Last update: June 24, 2026

Süleyman Cengizci, Ph.D.

*Associate Professor in Computer Technologies & Engineering and Natural Sciences
Antalya Bilim University
Universite Cad., Dosemealti, Antalya 07190, Turkey

https://scengizci.org/
suleyman.cengizci[at]antalya.edu.tr
suleymancengizci[at]gmail.com
ORCID: 0000-0002-4345-1253 Google Scholar
ResearchGate ABU Page scengizci GitHub

*Title of Associate Professor awarded by the Turkish Higher Education Council (YÖK) in December 2024; institutional appointment is pending.

About Me

I am an Associate Professor and computational scientist at Antalya Bilim University, where I serve as Head of the Department of Computer Technologies and hold cross-appointments in the Faculty of Engineering and Natural Sciences and the College of Business. My research lies at the intersection of computational mathematics, numerical methods, and scientific computing, with a particular emphasis on stabilized finite element methods for convection-dominated and multiscale partial differential equations arising in fluid dynamics, heat and mass transfer, and transport phenomena.

A central theme of my work is the application, development and analysis of stabilized finite element frameworks for nonlinear, high-Reynolds-number, and thermochemical nonequilibrium systems. More recently, I have been actively pursuing hybrid numerical–machine learning methodologies, integrating physics-informed neural networks (PINNs) with stabilized finite element solvers to enhance robustness, accuracy, and computational efficiency in challenging regimes where classical methods alone face limitations.

I received my Ph.D. in Scientific Computing from Middle East Technical University, where my doctoral dissertation was recognized with a Doctoral Thesis Award. I subsequently conducted postdoctoral research at Rice University (Mechanical Engineering), focusing on turbocharger turbine flow simulations. I was also awarded a Postdoctoral Research Fellowship at the Mathematical Institute, University of Oxford; this visit has been postponed due to institutional scheduling. Beginning in November 2026, I will join Uppsala University (Department of Materials Science and Engineering) as a postdoctoral research fellow, where I will work on dendrite formation control in lithium-metal batteries, combining numerical simulation with experimental validation.

My research has been supported by multiple TÜBİTAK-funded (the Scientific and Technological Research Council of Turkey) projects as Principal Investigator. Beyond research, I am actively involved in teaching numerical analysis, calculus, computational fluid dynamics, and programming, and I regularly serve as a reviewer for leading international journals in applied mathematics and computational mechanics.

Employment History

09.2023 – Present
- **Assistant Professor,** Computer Programming, Department of Computer Technologies, Antalya Bilim University, 07190 Antalya, Turkey.
- **Assistant Professor (affiliated faculty),** College of Business and Faculty of Engineering and Natural Sciences, Antalya Bilim University, Antalya 07190, Turkey.

03.2022 – 09.2023
- **Dr. Lecturer,** Computer Programming, Department of Computer Technologies, Antalya Bilim University, Antalya 07190, Turkey.
- **Dr. Lecturer (affiliated faculty),** College of Business, Antalya Bilim University, Antalya 07190, Turkey.

12.2017 – 03.2022
- **Lecturer,** Computer Programming, Department of Computer Technologies, Antalya Bilim University, Antalya 07190, Turkey.

Employment History (*continued*)

◇ **Lecturer (affiliated faculty),** College of Business, Antalya Bilim University, Antalya 07190, Turkey.

09.2014 – 12.2017 ◇ **Research Assistant,** Department of Economics, Antalya Bilim University, Antalya 07190, Turkey.

Administrative

12.2023 – Present ◇ **Head of Department,** Department of Computer Technologies (Computer Programming), Vocational School, Antalya Bilim University web-page (in Turkish)

02.2024 – Present ◇ **Departmental Erasmus Coordinator,** Department of Computer Technologies (Computer Programming), Vocational School, Antalya Bilim University web-page (in Turkish)

Education

2014 – 2022 ◇ **Ph.D. – Scientific Computing,** Institute of Applied Mathematics, Middle East Technical University, 06800 Ankara, Turkey
Thesis title: *Stabilized Finite Element Simulations of Multispecies Inviscid Hypersonic Flows in Thermochemical Nonequilibrium* thesis-link
Advisors: Prof. Ömür Uğur & Prof. Tayfun E. Tezduyar

