo Saint Francis College	Fred Jenny Grove City College
Past President	Barry Smith Baptist Bible College	George Pyo Saint Francis College	Jim Workman Pikeville College	Lisa Fears Franklin College
Treasurer	Tom Pollack Duquesne University	Tom Pollack Duquesne University	Tom Pollack Duquesne University	Tom Pollack Duquesne University
Secretary	Kim Breighner Gettysburg College	Kim Breighner Gettysburg College	Kim Breighner Gettysburg College	Kim Breighner Gettysburg College
Board Members	Lisa Fears Franklin College	Blair Benjamin Philadelphia Bible	Blair Benjamin Philadelphia Bible	Janet Hurn Miami U. Middleton
At Large	David Frace CC Baltimore County	David Frace CC Baltimore County	David Fusco Juniata College	David Fusco Juniata College
Public Relations	Peter Smith Saint Mary's College	Peter Smith Saint Mary's College	Peter Smith Saint Mary's College	Peter Smith Saint Mary's College
Librarian	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown
Equip. Coordinator	Hollis Townsend Young Harris	Hollis Townsend Young Harris	Hollis Townsend Young Harris	Hollis Townsend Young Harris
Web Coordinator	Carol Smith DePauw University	David Diedreich DePauw University	David Diedreich DePauw University	Blair Benjamin Philadelphia Bible
Sponsor Relations Coordinator				
Location:	Myrtle Beach	Myrtle Beach	Myrtle Beach	Myrtle Beach

ASCUE BOARD OF DIRECTORS FROM 2008 to 2012

	2008-09	2009-10	2010-2011	2011-2012
President	Fred Jenny Grove City College	Janet Hurn Miami U Middleton	Janet Hurn Miami U Middleton	Andrea Han U of British Columbia
Program Chair	Janet Hurn Miami U Middleton	Dave Fusco Juniata College	Andrea Han U of British Columbia	Tom Marcais Sweet Briar College
Past President	George Pyo Saint Francis College	Fred Jenny Grove City College	Fred Jenny Grove City College	Janet Hurn Miami U Middleton
Treasurer	Tom Pollack Duquesne University	Tom Pollack Duquesne University	Dave Fusco Juniata College	Dave Fusco Juniata College
Secretary	Kim Breighner Gettysburg College	Kim Breighner Gettysburg College	Kim Breighner Gettysburg College	Kim Breighner Gettysburg College
Board Members	Dave Fusco Juniata College	Thomas Marcais Lee University	Thomas Marcais Lee University	Jeffery LeBlanc U of NW Ohio
At Large	Andrea Han Miami U Middleton	Andrea Han Miami U Middleton	Mark Poore Roanoke College	Mark Poore Roanoke College
Public Relations	Peter Smith Saint Mary's College	Peter Smith Saint Mary's College	Peter Smith Saint Mary's College	Peter Smith Saint Mary's College
Librarian	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown
Equip. Coordinator	Hollis Townsend Young Harris	Hollis Townsend Young Harris	Hollis Townsend Young Harris	Hollis Townsend Young Harris
Web Coordinator	Steve Weir	Steve Weir	Steve Weir	Steve Weir
Sponsor Relations Coordinator				
Location:	Myrtle Beach	Myrtle Beach	Myrtle Beach	Myrtle Beach

ASCUE 2023

ASCUE BOARD OF DIRECTORS FROM 2012 to 2016

	2012-13	2013-14	2014-2015	2015-2016
President	Tom Marcais Sweet Briar College	George Pyo Saint Francis College	Jeffery LeBlanc U of NW Ohio	Jeffery LeBlanc U of NW Ohio
Program Chair	George Pyo Saint Francis College	Jeffrey LeBlanc U of NW Ohio	Terri Austin Roanoke College	Terri Austin Roanoke College
Past President	Andea Han U of British Columbia	Tom Marcais Sweet Briar College	George Pyo Saint Francis College	George Pyo Saint Francis College
Treasurer	Dave Fusco Juniata College	Dave Fusco University of Colorado	Mark Poore Roanoke College	Mark Poore Roanoke College
Secretary	Kim Breighner Gettysburg College	Kim Breighner Gettysburg College	Kim Breighner Gettysburg College	Jean Bennett Coastal Carolina Univ
Board Members	Jeffery LeBlanc U of NW Ohio	Luke VanWingerden USC Upstate	Bruce White The Apprentice School	Bruce White The Apprentice School
At Large	Mike Lehrfeld E. Tenn. State Univ.	Mike Lehrfeld E. Tenn. State Univ.	Mike Lehrfeld E. Tenn. State Univ.	Anthony Basham Berea College
Public Relations	Peter Smith Saint Mary's College	Peter Smith Saint Mary's College	Tom Marcais Sweet Briar College	Tom Marcais Sweet Briar College
Librarian	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown	Jack Cundiff Horry-Georgetown
Equip. Coordinator	Hollis Townsend Young Harris	Hollis Townsend Young Harris	Hollis Townsend Young Harris	Hollis Townsend Young Harris
Web Coordinator	Steve Weir	Steve Weir	Steve Weir	Blair Benjamin Cairn University
Sponsor Relations Coordinator	Mark Poore Roanoke College	Mark Poore Roanoke College	Berte Thompson Messiah College	Jeffery LeBlanc U of NW Ohio
Location: Myrtle Beach		Myrtle Beach	Myrtle Beach	Myrtle Beach

ASCUE BOARD OF DIRECTORS FROM 2017 to 2020

	2016-17	2017-18	2018-2019	2019-2020
President	Terri Austin Roanoke College	Jean Bennett Coastal Carolina Univ	M.J. Clark Lynchburg College	Jacqueline Stephen Mercer University
Program Chair	Anthony Basham Berea College	M.J. Clark Lynchburg College	Jacqueline Stephen Mercer University	Nicole Lipscomb-King Mercer University Elif Gokbel, Coastal Carolina
Past President	Jeffery LeBlanc U of NW Ohio	Terri Austin Roanoke College	Jean Bennett Coastal Carolina	M.J. Clark Lynchburg College
Treasurer	Mark Poore Roanoke College	Mark Poore Roanoke College	Brad Weaver Wabash College	Brad Weaver Wabash College
Secretary	Jean Bennett Coastal Carolina Univ	Carmen Morrison NC State College	Carmen Morrison NC State College	Carmen Morison NC State College
Board Members	MJ Clark Sweet Briar College	Matthew Tyler Coastal Carolina Univ	Matthew Tyler Coastal Carolina	Dmitri Gusev Purdue Polytechnic
At Large	Carmen Morrison North Central State	Jacqueline Stephen Mercer University	Terrie Bethea-Hampton Campbell University	Terrie Bethea-Hampton Campbell University
Public Relations	Tom Marcais Sweet Briar College	Tom Marcais Washington & Lee	Tom Marcais Washington & Lee	Tom Marcais Washington & Lee
Librarian	Jack Cundiff	Jack Cundiff	Jack Cundiff	Jack Cundiff
Equipment Coordinator	Hollis Townsend Young Harris College	Hollis Townsend Young Harris College	Hollis Townsend	George Warriner III Coastal Carolina
Web Coordinator	Blair Benjamin Cairn University	Blair Benjamin Cairn University	Blair Benjamin Cairn University	Blair Benjamin Cairn University
Sponsor Relations Coordinator	Jeffery LeBlanc U of NW Ohio	Tina Stuchell U of Mount Union	Tina Stuchell U of Mount Union	
Location:	Myrtle Beach	Myrtle Beach	Myrtle Beach	Online

