

Attendees

Dr. Leigh Abts, Research Associate Professor

University of Maryland at College Park

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Leigh Abts is interested in the development of a process to organize, maintain and assess design based projects of students (grades 10-14), STEM teachers, and instructors.

Dr. Zenaida Aguirre-Muñoz, Associate Professor

Texas Tech University

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Zenaida Aguirre-Muñoz's research centers on the development of disciplinary literacy. She primarily teaches courses designed to train teachers on how to develop content and literacy to ELLs. One of her grants focuses on engineering literacy.

Mr. Dave Anderson, Middle School Teacher

Logan City School District

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Dave Anderson's research interests include technology education, robotics, and College and Career Awareness. He currently works as a middle school teacher.

Dr. Louis Bucciarelli, Professor Emeritus

Massachusetts Institute of Technology

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Louis Bucciarelli has studied the engineering design process as a social process (Designing Engineers, MIT Press, 1994). Currently, he is promoting and researching how engineering might be infused into liberal arts courses, or even a full bachelor of arts degree program, at the university level. He has developed several modules, now posted on the edX Edge platform and freely available [here](#), that illustrate what he means by "infusion."

Dr. Rebecca Callahan, Associate Professor

University of Texas at Austin

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Rebecca Callahan's primary research interests center on the academic preparation of immigrant, language minority adolescents as they transition from high school into young adulthood. She is presently involved in several research projects which explore the effects of school context, social and academic processes, and teachers' pedagogical practices on the academic and civic development of language minority students, as well as students identified with learning disabilities. She is interested in the intersection between literacy and language development and engineering systems thinking.

Dr. Cynthia Char

Char Associates

cynthia@charassociates.com

Dr. Cynthia Char is Principal of Char Associates, a consulting firm specializing in program evaluation. Her research and evaluation work centers primarily on STEM learning of youth and adults in schools, universities and in community-based settings (e.g., museums, national parks, zoos, libraries, after-school programs).

Dr. Christine Cunningham, Vice President of Research

Museum of Science, Boston

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Christine Cunningham's work focuses on making engineering and science more relevant, accessible, and understandable, especially for underserved and underrepresented populations. As the founding director of Engineering is Elementary, she does this through curriculum development, professional development, and research.

Dr. Richard P. Durán, Professor

University of California, Santa Barbara

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Richard P. Durán's team implements and investigates Critical Maker Spaces and Public Science learning activities in after school settings at a Teen Center and a local Boys and Girls Club. They are a member of the UC Links network of after school learning sites based in the University of California system. They are interested in invention of ubiquitous computing devices and youth's scientific exploration of phenomena in the everyday world around them. They are interested in how to put these understandings to work in the surrounding community to improve the quality of life and towards stimulating youth's interest in STEM fields.

Dr. Alberto Esquinca, Associate Professor

University of Texas at El Paso

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Alberto Esquinca's current research focuses on emergent bilinguals in engineering studies. He has also investigated issues of identity and persistence among Latinx students in the borderlands.

Dr. David Estrada, Assistant Professor

Boise State University

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David Estrada's group uses 2-dimensional materials for additive manufacturing of electronic devices and bioscaffolds with applications in energy and healthcare. They collaborate with multi-scale computational modeling experts from around the globe to enable an Atoms-to-Devices approach in their investigations.

Dr. Zhihui Fang, Professor

University of Florida

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Zhihui Fang's work explores different ways knowledge and ideology are constructed through language in different academic subjects, the challenges these ways of using language present to reading comprehension and written composition in subject-area learning, and pedagogical strategies for addressing these challenges. It recognizes language as the hidden curriculum of schooling and responds to the challenges of developing advanced literacy, critical literacy, and disciplinary literacies among students who struggle with reading and writing, who are learning English as an additional language, or who have histories of school failure.

Dr. Stephanie Farrell, Professor and Chair, ExEEd

Rowan University

farrell@rowan.edu

Stephanie Farrell's work focuses on increasing participation of underrepresented groups in engineering, specifically groups that have been overlooked and underserved by traditional efforts to increase diversity. Specifically, she is interested in creating inclusive classrooms and workplaces for LGBTQ individuals in engineering. She is also interested in improving spatial skills of high school and early engineering students, as a step toward equity in engineering.

