

Colleen Countryman, Ph.D.

Assistant Professor of Physics & Astronomy
Ithaca College

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Education

- 2015 Ph.D. **Physics**, specializing in Physics Education Research. North Carolina State University.
GPA 3.55.

Dissertation: *The Educational Impact of Smartphone Implementation on Introductory Mechanics Laboratory Classes*.

Advisors: Dr. Robert Beichner and Dr. Michael A. Paesler.
- 2010 M.S. **Mathematics**, specializing in Applied Mathematics. Virginia Polytechnic Institute. 2010.
GPA 3.64.
Thesis: *The Use of Schwarz-Christoffel Transformations in Determining Acoustic Resonances*.
Advisor: Dr. Robert C. Rogers. Available at <http://goo.gl/6oVxb>
- 2008 B.A. **Mathematics** (*Magna cum Laude* with Honors). Canisius College (now, Canisius University), Buffalo, NY. 2008.
GPA 3.90.
- 2008 B.S. **Physics** (*Magna cum Laude* with Honors). Canisius College, Buffalo, NY. 2008.
GPA 3.90.

Liberal Arts Honors Thesis: *The Extent to Which Historical Context Affects the Accomplishments of Scientists and Mathematicians after World War II*.
Advisors: Drs. H. David Sheets (Physics) and Tanya Loughhead (Philosophy).

Research Interests

- Current Interests: physics, physics education research, mathematics education, educational technology, active learning and SCALE-UP learning environments, curricular development, higher education, science education, mobile devices, instructional YouTube videos, online instructional tools, learning management systems (like Canvas), student response systems (like iClicker), physics instructional labs, gender studies in the sciences, science identities (specifically as they relate to gender and racial identities), introductory physics for life sciences.
- Additional experience: single-molecule biophysics, FRET techniques, numerical analysis, optimal control, applied partial differential equations, conformal maps, acoustic resonances, paleontology, biodiversity estimates, stratigraphic correlations, traveling salesman problem, applied mathematics, metrics of binary trees

Professional Memberships

- American Association of Physics Teachers
- Sigma Pi Sigma (Physics) Honor Society
- Pi Mu Epsilon (Mathematics) Honor Society
- American Physical Society
- National Society of Black Physicists
- Society of Physics Students

Awards, Recognition, and Scholarships

- Ithaca College Faculty Excellence Award in Teaching 2023
- Best Undergraduate Research Presentation Award received by advisee Mburu, T. for a poster titled “Developing a Simulator and a Game to Aid in Student Understanding of Electric Fields.” (March 15, 2022). American Physical Society (APS) March Meeting in Chicago, IL. 2022
- *Campus Technology* Teaching and Learning [Impact Award](#) for MyTech app 2017
- “Thank a Teacher” recipient, honoring NC State faculty who have made a difference in students’ lives (North Carolina State University) 2016
- Outstanding teacher in Physics with “exceptionally high marks” on class evaluations (North Carolina State University) 2016
- Best of *The Physics Teacher*, 2014–2015 (North Carolina State University) 2015
- Best Graduate Student Paper Award at Spring 2015 NCS-AAPT for “The Educational Impact of Smartphones in Physics Labs” (North Carolina State University) 2015
- The inaugural Outstanding Teaching Assistant Award endowed by Dr. Russell Philbrick (North Carolina State University) 2013
- Best Graduate Student Paper Award at Fall 2012 NCS-AAPT for “MyTech: Measurements using everyday TECHNOLOGIES” (North Carolina State University) 2012
- University Favorite Faculty Award (Virginia Tech) 2010
- Member of Phi Sigma Tau, a Philosophy Honors Society (Canisius) 2008
- Tidd Award for Most Accomplished Graduating Senior in the Mathematics Department (Canisius) 2008
- Most Accomplished Graduating Senior Award in the Physics Department (Canisius) 2008

- Dean's Scholarship (Canisius)

2004

Teaching Experience

- Assistant Professor of Physics (Ithaca College)

2017-present

- Teach introductory and advanced level classes in active learning formats, including both algebra-based and calculus-based Introductory Physics, Classical Mechanics and Thermodynamics
- Created and teach a class on "Physics of Music" to students across the Ithaca College campus
- Created and teach an Ithaca Seminar course on science in the media for students in their first semester of college
- Coordinate and train undergraduate Learning Assistants for the introductory curriculum in Learning Assistant Practicum
- Mentor research students in PHYS X99 series in Physics Education Research
- Co-taught ICIC 100 Integration: Connecting the Disciplines
- Co-taught Songwriter and Singers Summer Seminar for incoming first-year students

- Coordinator for Engineering Physics I and II (NC State)

2015-2017

- Manage approximately 15 sections of (calculus-based) Engineering Physics I and II, serving approximately 2,000+ students per year
- Teach two sections of the course per semester
- Develop instructional resources for other faculty members teaching these classes

- PhysTEC Site Co-Leader (NC State)

2015-2017

- Teach "Introduction to Physics Teaching," a pedagogy course required by undergraduate Learning Assistants (LAs) in the PhysTEC program and all first-year graduate Teaching Assistants (TAs)
- Coordinate recitation sessions for Engineering Physics I, which utilizes LAs and TAs
- Mentor undergraduate and graduate student interested in pursuing projects in Physics Education Research

- Develop inquiry-based introductory mechanics laboratory experiments, making use of students' smartphones as data collection devices (NC State) 2016
- Instructor of Engineering Physics II: Electricity and Magnetism (NC State) 2014
- Teaching Assistant for a SCALE-UP implementation of Engineering Physics I with Professor Robert Beichner (NC State) 2013
- Substitute lecturer for a *Matter and Interactions* section of Engineering Physics II (NC State) 2013
- WebAssign coder and lab manager for three sections of labs (Engineering Physics I) that were held in the Physics Education Group's Qualitative Education Research Lab (NC State) 2013-2014
- Instructor for "Physics of Energy", part of the summer Duke TIP program for talented high school students (Duke University) 2013
- Editor of Engineering Physics II Laboratory Manual (NC State) 2013
- Teaching Assistant for a SCALE-UP implementation of Conceptual Physics for Future Elementary School Teachers (NC State) 2013
- Lead Teaching Assistant for Engineering Physics II and Algebra-Based Electricity and Magnetism Labs (NC State) 2010-2013
- Math Emporium Teaching Assistant, helping students with Elementary Calculus with Trigonometry (Precalculus), Linear Algebra, Elementary Calculus with Matrices, Geometry and the Mathematics of Design (VT) 2008
- Instructor of Vector Geometry (1), Differential Calculus (2), Multivariable Calculus (2) 2008-2010
- Teaching Assistant for Technology in Education (Canisius) 2005
- Teaching Assistant and Grader for General Physics Labs (Canisius) 2005-2008
- Grader for Calculus I (Canisius) 2005-2006
- Substitute Teacher for Technology class (Nardin Academy, Buffalo, NY) 2007
- Teaching Assistant and Grader for Finite Mathematics (Canisius) 2007-2008
- Private piano instructor 2002-2008
- Tutor in the Math Tutoring Center (Canisius) 2005-2008
- Private tutor for mathematics and physics 2005-present