ASCUE 2023

ASCUE BOARD OF DIRECTORS FROM 2021 to 2024

	2020-21	2021-22	2022-2023	2023-2024
President	Jacqueline Steven Mercer University	Nicole Lipscomb-King Emory University	Nicole Lipscomb-King Emory University	
Program Chair	Nicole Lipscomb-King Emory University	Elif Gokbel Thomas Jefferson U	Chelsie Dubay East Tennessee State	
Past President	M. J. Clark Lynchburg College	Jacqueline Stephen Mercer University		
Treasurer	Brad Weaver Wabash College	Brad Weaver Wabash College	Brad Weaver Wabash College	
Secretary	Carmen Morrison NC State College	Dmitri Gusev Purdue Polytechnic	Dmitri Gusev Purdue Polytechnic	
Board Members	Irene Knokh University of Michigan	Irene Knokh University of Michigan	Christel Young East Tennessee State	
At Large	Dmitri Gusev Purdue Polytechnic	Chelsie Dubay East Tennessee State	Michelle Dzurenda Coastal Carolina	
Public Relations	Tom Marcais Washington & Lee	Tom Marcais Washington & Lee	Tom Marcais Washington & Lee	
Librarian	Jack Cundiff	Jack Cundiff	Jack Cundiff	
Equipment Coordinator	George Warriner III Coastal Carolina	George Warriner III Coastal Carolina	George Warriner III Coastal Carolina	
Web Coordinator	Blair Benjamin Cairn University	Blair Benjamin Cairn University	Sali Kaceli Cairn University	
Sponsor Relations Coordinator		Keith Fowlkes E&I Cooperative Services	Keith Fowlkes E&I Cooperative Services	
Location:	Online	Myrtle Beach	Myrtle Beach	

Recruiting the Next Generation of Information Technology Professionals

Dmitri A. Gusev
dgusev@purdue.edu
(812) 348-2029

Dewey A. Swanson
dswanson@purdue.edu
(812) 348-2039

Melissa R. Casner
casnerm@purdue.edu
(812) 528-1942

Purdue Polytechnic Columbus
4444 Kelly Street
Columbus, IN 47203

Abstract

Recruiting tomorrow's information technology students is getting to be a challenging job even though there are a variety of many good-paying jobs in the field when they graduate. This is not just an issue for our department, Computer and Information Technology (CIT). According to experts, with declining birthrates, students determining there are alternate career paths besides college AND Covid may be an issue for years to come. At Purdue Polytechnic in Columbus, we continue to do the traditional types of recruiting. However, we feel we need to be more creative in an effort to beat our competition. In this paper, we will share some of the strategies and focus on the activities we have developed. We would like a dialogue with our audience, so bring activities that work for you!

INTRODUCTION

College enrollment has been dropping in the recent years. Worsened by the COVID-19 pandemic, college student enrollment dropped by almost 10% from 2012 to 2022 (Zdanowicz, 2022). Smaller private colleges and two-year public colleges have taken the brunt of these losses with average drops in the range of 35-59%, while larger public four-year and more elite institutions have seen increases over that time. In the near future this disparity will only get worse, as a significant drop or "cliff" as it is referred to (Drozdowski, 2023) is expected after 2025 because of the birth rates dropping during the Great Recession of 2007-2009. This will have a negative effect on the enrollment numbers in 2025-2029. Although at Purdue Polytechnic Columbus we are a public four-year university, we have not seen increased enrollment. The numbers at Purdue Polytechnic tend to mirror the trends at the two-year and four-year private colleges.

With these facts in mind, the competition is getting tougher to recruit students unless you are a large public university or an elite university. The prevalent research marketing strategies today place much more emphasis on connecting in a variety of ways, especially via social media. In fact, a recent Niche Senior Survey of over 19,000 seniors found that 28% of the students did not visit any college prior to enrolling (Welding, 2023). Although this may sound alarming for college recruiters, it just emphasizes that students are using a variety of tools to make their college choice. Having said that, 72% of the students visit colleges before they make their choice.

es, and it is important that we use that time to give students a feel for the university and make the best use of those visits. As faculty, we are often called to talk to potential students or come up with activities for students to give them an idea of what our program is like. In this paper, we will review some of the activities we have incorporated over the last few years. They are typically geared towards high-school students; most don't require any prior knowledge to participate and vary in time from 30 minutes to two hours in length with generally minimum software requirements for the activity.

ACTIVITIES USED IN EVENTS ON CAMPUS

SQL Man Activity

SQL Man is an activity from Oracle Academy, the educational arm of Oracle Corporation, that was modified from the original material provided by Oracle Academy. The scenario involves a superhero solving a bank robbery by using SQL. Students are given access to a Criminal database that includes a Suspects table. The activity can be completed in several ways. Students can be given all of the clues at one time and try to beat the other students to solve the crime as a timed competition and when they are finished present their two suspects they feel are guilty of robbing the bank (similar to the Clue game fashion, where if they are wrong they are eliminated) or the way that was used for the College Preview Day that involved a little more role playing by the faculty and volunteers and ended up being a fun activity for the high-school students. Using faculty and college student volunteers to play the role of SQL Man, witnesses and suspects, witnesses would come into the lab at different intervals and provide clues to SQL Man and then the students would use the clues to write SQL (Structured Query Language) code to narrow the list of suspects down until they find the 2 bank robbers. This approach has everyone completing the first several steps at about the same time and then a race to get the two bank robbers.

This activity was used by high-school students from freshman to senior level in a college preview day session. Students completed the activity individually but could work in pairs. No knowledge of SQL was required coming into the event (students were given handouts with the basics of SQL and enough to solve the crime). The time allotted was 60-75 minutes. The first approach played as a contest to see who could finish would probably be quicker than the approach used in the Preview Day. To complete the activity, students need a computer with the Criminal database and Suspects table on the machines (Microsoft Access was used, but the activity was developed with an Oracle database).

Program It – Python racing game

On April 14, 2023, the Boiler Tech Challenge (BTC) event was held at Purdue Polytechnic Columbus. As part of the 6-hour event, the co-authors of this paper developed and conducted the *Program It* challenge for teams of high-school students interested in CIT. The five teams that took on the challenge, listed below in the order of the final ranking (1st to 5th), came from Greenwood Community High School, Columbus Signature Academy (CSA) New Tech High School, Columbus East High School, Columbus North High School, and North Decatur High School. Each team consisted of four student members, except for the Greenwood team that had only two members, albeit exceptionally well-prepared ones, as it turned out.

Each team was given access to two Dell quad PC workstations for two hours (after a 30-minute intro) and instructed to *Program It* in Python 3, a popular coding language taught in many high schools. Each PC workstation had Python 3 and the Wing 101 9 IDE installed, along with the free *codesters* library (Codesters, 2023) converted from Python 2 to Python 3 by Dmitri Gusev. The additional libraries that *codesters* depended upon were installed as well. Each team was provided an 8GB portable USB drive to help facilitate collaboration and the subsequent presentation on the room's teaching station, which had the same software installed on it and was

linked to a projector. All USB drives were collected after the team presentations. The BTC event was car race themed, so the teams were given a starter project called *btc_racing.py* to modify and make the resulting version of the arcade-style game race themed. Three screenshots of the starter game running are shown in Figure 1.

