James A. Tallman, Ph.D. Principal Engineer for Thermo-Sciences, GE Research

Role/Expertise: Applied Machine Learning, Digital Engineering Infrastructures, Combustion Testing, Modeling & Simulation

Citizenship: United States of America

Clearances: Secret Clearance (Application In-Progress)

Education: The Pennsylvania State University, Ph.D. Mechanical Engineering;2002
The Pennsylvania State University, M.S. Mechanical Engineering; 1999
University of Minnesota, B.S. Mechanical Engineering, 1997

Relevant Experience: Dr. Tallman has served a variety of research and development activities during his 18-year tenure at GE Research: including a mix of contributor, consulting, and leadership/management responsibilities. Most recently, Dr. Tallman is the product leader for Digital Thread for Design: a digital design community ecosystem that provides cloud-based access to workflow orchestration and execution, data management and socialization, and AI/ML applications for autonomous surrogate model creation. Dr. Tallman's broadest and deepest area of expertise is in the design/modeling/simulation/lifecycle management of hot-section components in gas turbine engines. Other areas of interest and/or expertise include multi-physics modeling & simulation, applied AI/ML, and system integration technologies.

Relevant Publications:

[1] Tallman, J., "Exploiting AI for Design Process Improvements at Enterprise Scale", ORNL AIRES Workshop Jan 22-24, 2020

[2] Tallman, J., Osusky, M., Magina, N., "An Assessment of Machine Learning Techniques For Predicting Turbine Airfoil Component Temperatures, Using FEA Simulations For Training Data", Proceedings of ASME Turbo Expo, Paper GT2019-91004, 2019.

[3] GE Says It's Leveraging Artificial Intelligence To Cut Product Design Times In Half, *Forbes, Mar 6, 2019*

[4] Tallman, J. and Bidkar, R., "Heat Transfer Coefficient Characterization for Large Aspect-Ratio Thin Films in Film-Riding Seals", Proceedings of the ASME Turbo Expo, Paper GT2018-76168, 2018.

[5] Tallman, J.A., "Unsteady Half-Annulus Computational Fluid Dynamics Calculations of Thermal Migration Through a Cooled 2.5 Stage High-Pressure Turbine", *ASME J. Turbomachinery*, August 2014, 136(8): 081012