

Exponent®
Engineering & Scientific Consulting

Max Tartibi, Ph.D.

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Professional Profile

Dr. Tartibi is a multidisciplinary engineer who combines analytical depth with extensive experience in design, validation testing, biomedical research, and patient-specific modeling to solve complex engineering and medical challenges. His expertise spans continuum mechanics, biomechanics, vibration analysis, unsteady fluid–solid interactions, finite element modeling (FEA and inverse FEA), computational fluid dynamics (CFD), growth and remodeling, and material characterization.

Before joining Exponent, Dr. Tartibi led innovative research and development projects that bridged medical and industrial applications. He patented and developed a first-of-its-kind, patient-specific cardiac "digital twin," creating noninvasive algorithms to precisely estimate heart performance and gaining valuable experience in the FDA 510(k) submission process. He also directed large-animal cardiac testing and modeling programs that simulated heart-failure progression, advancing the understanding of disease mechanics and treatment strategies. Earlier in his career, Dr. Tartibi led R&D initiatives at a leading gas-turbine manufacturer, where he designed, validated, and tested compressors, combustion systems, and turbine components to improve durability and reduce wear under demanding conditions.

By merging advanced computational modeling with hands-on testing and design expertise, Dr. Tartibi delivers high-value insight, strategic guidance, and innovative solutions at the intersection of engineering, data science, and medical technology.

Academic Credentials & Professional Honors

Ph.D., Mechanical Engineering, University of California, Berkeley, 2014

M.Sc., Mechanical Engineering, University of Central Florida, 2000

B.Sc., Mechanical Engineering, Abadan Institute of Technology (A.I.T.), 1989

NIH SBIR grant (1R43HL145896-01) Real-Time Virtual Assessment of MitraClip Placement

Academic Appointments

Researcher Collaborator with the University of California, Berkeley, 2015 to 2019

Prior Experience

CEO and founder of Delbeat Inc., 2019-2025

Research assistant at University of California, San Francisco (UCSF), 2018-2019

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Postdoctoral fellow at University of California, San Francisco (UCSF), 2015-2018

Principal Engineer and Core Competency Owner (CCO) at Siemens Power Generation, 2006-2007

Senior Engineer, at Siemens Power Generation, 2002-2006

Advanced Engineer, at Siemens Power Generation, 1999-2002

Engineer, at Westinghouse Power Generation, 1997-1999

Consultant piping stress analyst at Oil Industry Engineering and Construction Company, 1991-1993 & 1995-1997

Piping Field Engineer, Bandar Imam Petrochemical Complex, 1993-1995

Professional Affiliations

International Society for Magnetic Resonance in Medicine, ISMRM, 2023 and 2024

Patents

Tartibi, Mehrzad. "Artificial intelligence physics-based modeling of cardiac parameters." U.S. Patent Application 18/883,711, filed May 8, 2025.

Van Heusden, Gary S., and Mehrzad Tartibi. "Wear minimization system for a compressor diaphragm." U.S. Patent 7,758,307, issued July 20, 2010.

Diatzikis, Evangelos V., Michael Twerdochlib, and Mehrzad Tartibi. "Wear monitor for turbo-machine." U.S. Patent 7,326,917, issued February 5, 2008.

Ward, Robert A., and Mehrzad Tartibi. "Coil support finger plate for stator of power generator and associated methods." U.S. Patent 6,653,759, issued November 25, 2003.

Publications

Khozeimeh, Fahime, Roohallah Alizadehsani, Milad Shirani, Mehrzad Tartibi, Afshin Shoeibi, Hamid Alinejad-Rokny, Chandrashekhar Harlapur et al. "ALEC: Active learning with ensemble of classifiers for clinical diagnosis of coronary artery disease." Computers in Biology and Medicine 158 (2023): 106841.

Khozeimeh, Fahime, Danial Sharifrazi, Navid Hoseini Izadi, Javad Hassannataj Joloudari, Afshin Shoeibi, Roohallah Alizadehsani, Mehrzad Tartibi et al. "RF-CNN-F: random forest with convolutional neural network features for coronary artery disease diagnosis based on cardiac magnetic resonance." Scientific reports 12, no. 1 (2022): 11178.

Mariano, Crystal A., Samaneh Sattari, Mohammad Maghsoudi-Ganjeh, Mehrzad Tartibi, David D. Lo, and Mona Eskandari. "Novel mechanical strain characterization of ventilated ex vivo porcine and murine lung using digital image correlation." Frontiers in Physiology 11 (2020): 600492.

Wang, Vicky Y., Mehrzad Tartibi, Yue Zhang, Kartiga Selvaganesan, Henrik Haraldsson, Daniel A. Auger, Farshid Faraji et al. "A kinematic model-based analysis framework for 3D Cine-DENSE—validation with an axially compressed gel phantom and application in sheep before and after antero-apical myocardial infarction." Magnetic Resonance in Medicine 86, no. 4 (2021): 2105-2121.