2012 – 2014 ◇ **M.Sc. – Mathematics,** Applied Mathematics, Graduate School of Natural and Applied Sciences, Nevsehir Haci Bektas Veli University, 50300 Nevsehir, Turkey
Special student in Engineering Sciences at Middle East Technical University
Thesis title: *Asymptotic Analysis of Singular Perturbation Problems*
Advisors: Dr. Aytekin Eryılmaz & Dr. M. Tarık Atay

2008 – 2012 ◇ **B.Sc. – Mathematics,** Department of Mathematics, Niğde Ömer Halisdemir University, 51240 Niğde, Turkey
Graduation project: *Dual Spaces*.

Academic Visiting

11.2026 – 11.2027 ◇ **Postdoctoral Research Fellowship,** Applied Mechanics, Department of Materials Science and Engineering, Uppsala University, Ångströmlaboratoriet, Lägerhyddsvägen 1, Uppsala, Sweden.
Advisor: Assoc. Prof. B. Emek Abalı web-page (institutional) web-page (personal)

06.2026 – 06.2026 ◇ **Erasmus+ visiting staff,** Applied Mechanics, Department of Materials Science and Engineering, Uppsala University, Ångströmlaboratoriet, Lägerhyddsvägen 1, Uppsala, Sweden.
Host: Assoc. Prof. B. Emek Abalı web-page (institutional)

09.2024 – 09.2025 ◇ **Postdoctoral Research Fellowship,** Mathematical Institute, University of Oxford, Oxford OX2 6GG, UK.
Advisor: Prof. Patrick E. Farrell web-page
Fellowship awarded; visit postponed due to institutional scheduling.

03.2022 – 09.2022 ◇ **Postdoctoral research associate,** Mechanical Engineering, Rice University, Houston, TX 77005, US.
Advisor: Prof. Tayfun E. Tezduyar web-page

May 2017 ◇ **Erasmus+ visiting staff,** The Interdisciplinary Center for Scientific Computing (IWR), Ruprecht-Karls University of Heidelberg, 69120 Heidelberg, Germany.
Host: Prof. Anna Marciniak-Czochra web-page

Research

Research Interests

◇ My research interests cover many computational areas associated with engineering sciences and mathematics, including the following:

- (Stabilized) Finite Element Methods
- Asymptotic Methods
- High-performance Computing (HPC)
- Scientific Computing & Programming
- Scientific Machine Learning (SciML)
- Quantum Computing for Scientific Simulations
- Aerodynamics & High-speed Flows
- Computational Fluid Dynamics (CFD)
- Computational Heat and Mass Transfer
- Computational Physics & Biology
- Fluid–structure Interaction (FSI)
- Engineering Simulations

Journal Publications

◇ **Cengizci S.**, Uğur Ö., Natesan S. A PINN-enhanced SUPG-stabilized hybrid finite element framework with shock-capturing for computing steady convection-dominated flows, *Advances in Engineering Software*, **2026**. doi: https://doi.org/10.1016/j.advengsoft.2026.104135.

◇ **Cengizci S.**, Öztop H. F., Natesan S. A discontinuity-capturing SUPG finite element framework for simulating haptotaxis-driven cancer invasion, *Mathematics and Computers in Simulation*, 241: 271–292, **2026**. doi: https://doi.org/10.1016/j.matcom.2025.10.011.

◇ **Cengizci S.**, Öztop H. F., Atay M. T. SUPS-based computational investigation of heat transfer in a nanofluid-filled cubic enclosure with a spherical obstacle, *Journal of Thermal Analysis and Calorimetry*, 150: 16483–16500, **2025**. doi: https://doi.org/10.1007/s10973-025-14702-x.

◇ **Cengizci S.**, Uğur Ö. A computational study for pricing European- and American-type options under Heston's stochastic volatility model: application of the SUPG-YZβ formulation, *Computational Economics*, 66:179–206, **2025**. doi: https://doi.org/10.1007/s10614-024-10704-3.