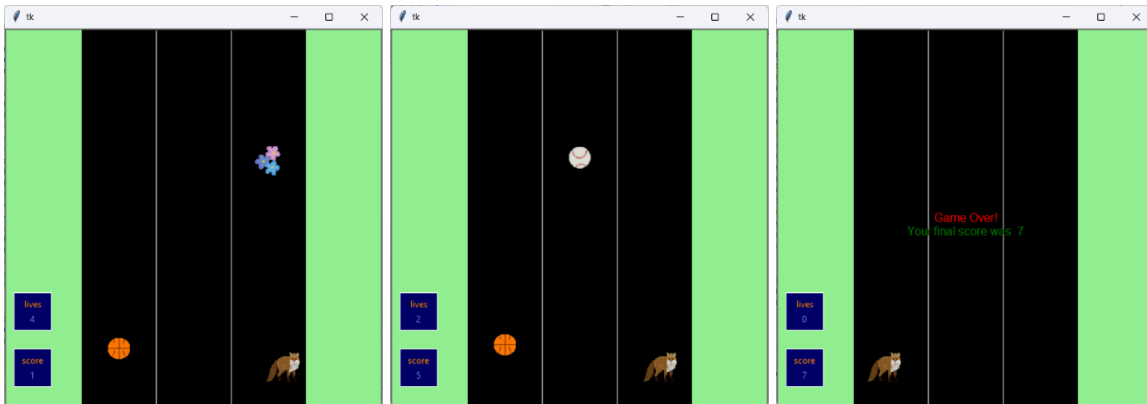


Figure 1. Three screenshots of the original *btc_racing.py* running: The fox moves left and right and catches flowers (loot), while getting hit by baseballs and basketballs (obstacles). The loot and the obstacles always appear in the same fixed lanes.

The students were shown the path to the folder where the sprites were stored. The folder contained several race car sprites (Craig Lowe, 2014), two obstacle sprites called *pothole.gif* and *nails.gif* (Dreamstime, 2023), and a loot sprite named *gas.gif* (Denis Khlebnikov, 2019). A screenshot of the *sprites* folder is shown in Figure 2. The students were permitted to seek and add sprites of their choice to the folder and reference them in their mods.

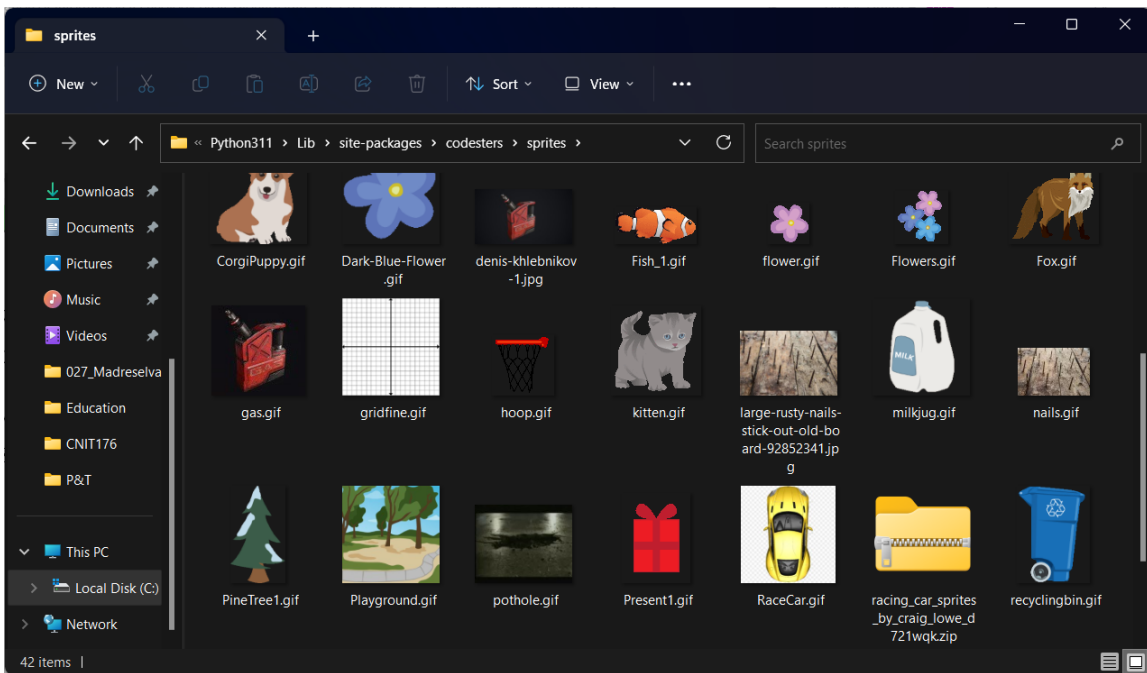


Figure 2. A screenshot of the partial contents of the *sprites* folder.

Our own partial solution to the challenge (*btc_racing_solution.py*) included the opportunity to use the Up and Down arrow keys to speed up and slow down the vertical movement of the loot and obstacles, which were generated in random lanes. The car's movement was constrained to prevent it from leaving the screen on the left or

on the right. Three screenshots of our partial solution running are featured in Figure 3. Our solution was neither given, nor shown to the contest participants and team coaches.

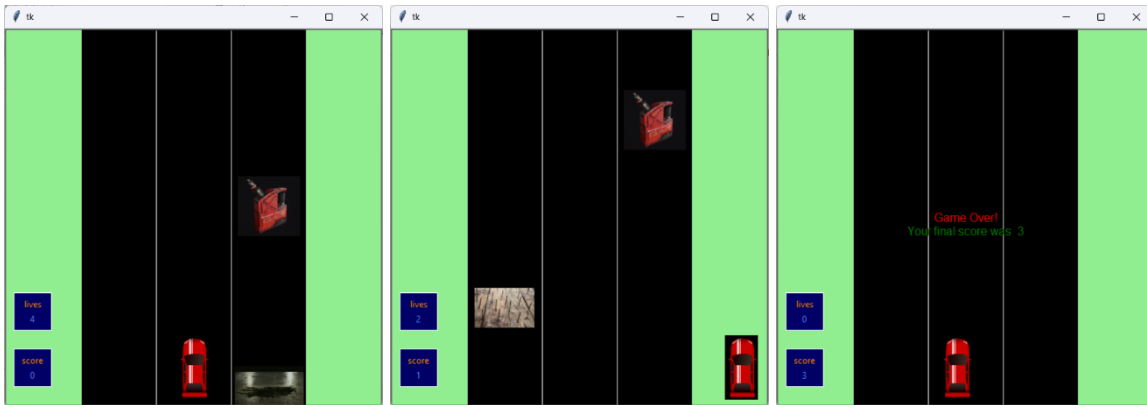


Figure 3. Three screenshots of our *btc_racing_solution.py* running: The car moves left and right without leaving the screen. The lanes where the loot and the obstacles spawn are randomized.

The team submissions were ranked independently by four contest judges based on pseudocode (20%), programming (50%), teamwork (15%), and presentation (15%). Evaluation of programming included the teams’ handling of (a) sprites – 10%, (b) lane walls – 8%, (c) loot – 16%, and (d) hazards – 16%. The rankings were totaled up, and the team with the lowest sum of the ranks won. The winning solution is illustrated by three screenshots shown in Figure 4.

