



BME Spring 2023 Seminar Series

Neurodiversity in STEM Education: A New Paradigm for Enhancing the Creativity of the Nation's Professional Workforce

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Friday February 24, 2023 12pm – 1pm in MCHU 101

WebEx: Join [here](#)



Abstract: Every student deserves to thrive in an educational environment. The unjustified need for conformity in the current pre- and post-secondary education systems is causing significant damage to the mental health and self-efficacy of our non-traditional learners, specifically neurodiverse populations like those with ADHD, dyslexia, and autism, amongst others. Instead of embracing neurological diversity, our education system follows the deficit-based paradigm used in the medical model that pathologizes these natural variations. This approach stigmatizes neurodiverse learners and overlooks their unique potential for contributing to the technological advancement of the nation. Overwhelming empirical evidence suggests that neurodiverse learners possess the very cognitive skills that are crucial for solving the large-scale and multi-faceted engineering challenges facing our nation. This includes systems thinking, divergent thinking, visual/spatial perception skills, and insightfulness, to name a few. New research is emerging that cognitive diversification is an evolutionary outcome that has significantly enhanced the cumulative intellectual ability of humans. Through a series of research awards supported by the National Science Foundation, Zaghi and his collaborators have embarked on an extensive educational research and training endeavor to promote a strength-based approach toward neurodiversity. This research promotes a culture of inclusivity, informs personalized learning, and presents new opportunities for unique students to succeed in STEM education. This seminar presents a broad overview of the interconnected efforts and a selection of the major findings and accomplishments of these research studies.

Biography: Arash E. Zaghi is a Professor in the Department of Civil and Environmental Engineering at the University of Connecticut. In 2009, he received his PhD in Civil Engineering from the University of Nevada, Reno. After he was diagnosed with attention deficit hyperactivity disorder (ADHD) at age 33, he began engineering education research aimed at highlighting the importance of neurodiversity for the creativity of our nation's engineering workforce by promoting a fundamentally strength-based perspective toward diversity. He started his engineering education research endeavor through an NSF RIGEE grant in 2014. The promising findings of this research and the encouraging feedback of the student community motivated him to pursue this line of research in his NSF CAREER award in 2017. Since then, he has built a coalition within the university to expand this work through multiple NSF-funded research grants including IUSE/PFE: RED titled "*Innovation Beyond Accommodation: Leveraging Neurodiversity for Engineering Innovation*". Because of the importance of neurodiversity at all levels of education, he expanded his work to graduate STEM education through an NSF IGE grant. In addition, he recently received his Mid-CAREER award through which, in a radically novel approach, he will take on ambitious, transdisciplinary research integrating artificial intelligence, neuroscience, and education research to advance a personalized tool to enhance the participation of middle-school students with dyslexia in STEM disciplines. His efforts on promoting neurodiversity in engineering has been twice recognized by Prism Magazine of the American Society of Engineering Education.

For additional information, please visit www.bme.uconn.edu or contact Prof. Fayekah Assanah at fayekah.assanah@uconn.edu or Sarah Dunnack at sarah.dunnack@uconn.edu