◇ **Cengizci S.**, Öztop H. F., Mülayim G. Natural convection in nanofluid-filled quadrantal cavities under magnetic field: Application of the SUPS formulation, *Numerical Heat Transfer, Part B: Fundamentals*, 86(11): 3953–3975, **2025**. doi: https://doi.org/10.1080/10407790.2024.2370515.

◇ **Cengizci S.** A SUPS formulation for simulating natural/mixed heat convection in square cavities under intense magnetic effects, *The European Physical Journal Plus*, 139:713, **2024**. doi: https://doi.org/10.1140/epjp/s13360-024-05481-9.

◇ **Cengizci S.**, Uğur Ö. A computational study for simulating MHD duct flows at high Hartmann numbers using a stabilized finite element formulation with shock-capturing, *Journal of Computational Science*, 81:102381, **2024**. doi: https://doi.org/10.1016/j.jocs.2024.102381.

◇ **Cengizci S.**, Öztop H. F., Mülayim G. Stabilized finite element simulation of natural convection in square cavities filled with nanofluids under different temperature boundary conditions, *International Communications in Heat and Mass Transfer*, 156:107655, **2024**. doi: https://doi.org/10.1016/j.icheatmasstransfer.2024.107655.

◇ **Cengizci S.**, Uğur Ö., Natesan S. SUPG-based stabilized finite element computations of convection-dominated 3D elliptic PDEs using shock-capturing, *Journal of Computational and Applied Mathematics*, 451:116022, **2024**. doi: https://doi.org/10.1016/j.cam.2024.116022.

◇ **Cengizci S.**, Uğur Ö., Natesan S. Stabilized finite element method for convection-dominated problems with time-fractional derivatives, *Journal of Computational Science*, 76:102214, **2024**. doi: https://doi.org/10.1016/j.jocs.2024.102214.

◇ **Cengizci S.**, Uğur Ö. A comparative and illustrative study for solving singularly perturbed problems with two parameters, *TWMS Journal of Applied and Engineering Mathematics*, 14(2):520–536, **2024**. https://jaem.isikun.edu.tr/web/images/articles/vol.14.no.2/07.pdf.

◇ **Cengizci S.** An enhanced SUPG-stabilized finite element formulation for simulating natural phenomena governed by coupled system of reaction-convection-diffusion equations, *Mathematical Modelling and Numerical Simulation with Applications*, 3(4):297–317, **2023**. doi: http://dx.doi.org/10.53391/mmnsa.1387125

◇ **Cengizci S.**, Natesan S. Hybridized successive complementary expansions for solving convection-dominated 2D elliptic PDEs with boundary layers, *Computational and Applied Mathematics*, 42(6):273, **2023**. doi: https://doi.org/10.1007/s40314-023-02411-w.

Research (*continued*)