Mr. Luis Fernandez, Graduate Student

University of Texas at Austin

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Luis Fernandez's work focuses on providing equitable mathematics learning opportunities to culturally and linguistically diverse students.

Dr. Carmen Fies, Associate Professor

University of Texas at San Antonio

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Carmen Fies's work centers on STEM Education at the intersection of diverse learner populations and emergent technologies.

Mr. Jared Garlick, Scoutmaster

Boy Scouts of America

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Jared Garlick is a scoutmaster and merit badge counselor for Boy Scouts of America. He teaches scouts regarding Environmental Science and conservation of resources. He is currently earning a graduate degree related to biology teaching at Utah State University.

Dr. Victoria Gillis, Professor and Wyoming Excellence Chair in Adolescent Literacy

University of Wyoming

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Victoria Gillis' research focuses on disciplinary literacy, particularly in science and on professional development for secondary teachers in leveraging literacy to teach content.

Dr. Brian Gravel, Assistant Professor

Tufts University

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Brian Gravel's research focuses on students' representational practices in science and engineering studied using design-based research approaches to learning technologies and socio-technical learning environments. He is currently researching ways of fostering disciplinary engagement and modeling practices through the development of new technologies like SiMSAM. And, he is researching making spaces as representationally rich learning contexts where we can learn how youth construct, use and revise representations in service of making objects of personal and community value. These projects include NSF-funded projects STEMLiMS: Investigating STEM Literacies in MakerSpaces, and Engineering Inquiry for All in Nedlam's Workshop.

Dr. Cynthia Greenleaf, Co-Director of Strategic Literacy Initiative

West Ed

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Cynthia Greenleaf works with secondary and post-secondary educators across the academic disciplines to design, study, and refine ways to advance the literacy proficiencies and learning of the diverse students they teach. Her work with STEM educators has focused on simultaneously developing students' knowledge, disciplinary practices, and ability to engage in discipline-specific reading, writing, and discourse.

Dr. Bruna Irene Grimberg, Affiliate Associate Research Professor

Montana State University

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Bruna Irene Grimberg is interested in STEM equity in K-16 classroom and in informal educational settings.

Dr. Jerrod A Henderson, Instructional Assistant Professor

University of Houston

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Jerrod Henderson's research interests include engineering identity formation and persistence among underrepresented k-12 and college students, especially African American and Latino males, mapping high achieving students' progression in engineering, and preparing students for gateway courses.

Dr. Paula K. Hooper, Assistant Professor of Instruction

Northwestern University

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Paula Hooper's research is focused on exploring hybrids of sociocultural and constructionist perspectives that can help to understand and support STEAM learning with computational tools in both informal and formal settings. Her teaching experience includes the design and implementation of inquiry-oriented science professional development experiences for K-8 teachers, administrators and museum educators and working with youth in informal settings on robotics and the use of digital design fabrication for creative activism. She recently served as a member of the National Research Council Committee on Strengthening Science Education through a Teacher Learning Continuum. She is currently involved in an NSF-funded project to explore ways to address epistemologies rooted in cultural practice and tensions based on issues of power within the learning sciences and research on making.

Ms. Tamecia R. Jones, Graduate Research Assistant

Purdue University

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Tamecia R. Jones' research involves identifying and understanding engineering knowledge and its various expressions in K-12 students for the purposes of "unobtrusive assessment."

Dr. Kerrie Kephart, Associate Director, Faculty Development Center

University of Maryland Baltimore County

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In Kerrie Kephart's work as a faculty developer, she supports university faculty across the disciplines to develop their pedagogical knowledge and abilities, and she studies changes/development in faculty's pedagogical approaches and practices as a result of participation in faculty development programs. She is also currently a co-investigator on project investigating teamwork and communication in teams in STEM classrooms. Previously, she studied students' development of engineering discourse and conceptual understanding in undergraduate engineering classrooms. She designed methods of analyzing classroom discourse to focus on growth of conceptual understanding, and methods of analyzing student writing over time to trace gains in expertise in writing in the engineering disciplines. Stemming from that work, she has plans to partner with engineering faculty at my institution to revisit a framework she designed for analyzing and assessing reflective writing in engineering courses. A thread running through all of her research is the attempt to develop methods to study the role that language and literacy play in the development of conceptual understanding and disciplinary identities/expertise.