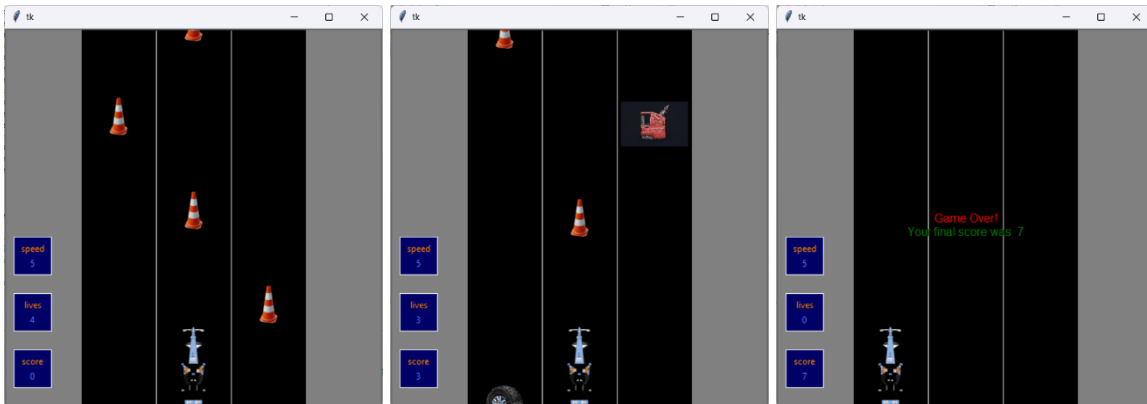


Figure 4. Three screenshots of the winning solution running. Speed is displayed (and controlled cleverly). A sprite of an Indy car is used. The car is not allowed to leave the track. The loot consists of gas and tires, the barrier cones serve as obstacles.

ESCAPE Encounter

At Purdue Polytechnic Columbus on Friday, November 18, 2022, for 45 minutes, local high school juniors and seniors supported by their parents applied a multitude of technology skills and applications to several new and not so new snags to locate a missing pieces of computer code and solve the encounter with computer information technology in a timed environment aka a timed “ESCAPE Encounter.” The structure of the challenge is shown in Table 1.

Table 1. Structure of the CIT ESCAPE Encounter

★	ESCAPE Encounter: Computer and Information Technology
E	Encrypted – Decryption & Caesar Cipher Info
S	SQL – Find the KEY to the Caesar Cipher Encrypted file from a database using SQL
C	Cybersecurity – Caesar cipher decoder to find the commands to find a file
A	Authentication – Find the text file with missing lines of code in a folder you have access to
P	Programming – A program with a missing piece of code found in a secured folder on a virtual machine
E	Encounter – Complete the Interactive Lab

Not all students finished the encounter in the allotted time, so each student's completion time was documented to give out 1st, 2nd, and 3rd place certificates.

The students needed to be able to search the Internet and use the basics of a computer. There were 4 parts to the challenge. Each part dealt with a specific aspect of computer information technology.

In the first part, it was explained to them in a handout how to use Microsoft Access. They accessed a database that had multiple tables and thousands of records in several of the tables. They were shown how to do an introductory SQL SELECT statement using a generic example and a more specific example. They were shown how to execute SQL statements. Then, they were given clues to help them narrow the tables and records down to a manageable subset.

In part two, it was explained to them about encoding/encryption and decoding/decryption. They were given an example of the oldest and simplest cipher. It is called the Caesar Cipher. It is a substitution cipher, in which each letter is shifted by a certain number of places down the alphabet. So, if encrypting the word 'CRACKING' with a +22 shift, the letter C would become the letter Y, the letter R would become the letter N, and so on for each letter of the message being encrypted. The resulting encrypted word would read YNWWYGEJC. This word could then be decrypted by anyone who knew the original encryption method of a +22 Caesar Cipher. They could reverse the cipher by translating all letters back: Y to C, N to R, and so on. Once the concept was explained, we also linked the participants to an online decoder tool.

In part three, the students were instructed to find the missing code hidden on a Linux virtual machine (VM). Linux was installed as a simplistic Ubuntu Linux VM on Oracle's VM VirtualBox Manager. The participants were given clues to help them identify the folders where the missing code was located. They were also given a simple handout of basic commands they would need and some that were just nice to know. Table 2 lists these commands.

Table 2. Basic LINUX commands for Part 3 of the ESCAPE EncounterLINK Excel.Sheet.12
https://purdue0-my.sharepoint.com/personal/casnerm_purdue_edu/Documents/Documents/CollegePreviewDay/Records%20for%20Access%20Database.xlsx Sheet1!R2C6:R10C7 \a \f 5 \h * MERGEFORMATX-

Command

Command	Description
ls -l	Shows file type and access permission
cat jsyrhmx.22	Displays the file content of a particular file i.e. "jsyrhmx.22"
CTRL +P	Go to the previous commands in the command history
ESC	Terminate insert mode (this is the key on the keyboard)
:q!	Quit vi editor and do not save changes to file
cd 'Escape Encounter'	To change to a par-

```

cd ..
vi jsyrhmx.22

```

ticular
 directory
 Move
 one di-
 rectory
 level up
 Opens
 the file
 content
 of a par-
 ticular
 file in the
 vi editor
 i.e.
 “jsyrhmx
 .22”

Lastly, the students were given instructions on how to open, edit, compile, and run a C# calculator application using Windows Forms on a Windows PC that was missing the code that they found on the Linux VM. They were given a list of basic coding techniques including the information about comments used as placeholders. Then, they were given clues to help them find the comment placeholder where the missing code belonged. If the repaired application worked correctly under Visual Studio, we determined that they had mastered the ESCAPE Encounter for the event.

The computer labs were set up with temporary student accounts and we made sure Microsoft Access was installed. The temporary student accounts had access to the specially configured Ubuntu Linux server locally via Oracle’s Virtual Box where the directories of possible locations for the file and the actual file were located. Finally, Microsoft’s Visual Studio was preinstalled to run the completed C# calculator application.

Game Night, Open House, and Day in College

At Purdue Polytechnic Columbus, we held three game night and open house events on Oct. 14, 2021, Jan. 26, 2022, and Apr. 27, 2022. We also held a Day in College event on Nov. 18, 2022. During these recruitment events for prospective CIT students, the attendees (high-school students and their parents) learned about our program, talked to the current students and faculty, and played the video and mobile games developed by our CIT students for their classes. The demonstrated student games included *Showdown at the Fair* (Fig. 5), *Super Scary Speed Run* (Fig. 6), *Runaway Robot* (Fig. 7), and *Dante* (Fig. 8). The former two games were developed using Unity, whereas *Runaway Robot* employed Unreal Engine 4, and *Dante* was developed using Android Studio and Kotlin.

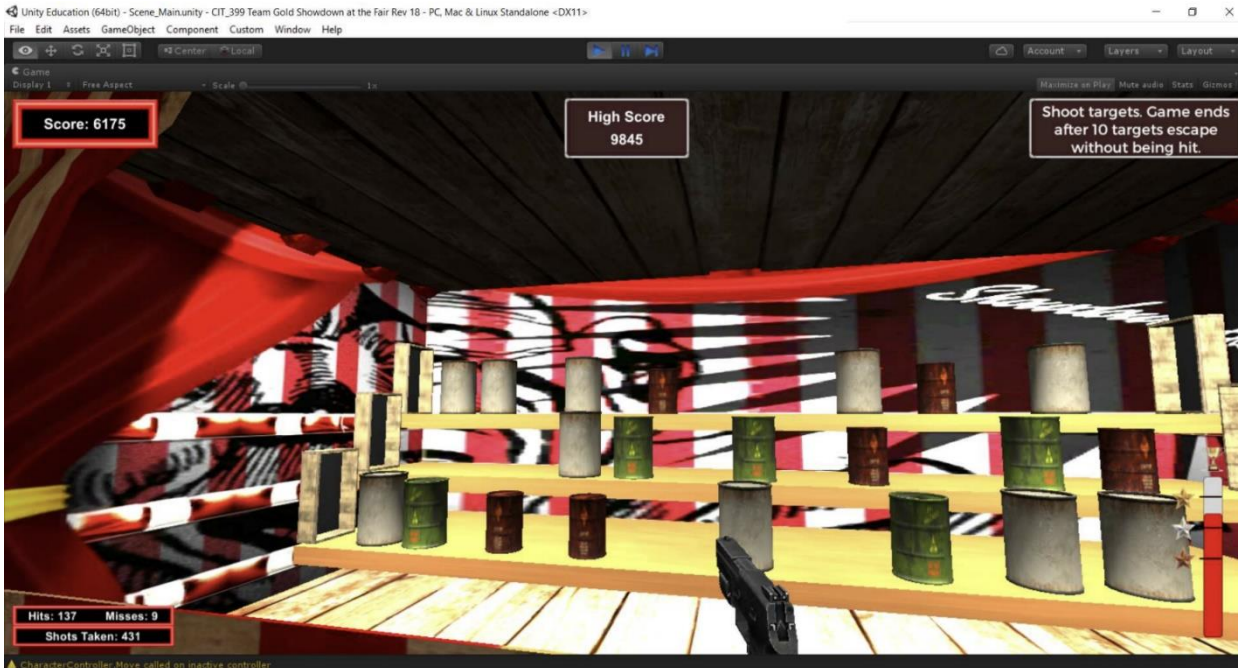


Figure 5. *Showdown at The Fair: Level 1* (the Classic level), a screenshot of the video game for PC developed by three undergraduate students for their Spring 2015 team project in CNIT 399 Introduction to Game Development (Gusev & Swanson, 2017).

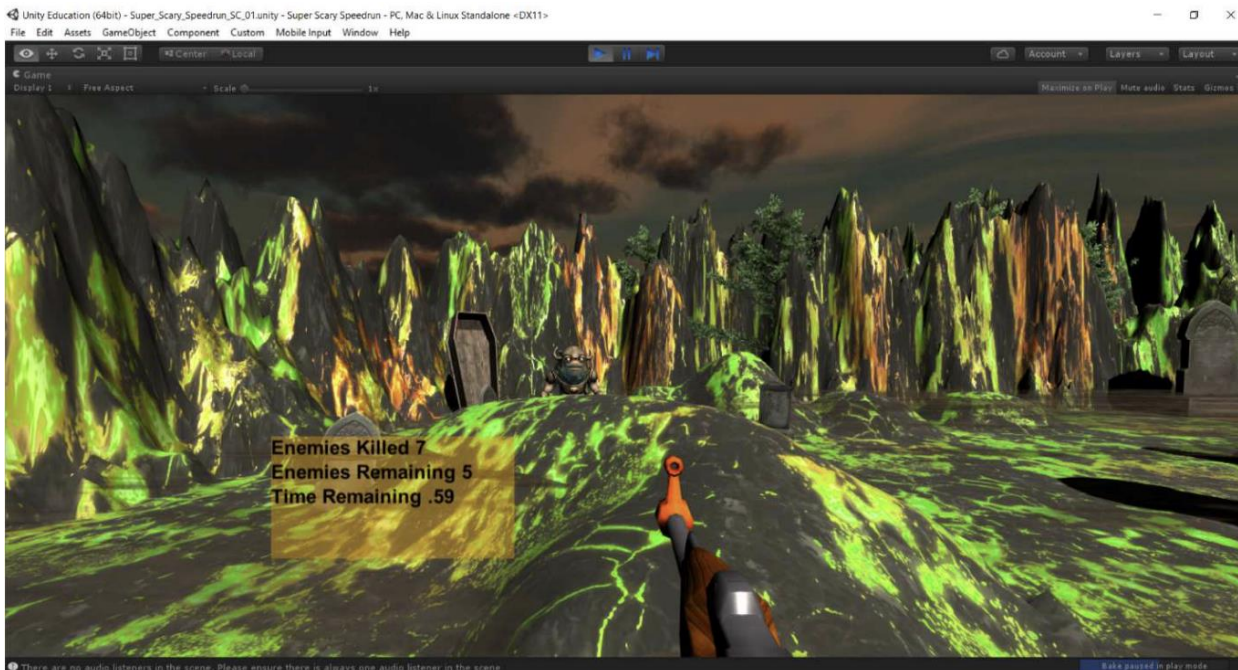


Figure 6. *Super Scary Speed Run*, a screenshot of the game demo developed by three undergraduate students for their Fall 2015 team project in CNIT 355 Software Development for Mobile Computers (Gusev & Swanson, 2017).



Figure 7. *Runaway Robot*, a screenshot of the video game for PC developed by five undergraduate students for their Spring 2021 team project in CNIT 381 Introduction to Game Development Technology, our pilot course that succeeded CNIT 399 Introduction to Game Development (Swanson & Gusev, 2022).

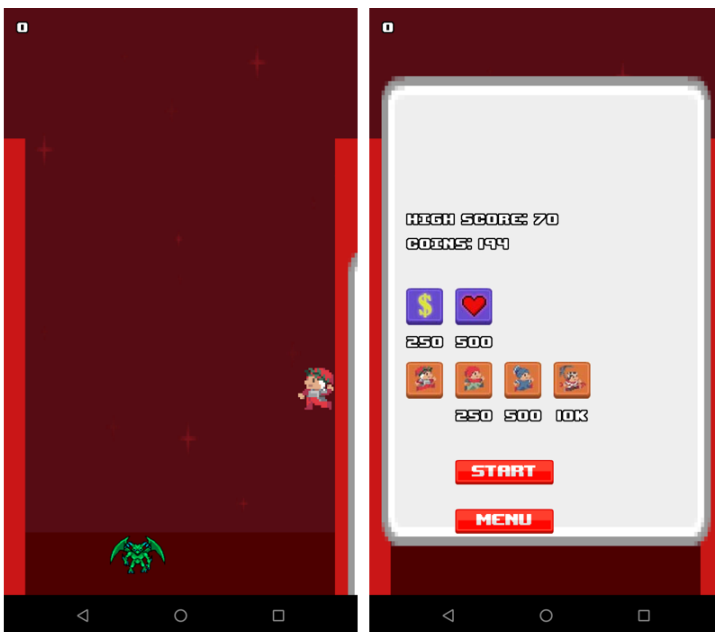


Figure 8. *Dante*, two screenshots of the arcade-style mobile game for Android developed by undergraduate students for their Fall 2021 team project in CNIT 355 Software Development for Mobile Computers (Swanson & Gusev, 2022).