- **Cengizci S.**, Uğur Ö., Natesan S. A SUPG formulation augmented with shock-capturing for solving convection-dominated reaction–convection–diffusion equations, *Computational and Applied Mathematics*, 42(5):235, **2023**. doi: https://doi.org/10.1007/s40314-023-02370-2.
- **Cengizci S.**, Uğur Ö. SUPG formulation augmented with YZβ shock-capturing for computing shallow-water equations, *ZAMM–Zeitschrift für Angewandte Mathematik und Mechanik*, **2023**. doi: https://doi.org/10.1002/zamm.202200232.
- **Cengizci S.**, Uğur Ö. A stabilized FEM formulation with discontinuity-capturing for solving Burgers'-type equations at high Reynolds numbers, *Applied Mathematics and Computation*, 442:127705, **2023**. doi: https://doi.org/10.1016/j.amc.2022.127705.
- **Cengizci S.**, Kumar D., Atay M. T. A semi-analytic method for solving singularly perturbed twin-layer problems with a turning point, *Mathematical Modelling and Analysis*, 28(1):102–117, **2023**. doi: https://doi.org/10.3846/mma.2023.14953.
- **Cengizci S.**, Uğur Ö., Natesan S. SUPG-YZβ computation of chemically reactive convection-dominated nonlinear models, *International Journal of Computer Mathematics*, 100(2):283–303, **2023**. doi: https://doi.org/10.1080/00207160.2022.2114794.
- **Cengizci S.**, Dursun Cengizci A., Uğur Ö. A mathematical model for human-to-human transmission of COVID-19: a case study for Turkey's data, *Mathematical Biosciences and Engineering*, 18(6):9787–9805, **2021**. doi: https://doi.org/10.3934/mbe.2021480.
- **Cengizci S.** A comparison between MMAE and SCEM for solving singularly perturbed linear boundary layer problems, *Filomat*, 33(7):2135–2148, **2019**. doi: https://doi.org/10.2298/FIL1907135C.
- **Cengizci S.**, Natesan S., Atay M. T. An asymptotic-numerical hybrid method for singularly perturbed system of two-point reaction-diffusion boundary-value problems, *Turkish Journal of Mathematics*, 43(1):460–472, **2019**. doi: https://doi.org/10.3906/mat-1807-195.
- **Cengizci S.** An asymptotic-numerical hybrid method for solving singularly perturbed linear delay differential equations. *International Journal of Differential Equations*, **2017**, Article ID 7269450, 2017. doi: https://doi.org/10.1155/2017/7269450.
- Atay M. T., **Cengizci S.**, Eryılmaz, A. SCEM approach for singularly perturbed linear turning mid-point problems with an interior layer, *New Trends in Mathematical Sciences*, 4(1):115–124, **2016**. doi: https://doi.org/10.20852/ntmsci.2016115661.
- **Cengizci S.**, Atay M. T., Eryılmaz A. A uniformly valid approximation algorithm for nonlinear ordinary singular perturbation problems with boundary layer solutions, *SpringerPlus*, 5(280), **2016**. doi: https://doi.org/10.1186/s40064-016-1865-6.
- **Cengizci S.**, Eryılmaz A. Successive complementary expansion method for solving Troesch's problem as a singular perturbation problem, *International Journal of Engineering Mathematics*, Article ID 949463, **2015**. doi: https://doi.org/10.1155/2015/949463.

Articles in review & on-going work

- **Cengizci S.** Three-dimensional simulations of convection-dominated PDEs via a hybrid stabilized FEM–PINN coupling: the PASSC framework, **2026** (submitted to Computational Mechanics). Code: GitHub doi: https
- **Cengizci S.**, Uğur Ö., Natesan S. Physics-informed post-processing of stabilized finite element solutions for transient convection-dominated problems, **2026** (submitted to Computer Physics Communications). Code: GitHub doi: https://doi.org/10.48550/arXiv.2603.03259
- **Cengizci S.**. Hybrid physics-informed neural networks and stabilized finite element methods for coupled convection-dominated PDEs, **2026** (in progress).
- **Cengizci S.**, Abalı B. E. Dendrite formation control in lithium-metal batteries: numerical simulation, experimental validation, and fast-charging optimization, **2025** (in progress).
- **Cengizci S.**. A hybrid physics-informed neural network and discontinuity-capturing SUPG finite element framework for haptotaxis-driven cancer invasion, **2026** (in progress).
- **Cengizci S.**, Uğur Ö. Stabilized finite element computation of non-reacting inviscid high-speed flows around a cylinder using YZβ shock-capturing, **2024** (in progress).

Research (*continued*)

- **Cengizci S.**, Uğur Ö. SUPG finite element computation of high-speed inviscid flows around a cylinder using YZβ shock-capturing: thermochemical nonequilibrium flows, **2024** (in progress).

Upcoming research

- Stabilized finite element computation of Onsager–Stefan–Maxwell equations
- Numerical solution of various phase-field tumor invasion models under convection dominance
- Numerical solution of partial integro-differential equations with convective terms
- Reservoir modeling within porous media
- Computational fluid dynamics simulations for urban planning
- Numerical solution of drift-diffusion equations arising in semiconductor theory
- Asymptotic and numerical methods for computational optics/photonics
- Computational Peridynamics
- Machine learning (ML) methods for computational science
- Artificial intelligence (AI) for science