Research Experience

- Recipient of American Physical Society's Forum on Education Mini-Grant Fall 2020
- Recipient of Center for Faculty Excellence Summer Grant for Scholarly Work and led research group for Ithaca College's School of H&S Summer Scholars Program Summer 2020-present
 - Coordinated and led two undergraduate physics research students to publish a gamified mobile app and an instructional laptop simulation for use in introductory physics classes
 - Guided the assessment of previous iterations of apps with a graduate education research student
- Initiated and led a research lab for Physics Education Research at Ithaca College in the development and assessment of mobile apps, educational simulations and supplementary instructional videos 2019-present
 - Mikolaj Konieczny, 2023: Simulation exploring orbital mechanics
 - Noah Rosenzweig, 2023: Supplementary instructional "homework help" videos for PHYS 101 and 102
 - Antara Sen, 2021-2022: Simulation exploring centrifugal forces and Coriolis forces
 - Matthew Weil, 2021-2022: Design of Intro Physics Homework Help Website
 - Raymond Rogers, 2020 – 2021: Analysis of effectiveness of supplementary instructional videos; Senior Project, (May 2021): Supplemental Homework Help Videos and Their Effects on Students' Testing Scores; received Outstanding Senior Project award
 - Ted Mburu, 2019 – present: DEFI Electric Field Game, Electric Field Simulation, YouTube learning-to-code series, simulation exploring centrifugal and Coriolis forces
 - Eli Robinson, 2020 – 2022: Gravitational Field Simulation
 - Liana Rodelli, 2017 – 2021: Analysis of effectiveness of electric field simulation and game; Senior Thesis (May 2020): Analyzing the Impacts of a New Mobile Application on Student Understanding of Electric Fields and Attitudes Towards Physics

- Serves as an advisory member of an NSF-supported project on “Mapping Fields in Augmented Reality with Personal Mobile Devices” 2019–2020
- Collaborated with faculty in the School of Health Science and Human Performance on a studying “Using 360-Degree Videos for Skill-Based Learning at Ithaca College,” funded by the Ithaca College President’s Grant 2018
- Oversaw the assessment of “EaRL in the Classroom” mini-laboratory experiments for advanced physics majors’ courses (NC State) 2015–2017
- Conducted the MyTech study which implements students’ smartphones and video analysis software as data collection devices in the instructional mechanics lab (NC State and Meredith College) 2013–2017
- Conducted a study on the impact of pre-class reading quizzes on students in introductory mechanics classes (NC State) 2015
- Conducted the “mathcasts” study in which the educational impact of brief YouTube videos connecting math and physics concepts was studied (NC State) 2014–2017
- Reviewed for *Physical Review Special Topics: Physics Education Research*, *American Journal of Physics*, and *The Physics Teacher* (NC State) 2013–present
- Participated in Inter-Rater Reliability for Physics Education Research projects (NC State) 2013
- Research assistant in the Physics Education Research Group (NC State) 2012–2017
- Research assistant in an American Cancer Society-funded Single-Molecule FRET Biophysics project for Keith Weninger, Ph.D. (NC State) 2011–2012
- Research assistant in acoustic resonances with Robert C. Rogers, Ph.D. (VT) 2008–2010
- Research assistant for an NSF-funded paleontology project with Dr. H. David Sheets (Canisius) 2005–2008

Publications

- Mburu, T. (advised by **Countryman, C. L.**) “Developing an Interactive Simulation for Non-Inertial Reference Frames.” (2023). *Journal of Undergraduate Reports in Physics*.
<https://pubs.aip.org/aip/jurp/issue/33/1> 2023

- **Countryman, C. L.** and Mburu, T. “Teaching Electric Fields with a Simulation and Game.” (2023). *The Physics Teacher*. Screenshot from the simulation was used for [the cover](#). 2023
- Rodelli, L., Mburu, T., and **Countryman, C. L.** “Assessing the Efficacy of a New Online Game and Simulation to Teach Electric Fields.” (2022). *PERC Proceedings*. <https://www.per-central.org/items/detail.cfm?ID=16264> 2022
- A panel of ten higher education experts, including **Countryman, C. L.** invited by Perkins-Eastman Associates. *The Learning Futures Project—Imagining Higher Education in 2025*. (2020). A [white paper](#) discussing the future of higher education in light of the changes brought about by the global pandemic. 2020
- **Countryman, C. L.** *Physics Labs for Scientists and Engineers – Mechanics*. (2016). Laboratory curriculum that utilizes students’ personal electronic devices for data collection. Published by WebAssign. 2016
- **Countryman, C. L.** “The Educational Impact of Smartphone Implementation in Introductory Mechanics Laboratories.” (2016). *PERC 2015 Proceedings*. 2016
- **Countryman, C. L.** “Using Mathcasts to Facilitate Student Comprehension of Physical Applications of Math Concepts.” (2016). *ArXiv*. 2016
- **Lanz, C.** “The Educational Impact of Smartphone Implementation in Introductory Mechanics Laboratory Classes.” (2015). *Electronic Theses and Dissertations at North Carolina State University*. Available at <http://repository.lib.ncsu.edu/ir/handle/1840.16/10230> 2015
- **Countryman, C. L.** “Familiarizing Students with the Basics of a Smartphone’s Internal Sensors.” (2014). *The Physics Teacher*. December 2014. 2014
- **Lanz, C.** “The Use of Schwarz-Christoffel Transformations in Determining Acoustic Resonances” (2010). *Electronic Theses and Dissertations at Virginia Tech*. etd-07082010-083729. <http://scholar.lib.vt.edu/theses/available/etd-07082010-083729/> 2010
- **Lanz, C.** (2007). *The Extent to Which Historical Context Affects the Accomplishments of Scientists and Mathematicians after World War II*. Honors Thesis at Canisius College. 2008