Zhang, Yue, Jennifer Adams, Vicky Y. Wang, Lucas Horwitz, Mehrzad Tartibi, Ashley E. Morgan, Jiwon Kim et al. "A finite element model of the cardiac ventricles with coupled circulation: Biventricular mesh

generation with hexahedral elements, airbags and a functional mockup interface to the circulation." Computers in Biology and Medicine 137 (2021): 104840.

Tartibi, Mehrzad, Julius M. Guccione, and David J. Steigmann. "Diffusion and swelling in a bio-elastic cylinder." Mechanics research communications 97 (2019): 123-128.

Morgan, Ashley E., Yue Zhang, Mehrzad Tartibi, Samantha Goldburg, Jiwon J. Kim, Thanh D. Nguyen, Julius Guccione, Liang Ge, Jonathan W. Weinsaft, and Mark B. Ratcliffe. "Ischemic mitral regurgitation: abnormal strain overestimates nonviable myocardium." The Annals of thoracic surgery 105, no. 6 (2018): 1754-1761.

Tartibi, M., D. J. Steigmann, and K. Komvopoulos. "An inverse finite element method for determining residual and current stress fields in solids." Computational Mechanics 58, no. 5 (2016): 797-817.

Tartibi, M., D. J. Steigmann, and K. Komvopoulos. "A reverse updated Lagrangian finite element formulation for determining material properties from measured force and displacement data." Computational Mechanics 54, no. 6 (2014): 1375-1394.

Tartibi, Mehrzad. "A Global Finite Element Reverse Approach for Identifying the Material Elasticity and Current State of Stress." PhD diss., UC Berkeley, 2015.

Tartibi, Mehrzad, Uttam Shrestha, Qizhi Fang, Vahid Ravanfar, Grant Gullberg, Christopher Nguyen, Youngho Seo, and Randall Lee. "Improvement in the overall left ventricle cardiac efficiency after alginate intramyocardial injection in a porcine heart failure model." (2023): P461-P461.

Ge, Liang, Yife Wu, Mehrdad Soleimani, Michael Khazalpour, Kiyoaki Takaba, Mehrzad Tartibi, Zhihong Zhang et al. "Moderate ischemic mitral regurgitation after posterolateral myocardial infarction in sheep alters left ventricular shear but not normal strain in the infarct and infarct borderzone." The Annals of thoracic surgery 101, no. 5 (2016): 1691-1699.

Pantoja, Joe Luis, Zhihong Zhang, Mehrzad Tartibi, Kay Sun, Warrick Macmillan, Julius M. Guccione, Liang Ge, and Mark B. Ratcliffe. "Residual stress impairs pump function after surgical ventricular remodeling: A finite element analysis." The Annals of thoracic surgery 100, no. 6 (2015): 2198-2205.

Tartibi, M., and K. Komvopoulos. "Characterization of the Mechanical Behavior of Cell Components with an Atomic Force Microscope." In International Joint Tribology Conference, vol. 44199, pp. 53-55. 2010.

Montgomery, Matthew, Mehrzad Tartibi, Frank Eulitz, and Stefan Schmitt. "Application of Unsteady Aerodynamics and Aeroelasticity in Heavy-Duty Gas Turbines." In Turbo Expo: Power for Land, Sea, and Air, vol. 47276, pp. 635-649. 2005.

Presentations

Tartibi, Mehrzad, Uttam Shrestha, Qizhi Fang, Vahid Ravanfar, Grant Gullberg, Christopher Nguyen, Youngho Seo, and Randall Lee. "Improvement in the overall left ventricle cardiac efficiency after alginate intramyocardial injection in a porcine heart failure model." (2023): P461-P461.

Tartibi, Mehrzad, Uttam Shrestha, Youngho Deo, Grant Gullberg, Christopher T. Nguyen, Vahid Ravanfar, Qizhi Fang, and Randall J. Lee. "Cardiac PET-MRI to measure cardiac efficiency access Alginate intramyocardial injections in a porcine heart failure model."

Tartibi, Mehrzad, Randall Lee, Christopher Nguyen, Jaume Coll-Font, Youngho Seo, and Qizhi Fang. "A Framework to extract and visualize the myofiber helix angle locally and globally from the cardiac diffusion tensor images."

Additional Education & Training

101-entrepreneur class at UC San Francisco, 2019.

VC training at UC Berkeley, taught by Richard Murphy, 2017

LS-Dyna explicit analysis training; 2004

Weibull-Log Normal Analysis Workshop; 2003

NASTRAN Aeroelastic Analysis; 2002

Introduction to the MSC-PATRAN Command Language (PCL); 2002

MSC-PATRAN for Advanced Users; 2000

ANSYS Dynamics; 1999

High Voltage Electrical Safety Class; 1997