Conference Presentations

- **Cengizci S.**, Atli B., Goktekin E., Ozbey E., Ozkan Z. A. Enhancing Shock Resolution in the Sod Shock Tube Problem via the PASSC Framework. International Conference of Young Mathematicians, June 3–5, **2026**, Institute of Mathematics of NAS of Ukraine (online), Kyiv, Ukraine. https://www.imath.kiev.ua/~young/youngconf2026/index.php?module=1&lang=en.
- **Cengizci S.** Hybrid PINN-FEM framework for tumor growth models with stabilisation. The 15th AIMS (American Institute of Mathematical Sciences) Conference, July 6–10, **2026**, Athens, Greece. https://aimsconference.org/conferences/2026/index.html (invited speaker).
- **Cengizci S.** Bridging machine learning and stabilized FEM: a hybrid PINN-SUPG framework for 3D transport equations. The 15th AIMS (American Institute of Mathematical Sciences) Conference, July 6–10, **2026**, Athens, Greece. https://aimsconference.org/conferences/2026/index.html.
- **Cengizci S.** PINNs meet stabilized finite element methods for time-dependent convection-dominated PDEs. The 4th International Conference on Applied Mathematics in Engineering (ICAME'26), September 2–4, **2026**, Cunda, Balıkesir, Turkey. https://icame.balikesir.edu.tr/index.html.
- **Cengizci S.**, Uğur Ö., Natesan S. A hybrid machine learning framework for solving convection-dominated steady-state transport problems. UNCG Virtual PDE Conference 2025, October 10–12, **2025**, Greensboro, North Carolina, USA. https://mathstats.uncg.edu/pde-conference/.
- **Cengizci S.** Finite element analysis of natural convection phenomena occurring within nanofluid-filled 3D cavities. The 7th International Conference on Mathematical Modelling, Applied Analysis and Computation (ICMMAAC-24), April 18–20, **2024**, Beirut, Lebanon. https://soas.lau.edu.lb/conferences/icmmaac-24/.
- **Cengizci S.** Applications of the SUPG-YZβ finite element formulation: from mussel-algae interactions to Schnakenberg reaction models. The Eighth International Conference on Computational Mathematics and Engineering Sciences (CMES-2024), May 17–19, **2024**, Sanliurfa, Turkey. https://www.cmescongress.org/.
- **Cengizci S.**, Öztop H. F., Mülayim G. An application of the SUPG/PSPG finite element formulation for simulating natural convection heat transfer inside nanoliquid-filled 2D cavities. International Conference on Applied Mathematics in Engineering (ICAME'24), June 26–28, **2024**, Balikesir, Turkey. https://icame.balikesir.edu.tr/.
- **Cengizci S.**, Uğur Ö. Pricing European- and American-type options under stochastic volatility: a computational study. Fifth Romanian Itinerant Seminar on Mathematical Analysis and its Applications, May 26–28, **2023**, Craiova, Romania. http://rismaa.ucv.ro/.
- **Cengizci S.** Stabilized finite element simulations of dam-break problems. International E-Conference on Mathematical and Statistical Sciences: A Selçuk Meeting, October 20–22, **2023**, Selçuk University, Konya, Turkey. https://icomss22.selcuk.edu.tr/.
- **Cengizci S.** Stabilized finite element computations augmented with shock-capturing: 3D convection-diffusion equations. International Conference on Analysis and Applied Mathematics (ICAAM), October 31–November 6, **2022**, Antalya, Turkey. http://icaam-online.org/.

Research (*continued*)