Programs, Simulations and Mobile Apps

- Konieczny, M. and Countryman, C. “Orbital Manoeuvres Simulation” 2023
emphasizing orbital mechanics concepts
<https://icphysweb.z13.web.core.windows.net/OrbitSimulation/src/index2.html>
- Mburu, T., and Countryman, C., “Electric Field Simulation and Game” accepted 2022
for publication on Compadre’s PICUP (Partnership for Integration of
Computation into Undergraduate Physics).
<https://www.compadre.org/picup/exercises/exercise.cfm?A=EFieldSimGame>
- Mburu, T., Barr, J., and Countryman, C., “DEFI” electric field game
<https://icphysweb.z13.web.core.windows.net/site/game.html>
- Mburu, T., Barr, J., Turnbull, D., and **Countryman, C.** “E-Field Simulator” 2020
laptop simulation
<https://icphysweb.z13.web.core.windows.net/simulation.html>
- Afolabi, Y., Rodelli, L., Barr, J., and **Countryman C.** “Dynamic Electric Field
Interactive” mobile app available in Expo Client App Store. 2019
- Christian, W., Esquembre, F., and **Countryman, C.** “Mass and Spring Simple
Harmonic Oscillator Model” 2016
<http://www.compadre.org/portal/items/detail.cfm?ID=14063>
- Christian, W., **Countryman, C.**, and Esquembre, F. “Block Sliding on an Incline
Plane Model” <http://www.compadre.org/portal/items/detail.cfm?ID=14054> 2016
- Tredwell, D. and **Countryman, C. L.** “NCSU MyTech.” (2015). Mobile app 2015
available on the iTunes App Store and Google Play Store.

Press Releases regarding Professional Activities

- Barnett, J. “A Triumphant Return: Education Technology Day Is Back
at Ithaca College” (2024). *IC News*. 2024
<https://www.ithaca.edu/news/triumphant-return>
- Alena, W. “Inspiring Mathematical Exploration: Community Math Day
a hit at IC” (2024). *IC News*. 2024
<https://www.ithaca.edu/news/inspiring-mathematical-exploration>
- McDermott, L. “Student Research Analyzes Impact of Pilot
Foundational Physics Course” (2023). *The Ithacan*. 2023
<https://theithacan.org/50525/news/student-research-analyzes-impact-of-pilot-foundational-physics-course/>
- Davis, J. “Two IC Students Win Award at Physics Research Conference” 2023
(2023). *The Ithacan*.

<https://theithacan.org/47030/news/ic-physics-students-honored-at-physics-research-conference/>

- Collins, G. “Accelerating the Power of Women in Physics: 2023 Conference for Undergraduate Women in Physics co-hosted by Ithaca College and Cornell University” (2023). *IC News*. 2023
<https://www.ithaca.edu/news/accelerating-power-women-physics>
- Will, K. “Professors Make Music Together with Local Artist” (2022). *The Ithacan*. 2022
<https://theithacan.org/45233/life-culture/lc-features/professors-make-music-together-with-local-artist/>
- Roger, R. “Physics Fun at Home: Professor creates labs that can be completed with common household items” (2020). *IC News*. 2020
<https://www.ithaca.edu/news/physics-fun-home>
- Fernandez, M. “Professor Creates App to Make Physics More Accessible to Students” (2017). *The Ithacan*. 2017
<https://theithacan.org/news/professor-creates-apps-to-make-physics-more-accessible-to-students/>
- O’Neal, S. “Physics App Wins Campus Technology Impact Award” (2017). *NC State DELTA News*. 2017
<https://news.ncsu.edu/2017/08/physics-app-wins-campus-technology-impact-award/>
- Crabtree, K. “New App is a Game-Changer for NC State Physics Department” (2017). *The Technician*. 2017
http://www.technicianonline.com/arts_entertainment/article_7ff87a78-c815-11e7-87b4-734e7c8d3255.html
- Lorenzo, G. “The Six Advances in Higher Ed that Are Preparing Students for the Future of Work” (2016). *Fast Company*. MyTech app is featured in an article on “Bringing Your Own Device (BYOD).” 2016
<https://www.fastcompany.com/3057576/the-future-of-work/the-six-tech-advances-in-higher-ed-that-are-preparing-students-for-the-fu>
- Thompson, S. “Labs Get Smart” (2016). *NCSU College of Sciences Magazine* and *NCSU College of Sciences Year in Review*. Article features the use of **Colleen Countryman’s** MyTech app in physics labs. 2016
<https://sciences.ncsu.edu/news/labs-get-smart/>
- Becker, G. “iPhysics at NC State University” (2016). *Comtorial Blog: Instructional Design and Learning Technologies*. Article features **Colleen Countryman’s** development and use of several educational technologies. 2016
<http://www.comtorial.com/iphysics-at-nc-state-university>
- Johnson, L., Adams, B. S., Estrada, V., & Freeman, A. (2016). *2016 NMC Higher Education Horizon Report*. New Media Consortium. The NMC 2016

Horizon Report mentioned **Colleen Countryman's** MyTech app in a section on "Bring Your Own Device" (p. 37).

- Oldham, L. C. "MyTech: Taking Physics Beyond the Classroom" 2015 regarding **Colleen Countryman's** instructional smartphone app development and research (2015). *DELTAwire*. December 9 2015. <https://delta.ncsu.edu/news/2015/12/09/mytech-taking-physics-beyond-classroom/>
- Maciel, T. "Smartphones in the Classroom Help Students See Inside the Black Box" regarding, in part, **Colleen Countryman's** instructional smartphone app research (2015). *American Physical Society News*. March 2015. <https://www.aps.org/publications/apsnews/201503/smartphones.cfm>

Keynotes and Invited Talks

- **Countryman, C. L.** "Navigating the Path to Success: Insights from an Assistant Professor at a Primarily Undergraduate Institution" (March 5, 2024). Invited talk at the American Physical Society March Meeting 2024 in Minneapolis, MN. 2024
- **Countryman, C. L.** "Going the Distance – Mobile Activities in the Time of COVID" (October 28, 2021). Invited talk for Ithaca College's Provost's Colloquium: Celebrating Faculty Innovation during the Pandemic 2021
- **Countryman, C. L.** "The Development and Assessment of Instructional Mobile Apps for Physics Students" (April 1, 2020). Invited talk for SPS National as part of their Virtual Speakers Series. Archive: <https://www.youtube.com/watch?v=6Kxh-QjfmX4> 2020
- **Countryman, C. L.** "Developing and Assessing Educational Technologies" (September 24, 2019). Invited colloquium speaker at Colgate University in Hamilton, NY. 2019
- **Countryman, C. L.** "Miss Frizzle Rides a Gravitational Wave" (May 16, 2018). Keynote speech at the Siskiyou Science Festival in Mount Shasta, CA. 2018
- **Countryman, C. L.** "Thinking Beyond the Black Box" (February 28, 2018). Invited talk for the STEM Education Group at Cornell University in Ithaca, NY. 2018
- **Countryman, C. L.** "Thinking Beyond the Black Box" (February, 2018). Invited talk at the session titled "Best Practices in Educational 2018

Technologies” at the Winter 2018 National AAPT Meeting in San Diego, CA.

- Klein, P., Bresgés, A., **Countryman, C. L.** “Workshop: iMobile Physics and iPhysics Classroom.” (July 22, 2017). Invited workshop at National AAPT Meeting in Cincinnati, OH. 2017
- **Countryman, C. L.**, Sridhar, S. “MyTech at the Technology Playground.” (April 21, 2017). Invited showcase at public NCSU State of the Sciences at Hunt Library in Raleigh, NC. 2017
- **Countryman, C. L.** “Smartphones in Labs Don’t Need to Be Black Boxes.” (November 12, 2016). [Invited talk](#) at the 2016 South Eastern Section of APS in Charlottesville, VA. 2016
- **Countryman, C. L.** “Thinking Beyond the Black Box” (November 12, 2016). Invited talk at the Physics Education Session of the 2016 SESAPS Conference at the University of Virginia. 2016
- Conrad, P., **Countryman, C. L.**, Dorbolo, J., Grant, C., Long, P. “NMC Beyond the Horizon > Learning Spaces.” (July 13, 2016). Panel discussion for NMC: Beyond the Horizon webinar. <https://youtu.be/110IErWsVZI> 2016
- **Countryman, C. L.** and Beichner, R. “Workshop on SCALE-UP: Student-Centered Active Learning Environments with Upside-Down Pedagogies” (June 23, 2016). Invited talk at the 2016 QUBES “Lowering the Activation Energy: Making Quantitative Biology More Accessible” Workshop at NC State. 2016
- **Countryman, C. L.** “Making Real World Connections in Mechanics Labs Using Smartphones” (April 19, 2016). Invited workshop at the Hawbridge School (Saxapahaw, NC). 2016
- **Countryman, C. L.** “An Introduction to Physics Education Research” (April 5, 2016). Invited “lunch talk” for graduate students at NC State. 2016
- **Countryman, C. L.**, Tredwell, D., and Shen, Y. “Smartphones, Tablets, and Apps, Oh My: How Can We Use ‘Bring Your Own Devices (BYOD)’ to Enhance Teaching and Learning” (March 14, 2016). Invited workshop targeted at the Instructional Design Interest Group (IDIG) at NC State. 2016
- **Countryman, C. L.** “Use Smartphones in Physics Labs, and Everybody Wins!” (February 13, 2016). Invited talk at the 2016 Symposium on Horizons in Astronomy and Physics Education (SHAPE) at the University of North Carolina at Chapel Hill. 2016
- **Countryman, C. L.** “Women in Physics, and How I Became One” (May 26, 2015). Invited talk at Nardin Academy High School, Buffalo, NY. 2015

- **Countryman, C. L.** “An Introduction to Physics Education Research” 2015
(March 25, 2015). Invited talk for the Women in Physics group at North Carolina State University.

Contributed Talks, Panels, and Poster Presentations

- Sonrod, E., Leibensperger, E., and Countryman, C. “Weather and Climate Impacts on Lake Champlain” (April 11, 2024). A contributed talk at the Ithaca College Whalen Symposium. 2024
- Sonrod, E., Leibensperger, E., and Countryman, C. “Weather and Climate Impacts on Lake Champlain” (April 6, 2024). Poster presentation at the 129th Topical Symposium of the New York State Section of the American Physical Society at University of Albany, NY. 2024
- Countryman, C. “Touring an Active Learning Environment for Undergraduate Physics Courses” (March 21, 2024). A tour and demonstration of the Ithaca College Performance-Based Physics Laboratory at [Ed Tech Day](#) at Ithaca College. 2024
- Countryman, C. and Mburu, T. “Designing Instructional Apps and Games with Undergraduate Researchers” (March 21, 2024). A contributed talk in the Teaching & Learning with Technology Symposium at [Ed Tech Day](#) at Ithaca College. 2024
- Konieczny, M. (advised by Countryman, C.) “Development of Instructional Physics Simulations for Classical Mechanics.” (March 5, 2024). Poster presentation at the American Physical Society March Meeting 2024 in Minneapolis, MN. 2024
- Konieczny, M. (advised by Countryman, C.) “Development of Instructional Physics Simulations for Classical Mechanics.” (September 15, 2023). Contributed poster at the American Association for the Advancement of Science (AAAS) S-STEM (Scholarships in STEM) Resource and Evaluation Center Conference in Washington, DC. 2023
- Leach, E. (advised by Countryman, C.) “New Physics Course Strategies: Are they effective for students?” (July 27, 2023). Contributed talk at the Ithaca College H&S Summer Scholars Showcase. 2023
- Rosenzweig, N. (advised by Countryman, C.) “PHYS 101 ‘HW Helper’ Video Series.” (July 27, 2023). Contributed talk at the Ithaca College H&S Summer Scholars Showcase. 2023
- Countryman, C. “Academic Immersion: A Tour of an Active Learning Classroom” (July 20, 2023). A tour and workshop of the Performance- 2023

Based Physics Laboratory at Ithaca College for the Upstate New York International Councilor Tour.