Evacuate It Challenge

Evacuate It is an activity using Alice software to create a Public Service Announcement (PSA) for an approaching tornado. Tornado or any kind of disaster can be used. In the scenario, students are asked to create a PSA that will be displayed at local movie theater among movie trailers, with the goal to raise awareness and, in an entertaining manner, show the public what to do if a tornado is approaching. Students work in teams of 3-4 for this activity. In this situation, the activity was used as a formal competition with presentations and a winner but would not need to be completed as a competition. This would save time. Following are the criteria given for each team:

Create the animation using Alice with associated activities (each animation should be 60-90 seconds in length):

Start by displaying the title

Go through the scenarios in different scenes for

In home

In car

On foot

In mobile home

Add objects in the scene to make each scene (activity) distinguishable. These objects do not have to have any actions associated with them.

The timeline given to the students for the Evacuate It activity was as follows.

10 minutes — Introduction

30 minutes — Go through the 4 tutorials on Alice programming language at www.alice.org

30 minutes — Research on the internet and outline points to cover for tornado and develop sketch out storyboards for each scenario

50 minutes — Develop the animation using Alice

40 minutes — Present

20 minutes — Judges' decision

Using this timeline, it will take students 3 hours as a competition. However, if it is not completed as a competition and the design portion with the storyboards is eliminated the activity can easily be completed in 2 hours or less. The activity was completed by high-school students with no knowledge of Alice. Alice is a block-based drag-and-drop programming environment that makes it easy to create animations, build interactive narratives, or program simple games in 3D. It was created at Carnegie Mellon University and is free to use and easy to install on a computer. The graphics are basic, so it does not require any special memory or storage requirements.

Big Data - Election Day

Big Data Election Day is an activity creating basic SQL code using a Microsoft Access database. The activity can be fun around election time when television viewers are inundated with political ads. The scenario is students are working for an IT company that is hired by a possible candidate to find out information about a potential run for the United States Congress. Students work in teams for this activity. Students are given three questions to answer to prepare for the meeting with the candidate. The following questions are coded by the students using SQL and the Access database.

Who are the other potential candidates for the district 9 house seat, what city do they live in and what party do they represent?

The candidate would like to know individuals living in Indiana that contribute to campaigns and would like to see the individual contributors name, city, they are from, and the amount contributed and sorted in descending order by amount contributed.

The candidate would like to know who individuals contributed to and show the city they are from, the candidate they contributed to, the party of the candidate, and the amount contributed and sort in descending order by amount.

This activity was used with high-school students from freshman to senior level in a college preview day session. No knowledge of SQL was required coming into the event (students were given handouts with the basics of SQL and enough to solve the crime). The time allotted was 60-75 minutes. To complete the activity, students need a computer with the Election database and 3 tables: committee master, candidate master and individual contributions. The data used was real data from the Federal Election Commission (FEC) and contained several tables with a large number of records – close to 750,000 records, so it is large enough that students can't just open the database and find the answer. The data from FEC is rather cryptic and was reworked slightly so the table names and field names were easier to use and understand. Students were given a handout with basic SQL commands required to get the answers along with information about the election tables. Microsoft Access was used for the activity, but the activity could be used on an Oracle database.

CONCLUSIONS

We have presented strategies for recruitment of new Computer and Information Technology students and illustrated them by detailed descriptions of our recruitment activities covering the full spectrum of the CIT discipline to give high-school students a taste of what it's like to be trained to become a next-generation information technology professional.

REFERENCES

Zdanowicz, Christina (2022). *College enrollment has been dropping. The pandemic has made it worse*. Accessed online at https://www.wlfi.com/news/national/college-enrollment-has-been-dropping-the-pandemic-has-made-it-worse/article_84d2355c-1871-5f29-87cc-c482d98898ee.html.

Drozdowski, M. J. (2023). *Looming Enrollment Cliff Poses Serious Threat to Colleges*. Accessed online at <https://www.bestcolleges.com/news/analysis/looming-enrollment-cliff-poses-serious-threat-to-colleges/>.

Welding, Lyss (2023). *U.S. College Enrollment Decline*. Accessed online at <https://www.bestcolleges.com/research/college-enrollment-decline/>.

Caesar Cipher Decoder (2023). Accessed online at <https://www.thewordfinder.com/caesar-cipher-solver>.

Codesters (2023). Accessed online at <https://www.codesters.com/>.

Lowe, Craig (2014). *Racing Car Sprites*. Accessed online at <https://www.deviantart.com/craig-lowel/art/Racing-Car-Sprites-426711548>.

Dreamstime (2023). *41 Board Nails Out Sticking Stock Photos, Images & Pictures*. Accessed online at <https://www.dreamstime.com/photos-images/board-nails-out-sticking.html>.

Denis Khlebnikov (2019). *Gas Can*. Accessed online at <https://www.artstation.com/artwork/Ya4lqY>.

Gusev, D. A., & Swanson, D. A. (2017). Transitioning to the Polytechnic: The Game Development Aspect. *The 50th ASCUE Annual Conference*, June 11-15, 2017 (pp. 35-47). Myrtle Beach, SC: The Association Supporting Computer Users in Education (ASCUE).

Swanson, D. A., & Gusev, D. A. (2022). *Tools to Use in an Information Technology Class – and Best of All They Are FREE, version 2!* *The 54th ASCUE Annual Conference*, June 12-16, 2022 (pp. 98-110). Myrtle Beach, SC: The Association Supporting Computer Users in Education (ASCUE).

Round Table Panel Discussion: LMS Plugins and LTI Integrations

**Anthony Basham
Berea College
101 Chestnut St
Berea, KY 40403
(859)985-3630
bashama@berea.edu**

Abstract

This session provides an opportunity to discuss and hear about how other institutions are handling LMS Plugins and LTI Integrations. This includes administration, deployment, licensing, suggestions, and perhaps unpredictable complications.

Amazon Web Services Program - Lessons Learned

Randolph Cullen
Ashland Community and Technical College
1400 College Drive
Ashland, KY 41101
(304)939-0200
randolph.cullen@kctcs.edu

Abstract

In 2019, I presented to that year's ASCUE conference the description of a new Cloud Computing Technologies program within the Kentucky Community and Technical College System. Since then the program has undergone some changes and the courses presented using new and additional material and techniques. This presentation will describe the changes made, the actual results, and the expected results from items not yet integrated into the program or the courses.

Computer Simulations in Business Education

David Doerring
Coastal Carolina University
100 Chanticleer Dr E
Conway, SC 29528
(843)340-8838
ddoerring@coastal.edu

Abstract

Computer Simulations are a low-cost way to bring experiential learning into the classroom. Business students at Coastal Carolina have been engaging in computer based experiential business simulations to create a realistic and engaging course to both integrate and apply the lessons from studying business. The use of computer-based business simulations creates realistic decision scenarios that challenge students to recall lessons in Accounting, Finance, Marketing and Management. The first learning outcome is students learn that business is an integration of skills from these disciplines, not the simple practice of just one discipline. A second learning outcome is the experience of applying skills from multiple business disciplines to solve complex decisions involving the start up and operation of a business in a competitive environment. A third learning outcome is the nature of competition. Students are formed into teams that compete with one another, not the computer. This results in an endless stream of scenarios due to the variation in decisions taken by each team, at each phase in the simulation. The presentation describes simulation providers and illustrates an example of how a simulation is set up and run.

