

Dr. Tahany El-Wardany Fellow, Advanced Manufacturing



Biographical Profile

Tahany El-Wardany, Ph.D., is Fellow, Advanced Manufacturing, at United Technologies Research Center (UTRC). As such, El-Wardany identifies and creates new technology areas in materials and manufacturing with widespread impact across United Technologies Corporation (UTC); develops capabilities in the fields of advanced manufacturing and elevator tribology; engages external networks to identify and support business development opportunities; and guides technical project work in advanced manufacturing. Previously, she served as Principal Engineer and a member of UTRC's Surface Mechanics Group, Physical Sciences Department.

During the course of her UTRC career, she has overseen development of novel manufacturing processes (hybrid/additive manufacturing/deep rolling manufacturing, high-speed machining); contributed to ARPA-E winning project proposals; matured methods to mechanically enhance aerospace alloy surface properties; and built 5-axis flank milling model and code for process optimization of numerous machining applications within UTC business units, which was ultimately licensed externally.

Her many awards and honors include winner of the 2015 Otis Safety Award; recipient of the Advanced Research Projects Agency-Energy (ARPA-E) Natural Science and Engineering Research Council of Canada (NSERC) Team Strategic Grant, "*The Characterization, Development, and Optimization of Hard PVD Coatings for Use at Elevated Temperature,*" and a 2011 Connecticut Women of Innovation Nominee. Key appointments include Associate Professor, University of Alexandria, Egypt; Research Manager, Machining System Laboratory and Adjunct Professor, McMaster University, Canada; and Visiting Professor, Mechanical Engineering Department, Imperial College, United Kingdom. El-Wardany has published more than 100 peer-reviewed journal and conference papers and holds 24 patents and patent applications in additive manufacturing, hybrid and conventional manufacturing, and the science of friction, lubrication and wear. She has been an invited speaker at many advanced manufacturing conferences, including the 2015 National Academy of Science workshop on additive manufacturing modeling.

El-Wardany is a member of the Connecticut Academy of Science and Engineering (CASE), Society of Manufacturing Engineers (SEM), American Society of Mechanical Engineers (ASME), The Society of Women Engineers (SWE) and International Women's Leadership Association. She is editor of the *Journal of Applied Mathematics*, reviews multiple national and international journals in advanced manufacturing, and is a member of the editorial board of the International Scholarly Research Network Tribology. She holds undergraduate and graduate degrees in production engineering from the University of Alexandria, Egypt, and a Ph.D. in mechanical engineering from the University of Birmingham, UK.