- Countryman, C. “Teaching a First-Year Course on Critically Evaluating Science in the Media.” (July 18, 2023). Contributed talk at the American Association of Physics Teachers Summer Conference in Sacramento, CA. 2023
<https://aapt-wm.secure-platform.com/a/solicitations/55/sessiongallery/1459>
- Konieczny, M. (advised by Countryman, C.) “Development of Instructional Physics Simulations for Classical Mechanics.” (July 18, 2023). Contributed poster at the American Association of Physics Teachers Summer Conference in Sacramento, CA. 2023
- Konieczny, M. (advised by Countryman, C.) “Development of Instructional Physics Simulations for Classical Mechanics.” (April 14, 2023). Contributed poster at the Consortium for Computing Science in Colleges Northeastern Conference. 2023
- Mburu, T. (advised by Countryman, C.) “Developing an Interactive Simulation for Non-Inertial Reference Frames.” (April 11, 2023). Contributed talk at Ithaca College Whalen Symposium. 2023
- Konieczny, M. (advised by Countryman, C.) “Development of Instructional Physics Simulations for Classical Mechanics.” (April 11, 2023). Contributed poster at Ithaca College Whalen Symposium. 2023
- Countryman, C., van Dam, K., Bhatt, N. “Maintaining a Healthy Work-Life Balance.” (January 22, 2023). Participated in a panel at the Conference for Undergraduate Women in Physics at Ithaca College and Cornell University. 2023
- Mburu, T. and **Countryman, C.** “Creating an Interactive Simulation for Non-Inertial Reference Frames” (October 6, 2022). Contributed poster at the 2022 Physics Congress (PhysCon) in Washington, D.C. 2022
- Konieczny, M. (advised by **Countryman, C.**) “H&S Summer Scholars Portfolio Presentation: Development of Instructional Physics Simulations.” (October 1, 2022). Mikolaj was selected to present his Summer Scholars portfolio at Family Weekend. 2022
<https://bit.ly/KoniecznyPortfolio>
- Mburu, T., Rodelli, L., and **Countryman, C.** “Assessing the efficacy of a new online game and simulation to teach electric fields” (July 13, 2022). Contributed poster at the Physics Education Research Conference in Grand Rapids, MI. [Abstract](#). 2022
- Mburu, T., Sen, A., and **Countryman, C.** “Creating an Interactive Simulation for Non-Inertial Reference Frames” (July 12, 2022). 2022

Contributed poster in the Technologies session at the American Association of Physics Teachers Summer Conference in Grand Rapids, MI.

[Abstract.](#)

- Mburu, T. (advised by **Countryman, C.**) “Developing a Simulator and a Game to Aid in Student Understanding of Electric Fields.” (April 9, 2022). The Rochester Symposium for Physics Students and SPS Zone 2 Conference at the University of Rochester.

2022
- Mburu, T. (advised by **Countryman, C.**) “Developing a Simulator and a Game to Aid in Student Understanding of Electric Fields.” (March 15, 2022). APS March Meeting in Chicago, IL. Ted received a **Best Undergraduate Research Presentation award.**

2022
- Mburu, T. and **Countryman, C.** “Gamifying Simulation to Improve Understanding and Attitudes Towards Electric Fields” (July 12, 2022). Contributed talk in the Best Practices in Educational Technology II session of the American Association of Physics Teachers Summer Conference in Grand Rapids, MI. [Abstract.](#)

2022
- Mburu, T. and Sen, A. (advised by **Countryman, C.**) “Creating an Interactive Simulation of Rotating Reference Frames” (November 6, 2021). Contributed talk at National Society of Black Physicists Conference. [Abstract.](#)

2021
- Mburu, T. (advised by **Countryman, C.**) “H&S Summer Scholars Portfolio Presentation: Developing a Simulator and a Game to Aid in Student Understanding of Electric Fields.” (November 6, 2021). Ted was selected to present his Summer Scholars portfolio at Family Weekend. <https://bit.ly/MburuPortfolio>

2021
- Mburu, T. (advised by **Countryman, C.**) “Gamification of Electric Fields to Improve Students’ Understanding and Engagement.” (July 31, 2021). Contributed talk at the session on “Examining Student-Side Interactions with Technology” at the Summer 2021 AAPT Virtual Meeting.

2021
- Rodelli, L. (advised by **Countryman, C.**) “Assessing the Efficacy of Technological Tools to Teach Electric Fields.” (July 31, 2021). Contributed talk at the session on “Examining Student-Side Interactions with Technology” at the Summer 2021 AAPT Virtual Meeting.

2021
- Mburu, T. (advised by **Countryman, C.**) “Developing a Simulator and a Game to Aid in Student Understanding of Electric Fields.” (November 8, 2020). Contributed talk at National Society of Black Physicists Conference.

2020
- Rodelli, L. (advised by **Countryman, C.**) “Analyzing the Impacts of a New Mobile Application on Student Understanding of and Attitudes Towards Electric Fields.” (July 22, 2020). Contributed talk at 2020 Virtual Physics

2020

Education Research Conference.

<https://www.underline.io/speakers/2492-liana-rodelli>

- Mburu, T. (advised by **Countryman, C.**) “Dynamic Simulation to Help with the Understanding of Electric Fields.” (July 20, 2020). Contributed talk at Summer 2020 AAPT Virtual Meeting. 2020
<https://www.underline.io/speakers/2471-ted-mburu>
- Rodelli, L. (advised by **Countryman, C.**) “Developing and Testing a New Educational App about Electric Fields.” (July 20, 2020). Contributed talk at Summer 2020 AAPT Virtual Meeting. 2020
- **Countryman, C.** and Barr, J. “Collaboratively Designing an App and Assessing Its Impact in an Introductory Class.” Accepted for a contributed talk at the Teaching and Learning Symposium for Education Technology Day on March 19, 2020 at Ithaca College. Event was cancelled due to pandemic. 2020
- Rodelli, L., Afolabi, Y., Barr, J., **Countryman, C.** “Building and Testing an App to Aid Student Understanding and Attitudes Regarding Electric Fields.” (November 15, 2019). Poster presentation at the 2019 Sigma Pi Sigma Physics Congress in Providence, RI. 2019
- **Countryman, C. L.** “Surfing on Gravitational Waves.” (August 1, 2018). Public talk at Longview, a retirement community in Ithaca, NY. 2018
- Sridhar, S., **Countryman, C. L.** “Investigating Student Motivation and GTA Teaching Beliefs Towards Smartphone Technology.” (July 24, 2017). Contributed talk at National AAPT Meeting in Cincinnati, OH. 2017
- Lee, T., **Countryman, C. L.** “Spring-Like Behavior of Smartphone Accelerometers.” (April 1, 2017). Poster presentation at NCS-AAPT Meeting in Raleigh, NC. 2017
- Vieyra, R. and **Countryman, C. L.** “AAPT Webinar: Smartphone Physics for Sensor Based Labs” (December 10, 2016). International round table. 2016
- Sridhar, S. and **Countryman, C. L.** “Correlating Student Motivation with GTA Teaching Beliefs towards Smartphone Technology” (November 19, 2016). Contributed talk at the 2016 Fall NCS-AAPT Meeting in Asheville, NC. 2016
- **Countryman, C. L.** “Smartphones in Labs Don’t Need to Be Black Boxes.” (July 19, 2016). Contributed talk at the 2016 Summer AAPT Meeting in Sacramento, CA. 2016
- **Countryman, C. L.**, Dangi, S., Pegahan, S., Brzinski, T., Daniels, K., Haase, D., Hallen, H., Huffman, P., Wang, H., Weninger, K. and Clarke, L. “Implementation of Mini-Labs to Enhance the Undergraduate Experience 2016

in Experimental Physics” (July 18, 2016). Poster presentation at the 2016 Summer AAPT Meeting in Sacramento, CA.

- **Countryman, C. L.**, Tredwell, D. and Shen, Y. “The MyTech App: BYOD to Physics Labs” (June 15, 2015). Contributed talk at the 2016 NMC Summer Conference in Rochester, NY. 2016
- **Countryman, C. L.** “Understanding How Smartphones Collect Motion Data in Physics Labs.” (April 16, 2016). Contributed talk at the NCS-AAPT Meeting at Elon University. 2016
- Runge, J. and **Countryman, C. L.** “A New Framework to Improve Problem-Solving Skills.” (April 16, 2016). Poster presentation at the NCS-AAPT Meeting at Elon University. 2016
- **Countryman, C. L.**, Tredwell, D., Shen, Y. and McCuen, S. “Understanding How Smartphones Collect Motion Data in Physics Labs” (April 11, 2016). Poster presentation at the Teaching and Learning Symposium at NC State. 2016
- **Countryman, C. L.**, Haase, D., Simmons, P., Beichner, R., Blondin, J., Daniels, K., Riehn, R.. “A Targeted PhysTEC Project: Physics Learning Assistants at NC State University” (March 12, 2016). Poster presentation at the 2016 PhysTEC Conference in Baltimore, MD. 2016
- **Countryman, C. L.** “Making Real World Connections in Mechanics Labs using Smartphones” (October 17, 2015). Contributed talk at the NCS-AAPT meeting hosted by Davidson College. 2015
- **Countryman, C. L.** “MyTech: Using Smartphones in Physics Labs” (October 28, 2015). Contributed talk at the Bridging the Gap Conference for K-16 STEM Education at the McKimmon Center. 2015
- **Countryman, C. L.** “MyTech App: BYOD to Physics Labs” (October 15, 2015). Contributed talk at the UNC CAUSE Conference in Winston-Salem, NC. 2015
- **Countryman, C. L.** “The Effect of Reading Quizzes for Introductory Physics Courses” (July 29, 2015). Poster presentation at the 2015 AAPT (American Association of Physics Teachers) Summer Meeting. 2015
- **Countryman, C. L.** “The Educational Impact of Smartphone Implementation in Introductory Mechanics Laboratories” (July 29, 2015). Contributed talk at the 2015 AAPT (American Association of Physics Teachers) Summer Meeting and poster at the PERC (Physics Education Research Conference) at the University of Maryland. 2015
- **Countryman, C. L.** “Creating Supplemental Videos to Bridge the Math-Physics Gap” (April 14, 2015). Poster presentation at the Teaching and Learning Symposium at North Carolina State University. 2015

- **Countryman, C. L.** “The Educational Impact of Smartphone Implementation in Introductory Mechanics Laboratory Classes” (March 28, 2015). Contributed talk at the Spring 2015 NCS-AAPT meeting hosted by Wake Forest University.

2015
- **Countryman, C. L.** “Gender Issues in Physics Education” (January 16, 2015). Leader of Round-Table Discussion at the APS (American Physical Society) Conference for Undergraduate Women in Physics at Duke University.

2015
- **Countryman, C. L.,** Paesler, M. A., Sams, W. R. “MyTech: Using Smartphones in Physics Labs” (October 28, 2014). Poster presentation at Bridging the Gap Conference on Uniting North Carolina K-16 STEM Education organized by the North Carolina Association for Biomedical Research.

2014
- Sams, W. R., **Countryman, C. L.,** Paesler, M. A. “Portable Labs and Online TAs in Introductory Physics” (October 28, 2014). Poster presentation at Bridging the Gap Conference on Uniting North Carolina K-16 STEM Education.

2014
- **Countryman, C. L.,** Paesler, M. A., Sams, W. R. “How I Met Your Motherboard: Integrating Smartphones into Classrooms” (July 30, 2014). Contributed talk at 2014 AAPT (American Association of Physics Teachers) Summer Meeting hosted by the University of Minnesota.

2014
- Sams, W. R., **Countryman, C. L.,** Paesler, M. A. “Results from eTALK: Effects of Real-Time Distance Labs” (July 30, 2014). Contributed talk at 2014 AAPT (American Association of Physics Teachers) Summer Meeting.

2014
- **Countryman, C. L.,** Paesler, M. A., Sams, W. R. “MyTech: Using Smartphones in Physics Labs” (July 31, 2014). Poster presentation at 2014 PERC (Physics Education Research Conference) hosted by the University of Minnesota.

2014
- Sams, W. R. and **Lanz, C.** “eTALK Results: In-Depth Study of Synchronous Distance Labs” (July 31, 2013). Poster presentation at 2014 PERC.