Dr. Susan Klimczak, Education Organizer Learn 2 Teach, Teach 2 Learn

South End Technology Center @ Tent City

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Susan Klimczak's work involves engaging youth of color to catalyze cultural change in their communities about the creative possibilities of STEM making, maker education using engineering design process, and technologies of the heart necessary for youth of color and underrepresented youth to be resilient in their STEM pursuits

Dr. Stacie LeSure, CEO and Senior Researcher

Engineers for Equity

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Stacie LeSure's research applies Critical Race Theory and Intersectionality frameworks to critically examine effective intervention strategies to reduce the negative consequences of social psychological phenomenon (i.e. Stereotype Threat, Racial Battle Fatigue, Impostor Syndrome, etc.) on students' academic performance and career identity. She is also interested in initiatives that strive for equity and inclusion in STEM disciplines and the workforce.

Dr. Michael C. Loui, Dale and Suzi Gallagher Professor of Engineering Education

Purdue University

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Together with undergraduate and graduate students, Michael C. Loui conducts research in engineering education. He serves as the Editor of the Journal of Engineering Education. He has taught courses in computer engineering, including a general education course in digital information technologies.

Dr. Juan Lucena, Professor and Director, Humanitarian Engineering

Colorado School of Mines

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Juan Lucena is currently researching the celebration of funds of knowledge of low-income/first gen (LIFGs) students in engineering education and practice, and the conversion of funds of knowledge into different forms of capital so LIFGs can succeed in engineering.

Dr. Mary McVee, Professor

University of Buffalo, New York

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Mary McVee's research focuses on literacy and teacher education related to diversity, culture, and language using sociocultural positioning, narrative, and multimodality. Her engineering interests are on under-represented populations in engineering and connections to disciplinary literacies.

Dr. Erika Mein, Associate Professor

University of Texas at El Paso

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As a literacy researcher and teacher educator, Erika Mein's work focuses on understanding and improving the educational experiences and outcomes of English Learners and bilingual students, particularly in STEM education.

Dr. Joel Alejandro Mejia, Assistant Professor

Angelo State University

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Alex Mejia's current research focuses on how Latinx adolescents use engineering design processes to solve community-based projects, and how their household bodies of knowledge and social practices connect to engineering. The goal of his research is to develop a model of culturally responsive engineering education that views students' linguistic and cultural backgrounds as assets rather than deficits, and that seeks to actively connect these backgrounds to engineering design processes. Also, Alex is particularly interested in engineering literacy and equity-oriented instructional strategies and models that support engineering literacy learning.

Dr. Amon Millner, Assistant Professor

Olin College

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Amon Millner directs the EASE Lab (Extending Access to STEM Empowerment) at Olin College, where he engages college students in developing tools and materials for hands-on explorations for and with K-12 students. He teaches a course called Designing Resources for Empowerment and Making (DREAM) that explores the intersection of critical making and social change.

Ms. Georgina Muñoz, Math Teacher

Chavez High School, Houston Independent School District

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Georgina Muñoz teaches classes on math models which involve a lot of teaching real world math situations.

Dr. Kevin O'Connor, Assistant Professor

University of Colorado-Boulder

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Kevin O'Connor is a critical sociocultural psychologist. His research addresses how people interactively organize environments for and with one another, and how consequences are constructed through these interactions. For example, some of the recent work of his research team has looked at how pre-calculus instructors together construct an environment in which "weeding out" students is a meaningful and sensible response to dilemmas that the instructors face in their work together. In doing so, they rely in large part on commonsense psychological constructs - epistemological constructs like 'knowledge' and 'learning,' or motivational constructs like 'effort' or 'grit' - in order to legitimate the decisions that they are making to pass or not pass particular students. As a critical psychologist, I look beyond these commonsense constructs to see how they might be used in interaction to underwrite and reproduce systemic inequalities in education and in society more broadly.

Dr. Patricia Paugh, Associate Professor

University of Massachusetts Boston

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Patricia Paugh's focus is on collaborative research with elementary teachers investigating discourses of engineering design in their urban classrooms. Her current projects include multimedia notebook tools to support elementary engineering design as well as purposeful writing goals for engineering projects.

