Rukiye Tuna

Mechanical Engineer

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EXPERIENCE

Research Assistant 2022-01 – Current
Mississippi State University Starkville, MS, USA

Project: "Numerical modeling of the cardiovascular system to develop novel diagnostic methods for cardiovascular diseases." *(https://www.taebilab.abe.msstate.edu/team)*
Perform segmentation of heart from 4D MRI / CT scan images.
Develop cardiac wall motion tracking algorithm using MATLAB.
Perform transient structural analysis of 3D heart geometry with surroundings to capture displacement propagation on chest surface using ANSYS.

Blades Engineer (SGRE SE PI&TE TSYS BL SI&D) 2020-08 – 2021-12
Siemens Gamesa Renewable Energy Izmir, TURKEY

Supported investigations and root cause analysis for incidents, damages, and failure of blades
Supported technical assessment of warranty cases and contribute service documentation.
- **LEE Project:** Involved in simulations with Ansys Mechanical APDL and experienced with coding for SGRE blades, design loads and requirements within Ansys.

Involved in preparation / training of MCFM & TQF activities.

Mechanical Design Engineer 2017-09 – 2020-06
TEI-TUSAS Engine Industries, Inc. Eskisehir, TURKEY

Designed Low Pressure Turbine Blades mechanically and cooperate with other functions to assure product definition meets all related requirements, including stress, life, material, performance, producibility and maintenance as a hardware owner.
Established the technical requirements, objectives, timing, resources and assuring conformance to standards and specifications.
Executed plans in order to achieve customer-oriented goals by ensuring customer satisfaction via effective communication and detailed documentation/reporting.
Performed CAD with NX & FEA with ANSYS and mechanical design calculations.

Research Assistant 2015-01 – 2017-05
University of Massachusetts Lowell Lowell, MA, USA

Worked on a NSF funded project about the assessment of wind turbine blades' integrity using active and passive acoustic sensing.
Gained experienced in wireless, acoustic, active and passive sensing techniques on a lab-scale wind turbine blade and conducted hands-on acoustic measurements.
Utilized FEM of the different structures using the COMSOL Multiphysics Modeling Software to study the acoustic response of the targeted objects and compare results with test results.
Manufactured lab-scale composite wind turbine blade by implementing hand lay-up and vacuum infusion techniques.
Served as a teaching assistant for several courses as "Instrumentation and Measurement Laboratory," "Computer Aided Design," "Design of Machine Elements," and "Dynamic Systems."

Engineering Intern 2011-07 – 2011-08
TAI-Turkish Aerospace Industries, Inc. Ankara, TURKEY

Gained knowledge in composite manufacturing of aircraft wings and testing techniques.

AWARDS & CERTIFICATIONS

Introduction to Ansys Mechanical – Numesys (2020-04)
S13004 - Design and Process FMEA Essentials for Aerospace – Industry Forum (2020-01)
Aircraft Fatigue and Damage Tolerance - Cranfield University (2019-11)
Mechanical Integrity of Gas Turbine - Cranfield University (2019-08)
Effective Communication Training - Masters Training International (2019-03)
Responsible Conduct in Research (RCR) Training (2016-10)
Certificate of Honor (Mechanical Engineering-2014)
Certificate of Training (TAI - 2011)

EDUCATION

Ph.D. - Ongoing (2022)
Biomedical Engineering
GPA: 4.00 / 4.00
Mississippi State University
Starkville, MS, USA

M.S. - 2017
Mechanical Engineering
GPA: 3.78 / 4.00
University of Massachusetts Lowell
Lowell, MA, USA

B.S. - 2014
Mechanical Engineering
GPA: 3.48 / 4.00
Dokuz Eylul University
Izmir, TURKEY
Thesis: "Vibration Analysis of a Cracked Airfoil Cross-section Turbine Blade"

B.S. - 2013
Metallurgical & Materials Engineering
GPA: 3.62 / 4.00
Dokuz Eylul University
Izmir, TURKEY
Thesis: "Experimental Design for the Measurement of Crack Propagation in Welded Samples"

SKILLS

Mechanical Design	●●●●●
Structural Analysis	●●●●○
Wind Blade Design	●●●○○
8D Methodology	●●○○○
D-FMEA	●○○○○

SOFTWARE

NX / SolidWORKS	●●●●○
ANSYS	●●●○○
SIMULIA ABAQUS	●●○○○
COMSOL Multiphysics	●●●○○
MATLAB / Python	●●○○○
Minitab/RStudio	●●●○○
3D Slicer	●●●○○
Matcad	●●●○○

LANGUAGE

English	●●●●○
Turkish (Native Language)	●●●●●
Spanish	●○○○○

PUBLICATIONS

Regan,T., **Canturk, R.**, Slavkovsky, E., Niezrecki, C., Inalpolat, M., "Wind Turbine Blade Damage Detection Using Various Machine Learning Algorithms", in Proc. of ASME IDETC/CIE 2016 August 21-24, Charlotte, NC, 2016: volume 8.

Canturk, R., Inalpolat, M., "Development of an Acoustic Sensing Based SHM Technique for Wind Turbine Blades" in Proc. of IMAC XXXIV Conference, Orlando, FL, 2016: 95-104.

Canturk, R., Inalpolat, M., "A Computational Acoustic Interrogation of Wind Turbine Blades with Damage," in Proc. of Comsol Conference, Boston, MA, 2015.

Canturk, R., Demirtas, S., Ozturk, H., Sabuncu, M, 'Çatlakli Airfoil Kesit Alanina Sahip Türbin Kanadinin Titreşim Analizi', in 17. Makina Teorisi Sempozyumu, İzmir, Turkey, 2015.