2014
- Sams, W. R. and **Lanz, C.** “Portable Labs and Smartphones in Introductory Physics Labs” (July 18, 2013). Poster presentation at 2013 PERC (Physics Education Research Conference).

2013
- Foote, K. and **Lanz, C.** “SCALE-UP Your Teaching without Overhauling Your Classroom!” (April 20, 2013). Workshop presented by Kathleen Foote and Colleen Lanz at Spring 2013 NCS-AAPT meeting hosted by

2013

Meredith College, Raleigh, NC. Abstract available here:

<http://www.physics.ncsu.edu/ncsaapt2013/program.pdf>.

- **Lanz, C.** “MyTech: Measurements using everydaY TECHnologies”
(November 17, 2012). Poster presentation at Fall 2012 NCS-AAPT
meeting hosted by High Point University, High Point, NC. Abstract
available here:
[http://physics.highpoint.edu/~mdewitt/ncsaaptf12/documents/Fall2012-
Program.pdf](http://physics.highpoint.edu/~mdewitt/ncsaaptf12/documents/Fall2012-Program.pdf)

2012
- Izard, Z., **Lanz, C.**, Melchin, M., Finney, S. C., Mitchell, C., and Sheets, H.
D. (2008, March). *Effects of Varying Methods of Composite Timescale
Formation on Biodiversity Estimates*. Contributed talk at the Northeastern
Geological Society of America (GSA) Conference in Buffalo, NY and PRI’s
Second Annual Summer Symposium at the Museum of the Earth, Ithaca,
NY with abstract available at <http://goo.gl/NLXO0>.

2008
- **Lanz, C.** (2008, April). *Aspects of the Nonlinear Geometry of Complete Binary
Trees*. Contributed talk at the Ignatian Scholarship Day at Canisius
College, Buffalo, NY.

2008
- **Lanz, C.** (2007). *Comparing Mathematical Methods of Range Extension*.
Contributed talk at a seminar for Paleontology Department at University
of Buffalo and Hudson River Valley Undergraduate Math Conference
hosted by St. Lawrence University, Canton, NY.

2007
- **Lanz, C.** (2007). *Farey Sequences, 2x2 Matrixes and Hyperbolic Polygons: A
Discussion of Ravi Kulkarni’s “An Arithmetic-Geometric Methods in the Study of
the Subgroups of the Modular Group.”* Contributed talk at the Hudson River
Valley Undergraduate Math Conference at Siena College, Loudonville, NY
and at a Math Department Seminar at Canisius College, Buffalo, NY with
abstract available at <http://goo.gl/0tBzq>.

2007
- Sheets, H. D., **Lanz, C.**, Izard, Z., Finney, S. C., Melchin, M. J., and
Mitchell, C. (2007, October). *Approaches to Characterizing and Comparing
Stratigraphic Correlations, as Applied to Biodiversity*. Contributed talk at the
Geological Society of America Denver Annual Meeting in Denver, CO.

2007
- Sheets, H. D., **Lanz, C.**, Melchin, M., Finney, S. C., and Mitchell, C. (2006,
October). *An initial approach to the estimation of uncertainty in biodiversity
estimates obtained from composite* Contributed talk, *with an example from the
Hirnantian Mass Extinction*. Contributed talk at GSA convention at St.
John Fisher College, Philadelphia, PA and for a Math Seminar at Canisius
College, Buffalo, NY with abstract available at <http://goo.gl/9MpyI>.

2006

Service

- Co-chaired the Classroom Committee in the Ithaca College Physics & Astronomy Department, resulting in a classroom redesign of one of the commonly used physics spaces on Ithaca College campus 2023
- Served on the Student Response System Subcommittee of ETAC, charged with investigating and reviewing polling solutions that could be utilized on the Ithaca College campus 2023-present
- Served as a mentor to a student in the S-STEM Scholars Program at Ithaca College 2022-present
- Served as the “Social Media Manager” for the Physics & Astronomy Department at Ithaca College 2022-present
- Co-chaired the Educational Technology Advisory Committee (ETAC)—an advisory group to the Provost, CIO, and leadership team of Information Technology—that articulates and advances faculty priorities in educational technology applications as they relate to teaching, learning, and research 2021-present
- Participated in the “Adopt-a-Physicist” program, which facilitates discussions between high school students and physicists from a broad array of backgrounds and interests 2021-present
- Served on the SPS (Society of Physics Students) Centennial Committee 2021-2022
- Faculty Host for IC Teaching: One Week of Teaching Visits in PHYS 101 through the Center for Faculty Excellence 2021, 2022
- Guided Work Faculty Facilitator for Summer Institute on Canvas Course Development through the Center for Faculty Excellence Summer – Fall 2021
- Served on the Integrative Studies Advisory Board at Ithaca College 2020-2022
- Served on the Physics and Astronomy Department Anti-Racism Committee 2020-present
- Redesigned and maintained Physics & Astronomy Department Website 2020-present
- Served on the Ithaca College Learning Management System Advisory Committee 2020
- Served on the SPS (Society of Physics Students) Outreach Committee 2020-2021
- Served on the Perkins Eastman Learning Futures Roundtable Series where our conversations contributed to a white paper on how the pandemic may contribute to permanent changes in the way we envision 2020

the future of teaching, learning and study in higher education with hybrid pedagogies

- Zone 2 Councilor for the National Council of the Society of Physics Students (assisted in the organization of Physics Congress (PhysCon) 2019, led tours, assisted with workshops, participated in National Council meetings) 2019-2022
- Served on the SPS Committee to Enhance Sigma Pi Sigma Chapter Engagement 2019-2020
- Served on a search committee for a tenure-track position in the Chemistry Department at Ithaca College 2019
- Spoke as a guest in Ali Erkan and Joslyn Brenton's ICIC 120 Insight class on "What is truth?" on October 19, 2019. 2019
- Served on the AAPT Committee for Educational Technologies 2018-present
- Presented demonstrations at various schools, camps and science festivals for elementary- and middle-school-aged children on gravitational waves (three schools in Mt. Shasta, CA; Camp Barton Cub Scouts in Trumansburg, NY; a visit from Trumansburg Middle School at Ithaca College) 2018-present
- Performed various small-scale services to the Department of Physics and Astronomy at Ithaca College in the form of judging at the Whalen Symposium, participating in a pilot study on learning response systems, welcoming students at admission events, participating in self-study and resulting curricular review, coordinating the creation of videos about physics in football with PHYS 101 students, and attending a First Gen in STEM Event 2017-present
- Served on a search committee for the Associate Director for Learning Technology at Ithaca College 2017-2018
- Serve on the Ithaca College Teaching, Learning and Technology (TLT) Advisory Board 2018-2019
- Coordinates colloquia schedule for visiting speakers in the Department of Physics and Astronomy at Ithaca College 2018-present
- Coordinates the assignment of the undergraduate Learning Assistantships in the Department of Physics and Astronomy at Ithaca College 2018-present
- Serve on the Advisory Committee for the Center for the Integration of Research, Teaching, and Learning (CIRTL), an NSF Center for Learning and Teaching in higher education at NC State. 2016-2017
- Appointed by the Dean of the NC State College of Sciences to serve on the "Student Experience Work Group," which develops methods for 2016-2017

facilitating student research in technology-enabled spaces and creating an environment that is welcoming to students of all backgrounds.

- Developed a Teaching and Learning Community in the College of Sciences at NC State to unify educational research groups and teaching faculty within the College's various departments 2016-2017
- Serve as Faculty Mentor for a Park Scholar 2016-2018
- "Phantastic Physics!" (February 11, 2016). Invited talk at Davis Drive Middle School in Cary, NC for a science enrichment block for 6th graders. 2016
- Leader of NC State Presentation on "How to Thrive in Physics" for Freshmen Wolfpack Welcome Week (January 7, 2016 and August 16, 2016, NC State) 2016
- Leader for Girl Scouts of the USA's "Technoquest" (Meredith College, Raleigh, NC) 2015
- Trainer at Physics Teaching Assistant Preparation Workshops (NC State) 2012-2014
- "Physics Education Resources Parents of High School Students Can Use at Home" workshop leader for Cary Homeschool Co-Op 2014
- Judge in Lacy Elementary Science Fair in the Engineering and Technology Category (Lacy Elementary School, Raleigh, NC) 2014
- Ambassador for Girl Scouts of the USA's "Technoquest" (Meredith College, Raleigh, NC) 2012-2013
- Event organizer and journal club leader for Women in Physics group (NC State) 2013-2017
- Secretary of Graduate Physics Student Association (NC State) 2013-2014
- Planned and coordinated Prospective Graduate Student Weekend visits (NC State) 2011-2013
- Pianist in Top Jazz Ensemble and Big Band (Canisius, VT) 2007-2010
- Member, Treasurer, Event Coordinator then President of Math Club (Canisius) 2004-2008
- Judged projects at NAACP Afro-Academic, Cultural, Technological and Scientific Olympics in the Chemistry/Biochemistry Category 2008

Programming Experience

- Python, JavaScript, C, C++, Mathematica, COMSOL, MATLAB, React Native, VPython, WebAssign, FORTRAN, and LiveCode

Professional Development

- Led a discussion and collected faculty feedback in the Ithaca College H&S Works in Progress on instructional physics simulations 2023
- Participated in workshop on Developing Antiracist Pedagogies through the Ithaca College Center for Faculty Excellence 2022
- Participated in the Ithaca College Seminar Workshop 2022
- Participated in Narcan opiate overdose response training through the Southern Tier AIDS Program 2022
- Participated in Training in Mental Health First Aid Workshop to recognize the signs of a mental health crisis in students and act as a bridge between crisis and professional help (CAPS, Ithaca College) 2022
- Participated in AAPT “Teaching group work in instructional laboratories” workshop led by Brent Barker and Mark Hannum (AAPT, online) 2021
- Participated in STEM Anti-Racism Reading Group (Emilie Wiesner, Ithaca College) 2021
- Participated in the Being Heard in a Masked Classroom Workshop (Carol McAmis, Ithaca College) 2021
- Participated in the Ithaca Summer Seminars Faculty Orientation (Ithaca College) 2020
- Participated in React Native Workshop Series (John Barr, Computer Science at Ithaca College) 2020
- Participated asynchronously in Summer Institute (Center for Faculty Excellence, Ithaca College) 2020
- Attended Summer Scholars Workshop for Mentors (Ithaca College) 2020
- Attended “Equity and inclusion in evaluating teaching: Promises, pitfalls, and practical solutions” led (Hari Kumar, Ithaca College) 2018
- Attended “#STEM #LikeAGirl: Expanding Participation in STEM” Workshop administered at Fall 2016 NCS-AAPT Meeting 2016
- Attended “Recognizing and Responding to Microaggressions” Workshop administered by the GLBT Center (NC State) 2016
- Attended “College of Science Course Redesign” Workshop for redesigning introductory physics courses (NC State) 2015
- Attended “Fun with Hardware in the Classroom” Workshop on Arduino devices (North Carolina School of Science and Math) 2014
- Attended Getting Started with 3D Printing Workshop (NC State) 2013

- Attended Classroom-Flipping Workshop (NC State) 2012
- Passed Ph. D. Candidacy Qualification Examinations in Quantum Mechanics, Classical Mechanics, and Electricity and Magnetism 2011
- Received Teaching Certification from Virginia Tech Mathematics Department 2008
- Passed Applied Partial Differential Equations Preliminary Examination 2009

Graduate Classes Taken

- **North Carolina State University** 2010-2013
Physics: Graduate Level Quantum Mechanics (2), Advanced Electricity and Magnetism (2), Physical Optics (1), Statistical Physics (1), Nuclear Subatomic Physics (1), Advanced Classical Mechanics (1), Astrophysics (1)
Psychology and Education: Tests and Measurements (1), Trends and Issues in Science Education (1), Special Topics in Education: Sign Language (audited)
Computer Science: Graphics and Interfaces for Mobile Applications (audited)
- **Virginia Polytechnic Institute** 2008-2010
Mathematics: Graduate Level Real Analysis (2), Applied Partial Differential Equations (2), Numerical Analysis (2), Ordinary Differential Equations (2), Finite Difference Methods (1), Calculus of Variations (1), Optimal Control Methods (1)
Physics: Biophysics (1)