Dr. Juliet Ray, Research Service Center

University of Texas at San Antonio

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Juliet Ray's research interest is examining how academic and social experiences influence cognitive and non-cognitive outcomes for college students traditionally underrepresented in STEM fields.

Dr. Ed Reeve, Professor

Utah State University

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Ed Reeves prepares pre-service teachers in the area of technology and engineering education. He is currently president of the International Technology and Engineering Educators Association.

Dr. Renata Revelo, Clinical Associate Professor

University of Illinois at Chicago

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Renata Revelo's research interests include engineering identity of Latinas/os, and the culture of engineering.

Dr. Lynn E. Shanahan, Associate Professor

University at Buffalo

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Lynn E. Shanahan is an Associate Professor of Literacy Education in the Department of Learning and Instruction at the University at Buffalo, State University of New York. Her research on video reflection, the development of strategic readers and writers and disciplinary literacies is based in social semiotics, multimodality, and embodied theoretical perspectives.

Ms. Christina Sias, Graduate Research Assistant, K-12 Teacher

Utah State University

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Christina Sias' research has centered around themes of social justice and equity for vulnerable populations of students. She continues to teach English at a STEM-focused high school, and has participated in robotics, rocketry, and 3D printing activities and curricula development.

Dr. Bernadette Sibuma, Research Associate

Education Development Center, STEM Learning & Research Center

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Bernadette Sibuma's background is in instructional technologies, online learning/cyberlearning for learning STEM and computer science. She work at the NSF resource centers for the NSF ITEST program and the Cyberlearning program. She is also contributing to the development of a computational thinking summit to integrate computational thinking in K-12 disciplines.

Dr. Jessica Smith, Associate Professor

Colorado School of Mines

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Jessica Smith is an anthropologist who conducts research on engineering, with two focus areas: 1) the funds of knowledge of low-income and first generation engineering students and 2) social responsibility in mining and petroleum engineering. She is the author of Mining Coal and Undermining Gender: Rhythms of Work and Family in the American West, which was funded by the National Endowment for the Humanities and the National Science Foundation.

Ms. Angelica Sotelo

Adams Elementary School

Angela Sotelo teaches in a self-contained bilingual classroom in a low socioeconomic elementary school.

Dr. Edna Tan, Associate Professor

University of North Carolina at Greensboro

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Edna Tan is currently working on two engineering-related projects with youth of color. One of them is in collaboration with Dr. Angela Calabrese Barton where they investigate identity work in engineering/making for sustainable communities at the informal context and then in the formal classroom. Her other work is with refugee youth in a community context where they engage in engineering/making as a tool to address concerns in their lives.

Dr. Eli Tucker-Raymond, Research Scientist

TERC

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Eli Tucker-Raymond's work seeks to create humanizing learning spaces in K-12 and informal STEM/STEAM settings for students from historically marginalized ethnic groups in the United States. With colleagues at Tufts, one of his current projects explores STEM literacy practices across adult and youth informal making spaces and formal science, engineering, and mathematics classes at an urban public high school.

Dr. Idalis Villanueva, Assistant Professor

Utah State University

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Idalis Villanueva's areas of interest are in the realms of broadening participation in engineering through mentoring, teaching, and psychological approaches.

Ms. Jasmine Welch-Ptak, Graduate Student

University of Texas at Austin

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Jasmine Welch-Ptak's work is interested in barriers to implementation of engineering curricula in elementary schools. She is also interested in bilingual student access to engineering curricula.

Dr. Amy Wilson-Lopez, Associate Professor

Utah State University

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Amy Wilson Lopez's research and practice relates to culturally responsive, literacy-infused engineering design instruction for 5th through 12th grade students in science and engineering classes. Through numerous community outreach projects, she has partnered with transnational students and their families to solve problems in their communities through engineering.

Dr. Christopher Wright, Assistant Professor

Drexel University School of Education

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Christopher Wright's work focuses on supporting the teaching and learning of precollege (k-12) engineering in urban formal and informal contexts. Specifically, he is interested in research questions lying at the nexus of science and engineering learning experiences for Black males and their educational and career outcomes.