- **Cengizci S.**, Uğur Ö., Natesan S. Stabilized finite element simulations for Burgers'-type equations, International Conference on Analysis and Its Applications (ICAA NEPAL 2021), April 9–11, **2021**, Kathmandu University, Dhulikhel, Nepal. http://icaa2021.ku.edu.np/.
- **Cengizci S.**, Uğur Ö., Tezduyar T. E. Stabilized numerical simulations of hypersonic flows in thermochemical nonequilibrium with FEniCS, FEniCS2021, 22–26 March **2021**, University of Cambridge, Virtual Conference. https://fenics2021.com/talks/cengizci.html.
- **Cengizci S.**, Uğur Ö. SUPG-stabilized finite element formulation of shallow-water equations. International Conference of Young Mathematicians, June 3–5, **2021**, Institute of Mathematics of NAS of Ukraine, Kyiv, Ukraine. https://www.imath.kiev.ua/~young/youngconf2021/index.php?lang=en.
- **Cengizci S.**, Uğur Ö., Takizawa K., Tezduyar T. E. A streamline-upwind/Petrov–Galerkin formulation for supersonic and hypersonic flow simulations, The 20th Biennial Computational Techniques and Applications Conference (CTAC2020), 30th Aug–2nd Sep **2020**, Sydney, NSW, Australia. https://www.ctac2020.unsw.edu.au/.
- **Cengizci S.**, Uğur Ö., Natesan S. A stabilized finite element formulation for numerical simulation of convection-dominated reactive models, Advances in Differential Equations and Numerical Analysis (ADENA), October 12–14, **2020**, Indian Institute of Technology Guwahati, India. https://www.iitg.ac.in/maths/ext/adena2020/.
- **Cengizci S.** Some numerical experiments on singularly perturbed problems with multi-parameters, 8th International Eurasian Conference on Mathematical Sciences and Applications (IECMSA-2019), August 27–30, **2019**, Baku, Azerbaijan. http://www.iecmsa.org/2019/.
- **Cengizci S.** Some comparisons between MMAE and SCEM for solving singularly perturbed linear problems, The Third International Conference on Computational Mathematics and Engineering Sciences (CMES2018), May 4–6, **2018**, Girne, Cyprus.
- **Cengizci S.**, Eryilmaz A., A hybrid approach for solving singularly perturbed turning point problems exhibiting dual layers, International Conference on Mathematics and Mathematics Education (ICMME-2016), May 12–14, **2016**, Fırat University, Elazığ, Turkey. http://theicmme.org/2016/Default.aspx.
- **Cengizci S.**, Atay M. T., Eryilmaz A. A uniformly valid approximation algorithm for singularly perturbed two-point boundary value problems in nonlinear ordinary differential equations, International Conference on Advancements in Mathematical Sciences, November 5–7, **2015**, Antalya, Turkey.

Research Projects

- **January 2026 — TÜBİTAK–2219**: *Dendrite Formation Control in Lithium-Metal Batteries: Numerical Simulation, Experimental Validation, and Fast-Charging Optimization*. International Postdoctoral Research Fellowship Program for Turkish Citizens by the Scientific and Technological Research Council of Turkey. **Principal Investigator**. Duration (period): 2026–2027. Budget: ≈ EUR 28,200.
- **January 2026 — TÜBİTAK–3501**: *Development of a Stabilized Finite Element Framework Enhanced with Physics-Informed Neural Networks for Computing Convection-Dominated Flows*. Career Development Program (CAREER) by the Scientific and Technological Research Council of Turkey. **Principal Investigator**. Duration: 12 Months. Budget: ≈ EUR 15,000. Project ID: $225M468$.
- **November 2025 — TÜBİTAK–1002**: *Stabilized Finite Element Simulations of Haptotactic Tumor Invasion in Convection-Dominated Environments*. A Short Term Support Module by the Scientific and Technological Research Council of Turkey. **Principal Investigator**. Duration: 12 Months. Budget: ≈ EUR 2,200. Project ID: $125F320$.
- **March 2023 — TÜBİTAK–2219**: *Stabilized finite element methods for simulating convection-dominated multicomponent transport phenomena*. International Postdoctoral Research Fellowship Program for Turkish Citizens by the Scientific and Technological Research Council of Turkey. **Principal Investigator**. Duration (period): 2023–2024. Budget: ≈ EUR 28,200.

Research Group – Scientific Computing and Data Analysis (SCaDA)

2026 ◇ **Founder and Head, SCaDA Research Group**
SCaDA is an emerging research group focused on scientific computing, scientific machine learning, stabilized finite element methods, computational fluid dynamics, and physics-informed neural networks. Current activities include undergraduate research mentoring, TÜBİTAK-funded research projects, and the development of hybrid FEM–PINN frameworks for convection-dominated CFD problems.

Teaching

◇ **The courses I have been teaching since 2017 as a Lecturer/Asst. Prof. at Antalya Bilim University:**

- Calculus for Social Sciences I–II (Dept. of Business Adm.) $\times 6$
- