Additive Manufacturing & Design Seminar Series
Tuesday, September 7 | Noon (ET)
*Zoom link available in notification email; email amdprogram@psu.edu with questions*

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Machine Learning in Metals Additive Manufacturing

ABSTRACT
Machine learning is transforming societies, but it is yet to be widely adopted in metals additive manufacturing technologies. This seminar will introduce successes and open challenges in application of machine learning to innovate metals additive manufacturing technologies using case studies from my career. Success will be demonstrated through recent results using machine learning together with pre-existing data to statistically inform the onboarding of a new laser powder bed fusion machine with a more powerful laser than the previous state of the art. Case studies will motivate a summary of current recommended best practices for deciding when, how, and why to use machine learning in metals additive manufacturing, or more broadly any materials or manufacturing problem, including how to verify that the answer is reliable.

BIOGRAPHY
Aaron Stebner works at the intersection of manufacturing, machine learning, materials, and mechanics. Dr. Stebner joined the Georgia Tech faculty as an associate professor of mechanical engineering and materials science and engineering in 2020. Previously, he was the Rowlinson Associate Professor of Mechanical Engineering and Materials Science at the Colorado School of Mines (2013 – 2020), a postdoctoral scholar at the Graduate Aerospace Laboratories of the California Institute of Technology (2012 – 2013), a lecturer in the Segal Design Institute at Northwestern University (2009 – 2012), a research scientist at Telezygology Inc. (2008-2009), a research fellow at the NASA Glenn Research Center (2006 – 2008), and a mechanical engineer at the Electric Device Corporation in Canfield, OH (1995 – 2000). Dr. Stebner is an associate editor for the journal Additive Manufacturing.