Opening the Door to Open Access

Samantha Duncan
(843)349-2952
sduncan1@coastal.edu

Ariana Baker
(843)349-5001
abaker@coastal.edu

Coastal Carolina University
100 Chanticleer Dr E
Conway, SC 29528

Abstract

University Libraries at Coastal Carolina University acknowledges the importance of open access as a doorway to equity, access, and inclusion. In spring 2023, the library voted on and approved an open-access statement that encourages librarians to publish their work openly and to support faculty by providing guidance, encouraging the use of the institutional repository, and helping to fund the cost of open access. We launched an open-access awareness program to educate librarians and faculty about these initiatives. We developed classes and, in order to promote them, we produced our own informative and concise videos to help librarians and faculty understand the key components of open access. In this poster presentation, we will discuss our open-access initiatives thus far. Specifically, we will explain the concepts and goals of our videos and classes, share our marketing plans, and direct attendees to where they can access and reuse our content.

New and Improved Updating of a Curriculum Collection for Pre-service Teachers

Kimberly Foster
Coastal Carolina University
100 Chanticleer Dr E
Conway, SC 29528
(843)349-2260
kfoster@coastal.edu

Abstract

While technology may be ubiquitous in the K-12 classroom and curriculum, it is also essential that educators have a myriad of opportunities to understand these technologies and their applicability to the curriculum. While this support does exist in the district itself, it can be challenging for pre-service teachers to access curriculum materials, especially before their period of student teaching.

This presentation will document the process to revitalize and modernize the curriculum collection, a collection designed to equip pre-service teachers with the materials needed to support their classroom learning, with an increased focus on emerging technologies and materials that support STEM learning. Conceived as an avenue to create a stronger partnership between the University library and the local K-12 district, the project involved interviewing pre-service teachers, in-service teachers, and librarians in the local district, understanding their needs, and addressing their needs in addition to best practices. Topics to be covered include the STEM and curricular needs of those interviewed, an overview of the items procured, and a start in marketing the updated collection to pre-service teachers.

Responsible, Equitable and Empathetic Integration of Technology in Remote Work and Learning and equitable use of Automation & Technology

**Ashley Fru
Mercer University
1501 Mercer University Drive
Macon, GA 31207
(470)385-2132
ashley.fru@live.mercer.edu**

Abstract

With the advent of remote work, more and more people are conducting their careers in a virtual or hybrid environment. This shift has brought attention to the transferability of skills learned in higher education to vocational roles, as well as the need for digital literacy and retraining for those who have not been exposed to technology or are not tech-savvy. The integration of technology in the teaching and learning process has undergone significant transformation in recent years. Technology has the potential to increase equity in schools by providing access to resources and opportunities for all students, regardless of their background. However, the use of technology in remote work and learning also has its drawbacks, with potential negative impacts on the seven dimensions of wellbeing. It is crucial for educational, government, and business leaders to take steps to maximize the benefits of technology while minimizing its risks and ensuring that students and employees are supported in an equitable and empathetic manner. This requires a thoughtful and proactive approach that takes into account current and past trends, and future predictions, so technology is used in a way that benefits all.

A Review of Modern Music Software

Dmitri A. Gusev
Purdue Polytechnic Columbus
4444 Kelly Street
Columbus, IN 47203
dgusev@purdue.edu
(812) 348-2029

Abstract

We will review a variety of general purpose and specialized music software currently available on the market to professionals and amateurs alike, including such popular products as REAPER digital audio workstation (DAW) and Guitar Pro multitrack editor of guitar and bass tablature and musical scores. The review will be accompanied by a live music demonstration.

Digital Literacy Initiative Empowers Equitable Hybrid Learning

Chelsy Hooper
Auburn University
924 Moores Mill Rd
Auburn, AL 36830
(812)348-2029
cph0023@auburn.edu

Abstract

This session highlights the designed support for a campus-wide digital literacy initiative provided by the Adobe Creative Space of Auburn Libraries. Auburn University has advanced the digital literacy of its students through equitable access to professional software suites and learning opportunities with in-person, hybrid, and online learning experiences through a partnership with Adobe Systems, Inc. All students, regardless of college or major, have access to the Adobe Creative Cloud suite of software applications at no additional cost. The support program improves students' digital creation skill sets via ongoing series of hybrid workshops, instructional sessions with faculty and students, partnerships, and hybrid help desk peer support from diverse student employees. Specific examples and assessments of workshops and instructional sessions will be provided. Student Consultants assist students, faculty, and staff in their use and implementation of multimedia apps through one-on-one consultations and small group instruction in a hybrid work environment. The diverse makeup of the peer consultants and data points collected to assess effectiveness of assistance will be reviewed. Lessons learned and successes will be shared.

Presenter's Bio:

Chelsie Dubay, Ed.D., currently serves as a Clinical Instructor and Director of Instructional Design for the Department of Computing at East Tennessee State University. Previously, she worked as an instructional designer and software trainer for over ten years. Her research interests include learning experience design and usability studies, culturally responsive teaching, and engagement strategies in online and hybrid classrooms.

The New FTC SafeGuards requirements for Higher Education

Brian Kirk
Strata Information Group
3935 Harney St Suite 203
San Diego, CA 92110
(617)596-6868
kirk@sigcorp.com

Abstract

On June 9th, the new FTC SafeGuard regulations went into effect for Higher Education institutions. This presentation will focus on the new technical and administrative requirements as well as the documentation auditors will be reviewing when evaluating your environment. SIG regularly works with colleges and universities to review their cybersecurity programs and documentation we will highlight areas that we see institutions struggling with compliance such as: risk assessments, policies and procedures, data mapping, encryption at rest and in transit, and many others. Join us for an interactive discussion highlighting these new compliance requirements and how they can improve your overall cybersecurity posture.

Presenter's Bio:

Brian has more than 25 years of experience in Information Technology with the last 15 years focused on cybersecurity. Prior to joining SIG Brian was Cyber Practice Leader at a top 40 accounting and advisory firm and the Chief Information Security Officer at a Fortune 500 engineering, design, and construction firm.

Creative Teaching of Computer Science in the Age of AI

Feng Liu
Mercer University
1501 Mercer University Drive
Macon, GA 31207
(678)547-6046
liu_f@mercer.edu

Abstract

With advancements in artificial intelligence and machine learning, it's becoming increasingly important to teach technology in a way that prepares students to effectively communicate with these new technologies. Rather than simply learning programming languages, students need to be taught how to communicate their ideas to computers and other AI systems in a way that is efficient and effective. This involves not only understanding the technology but also understanding how it is used in different contexts and how it can be applied to solve real-world problems. Teaching students to think critically and creatively about technology can help them to become successful innovators who are able to adapt to the ever-changing technological landscape.

Personalized learning experience: Utilize machine learning and AI algorithms to customize the learning experience based on the individual needs and progress of each student.

Real-world applications: Involved in community projects with real-world applications of programming and AI to students to help them see the relevance and impact of their learning.

Quantum Decryption Is Coming - Be Prepared!

**Tom Marcais
Washington and Lee University
204 West Washington St
Lexington, VA 24450
(540) 458-8620
tmarcais@wlu.edu**

Abstract:

Quantum computers are quickly becoming more readily available, and are increasing in power exponentially. Government states are funding quantum projects at high levels in a race to become the first country to break RSA and other popular forms of encryption. Most of us will see this happen within our career, and it may happen much sooner than you think. This session will provide background on current cryptography methods, why they're vulnerable to quantum computers, and how we can continue to protect our data once quantum supremacy has been achieved.

Leveling up! Esports and Video Games in Academia

Nick Matawa
Coastal Carolina University
100 Chanticleer Dr E
Conway, SC 29528
(908)783-9694
njmatawa@coastal.edu

Abstract

Statistics show that esports has several benefits in education, including improving cognitive skills, developing important soft skills, and promoting STEM education and digital literacy. For K-12 students, esports provides an opportunity to develop teamwork, communication, and leadership skills. A survey conducted by the Entertainment Software Association found that 74% of parents believe that video games can help their children develop problem-solving skills, while 68% believe that games can help with strategic thinking. For college students, esports can provide opportunities for socialization, leadership, and career development. A report by the National Association of Collegiate Esports found that 93% of esports participants reported improved communication and teamwork skills, and 64% of students said that participating in esports helped them develop their professional skills. Additionally, esports can be used as a tool for promoting STEM education and digital literacy. Esports provides students with opportunities to learn about game design, programming, and data analytics, which can help develop an interest in STEM subjects. As such, esports has the potential to enhance the learning experience for students of all ages.

The Future of AI in Education: Implications for Teachers and Students

Michael McKenzie
(843)349-6448
msmckenzi@coastal.edu

Alex Fegely
(843)349-5011
agfegely@coastal.edu

Coastal Carolina University
100 Chanticleer Dr E
Conway, SC 29528

Abstract

As artificial intelligence (AI) becomes more common in society and education, teachers and students are using AI tools to complete tasks and assignments. This presentation will explore AI strategies and best practices for teachers and students in the classroom. Strategies will target the integration of AI into instruction to improve teaching and learning. Additionally, ethical considerations will be discussed. Educators will learn strategies to analyze and detect AI-generated student work. Chat GPT will be the focus, but other AI tools will be presented and discussed. Participants will learn not to fear AI and leave with practical classroom examples, management tips, and AI tech tools.

Equitable Solutions for Students' Virtual Reality Access

Michael McKenzie
(843)349-6448
msmckenzi@coastal.edu

Alex Fegely
(843)349-5011
agfegely@coastal.edu

Coastal Carolina University
100 Chanticleer Dr E
Conway, SC 29528

Abstract:

The call for increased accessibility to virtual reality (VR) learning experiences in the classroom has contributed various affordable and equitable options to the field of education. The implementation of cardboard VR headsets (e.g., Google Cardboard) is a low-cost, equitable way for instructors to integrate VR learning into their classrooms. Similarly, blended learning activities have been used to increase students' access to technology through rotational models that share a small number of classroom devices (e.g., Three Centers model). This presentation will first overview a quantitative experimental study that evaluated the use of cardboard VR headsets and a station rotational model on students' achievement, interest, engagement, and sense of presence when learning science content. Then, the presenters will share the implications of this research, as well as other strategies for the classroom to increase students' access to VR.

Reviewing Educational Virtual Reality Experiences for Science

Michael McKenzie
(843)349-6448
msmckenzi@coastal.edu

Alex Fegely
(843)349-5011
agfegely@coastal.edu

Coastal Carolina University
100 Chanticleer Dr E
Conway, SC 29528

Abstract:

This presentation shares results from using a comprehensive, criterion-referenced rubric for evaluating educational virtual reality (VR) experiences. App stores rely on rating systems in which downloaders of an app are able to rate an app out of five stars (Martens & Maalej, 2019). Users' ratings are then pooled and averaged to produce an app's overall rating. However, these ratings are not based on any criteria or standardized measurement and are therefore subjective and biased. These aspects negate the reliability and validity of app stores' app ratings. The aim of this presentation is to share the results of the systematic analysis of VR experiences for science using Fegely and Cherner's (2020) educational VR rubric. This presentation will explain to attendees how the rubric can be used by teachers, administrators, or IT staff to evaluate the quality of VR experiences, then it will share results from an analysis of a sampling of the top science-specific VR experiences currently available.

From Compliance to Inclusion: How Website Accessibility Helps You Reach a Wider Audience

Brad Weaver
Wabash College
301 W Wabash Ave
Crawfordsville, IN 47933
weaverb@wabash.edu
(765)361-6308

Abstract

This presentation will discuss the benefits of accessible websites for all users, regardless of their abilities. We will review some tools that can help assess how accessible a website is (or isn't), and discuss best practices and accepted standards for making websites more accessible, such as using alt text for images, providing captions for videos, creating a logical tab order for your pages, and ensuring proper heading structure. Further, we will explore the ways in which accessible websites can improve the user experience for all website visitors, increase engagement, and expand audience reach. Finally, We will consider some ways in which AI can improve accessibility. Attendees will come away from the presentation with valuable insights and practical tips for building accessible websites and creating a better and more inclusive online experience.

Supporting the whole student: Well-being as an ecological practice to elevate students facing housing insecurity in higher education

Christel Young
East Tennessee State University
P. O. Box 5505
Johnson City, TN 37602
(704) 900-4909
christelstairtechnology@gmail.com

Abstract

Housing instability affects students across all grade levels, including those pursuing higher education, irrespective of their ethnic, racial, gender, or religious backgrounds. As indicated by Broton (2019), around 45% of students in the United States encounter some form of housing insecurity each year. Regrettably, the widespread use of the term "struggling student" in relation to college life has desensitized the broader community to the difficulties faced by higher education students (Crutchfield et al., 2020). It is essential to prioritize support for students beyond their academic needs, as this significantly influences dropout rates, graduation rates, and society as a whole. We strongly urge higher education institutions to approach the well-being of students facing housing insecurity from an ecological perspective. To steer the conversation towards practical solutions, I propose building upon last year's discussion and formulating actionable steps to provide comprehensive support services for students. The focus will be on equitable access to technology tools and services as well as invite participants to share their responses, insights, and suggestions.

Presenter's Bio:

Dr. Young is a clinical instructor and the Director of Using Information Technology at East Tennessee State University. Her research interests focus on the multi-dimensional impact of housing insecurity on higher education student success and equitable educational access among vulnerable populations

Presenters Index

Ariana Baker	Coastal Carolina University	35
Anthony Basham	Berea College	32
Melissa Casner	Purdue Polytechnic University Columbus	21
Randolph Cullen	Ashland Community and Technical College	33
David Doerring	Coastal Carolina University	34
Samantha Duncan	Coastal Carolina University	35
Alex Fegely	Coastal Carolina University	44, 45, 46
Kimberly Foster	Coastal Carolina University	36
Ashley Fru	Mercer University	37
Dmitri Gusev	Purdue Polytechnic University Columbus	21, 38
Chelsey Hooper	Auburn University	39
Brian Kirk	Strata Information Group	40
Feng Liu	Mercer University	41
Tom Marcais	Washington and Lee University	42
Nick Matawa	Coastal Carolina University	43
Michael McKensie	Coastal Carolina University	44, 45, 46
Dewey Swanson	Purdue Polytechnic University Columbus	21
Brad Weaver	Wabash College	47
Christel Young	East Tennessee State University	48