

Kubra Asena Gelisli

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EDUCATION

University of Illinois at Urbana-Champaign

Ph.D. in Mechanical Science and Engineering

– Research: Catalytic Surface Recombination in Thermal Protection System Materials

Champaign, IL

Aug. 2021 – Present

TOBB University of Economics and Technology

M.S. in Mechanical Engineering

– Thesis: Active and Passive Control of Supersonic Cavity Flow

Ankara, Turkey

Sep. 2016 – Jul. 2019

TOBB University of Economics and Technology

B.S. in Mechanical Engineering

– Thesis: Design and Optimization of a New Turbine for an Existing Hydroelectric Power Plant

Ankara, Turkey

Sep. 2012 – Jun. 2016

EXPERIENCE

Graduate Research Assistant

Mechanical Science and Engineering Department, UIUC

- Investigation of catalytic surface recombination in thermal protection systems (TPS) using molecular dynamics (MD) tools
- Surface characterization of TPS materials through advanced experimental techniques, including XPS, XRD, and Raman spectroscopy

Aug. 2021 – Present

Champaign, IL

Project Engineer

TOBB University of Economics and Technology

- Active and passive control of Supersonic Cavity Flow using Computational Fluid Dynamics (CFD) tools
- Analysis of supersonic cavity flow structures and dynamics through proper orthogonal decomposition (POD)
- 2D CFD analysis of boundary layer behavior over a flat plate

Sep. 2017 – Jul. 2019

Ankara, Turkey

Research and Teaching Assistant

TOBB University of Economics and Technology

- Teaching assistant in Fluid Mechanics course and laboratory

Sep. 2016 – Sep. 2017

Ankara, Turkey

Intern

TOBB ETU Hydro Energy Research Center

- Preliminary analysis of Supersonic Cavity Flow
- Tolerance measurements of Francis turbine components using a Coordinate Measuring Machine (CMM)

May 2016 – Aug. 2016

Ankara, Turkey

Intern

Turkish Aerospace (TUSAS)

- Manufacturing planning and tool order verification for aircraft components

Sep. 2015 – Dec. 2015

Ankara, Turkey

Intern

Turk Tractor and Agricultural Machinery Co.

- Product development

Jun. 2014 – Aug. 2014

Ankara, Turkey

PUBLICATIONS

Journal Publications

Aradag, S., Gelisli, K. A., Yaldir, E. C., Effects of Active and Passive Control Techniques on Mach 1.5 Cavity Flow Dynamics, *International Journal of Aerospace Engineering*, 2017. doi:10.1155/2017/8253264

Conference Proceedings

Gelisli, K. A., Torres-Herrador, F., Stephani, K. A., "Comparison of Interaction Potentials for N₂ Recombination During Nitrogen Impingement on Graphene", *14th Ablation Workshop*, 2024. (poster)

Gelisli, K. A., Kondur, C., Torres-Herrador, F., Stephani, K. A., "Investigating Catalytic Surface Recombination Mechanisms in Carbon-Based TPS Materials", *13th Ablation Workshop*, 2023. (poster)

Gelisli, K. A., Aradag, S., Tascioglu, Y., Ozer, M. B., "Computational Fluid Dynamics and Proper Orthogonal Decomposition based control of flow over supersonic cavities", *25th AIAA/CEAS Aeroacoustics Conference*, 2019. doi:10.2514/6.2019-2694

Gelisli, K. A., Aradag, S., Tascioglu, Y., Ozer, M. B., "Active and passive control of supersonic cavity flow", *3rd International Conference on Mechatronics Systems and Control Engineering*, 2019.

TECHNICAL SKILLS

Simulation Tools: LAMMPS, ANSYS Fluent, Siemens Star CCM+

Programming Languages: Python, Matlab

CAD Tools: AutoCAD, Catia, SolidWorks

Operating systems: Windows, Linux

AWARDS

Fulbright Ph.D. Grant, IIE (2021-2023).

Global Korea Scholarship for Ph.D., NIIED (2020-2021).

High honor student, M.S., TOBB University of Economics and Technology (2019).

Stipend Scholarship, MILHES Project, TUBITAK-KAMAG 110M539 (2016-2017).

Full Tuition Scholarship, M.S., TOBB University of Economics and Technology (2016-2019).

High honor student, B.S., TOBB University of Economics and Technology (2016).

Full Tuition Scholarship, B.S., TOBB University of Economics and Technology (2011-2016).

PROFESSIONAL AFFILIATIONS & MEMBERSHIPS

Research subcommittee, Graduate Society of Women Engineers (GradSWE) at UIUC (2021 – Present).

President, Turkish Student Association at UIUC (2022 – 2023).

Member, Fulbright Student Association at UIUC (2021 – Present).

Graduate Member, Society of Women Engineers (2020 – Present).

Student Member American Institute of Aeronautics and Astronautics(2018 – Present).

CONFERENCE ORGANIZATIONS

Secretariat, TOBB ETU-TUBA Energy Conference 2018, October 22-23, TOBB ETU, Ankara, Turkey. Organizer: Prof. Sadik Kakac.

Secretariat, TOBB ETU-TUBA Energy Conference 2017, September 11, TOBB ETU, Ankara, Turkey. Organizer: Prof. Sadik Kakac.

EXTRACURRICULAR ACTIVITIES

Korean Language Training, Seokyeong University (2020 – 2021).

English Prep School, TOBB University of Economics and Technology (2011 – 2012).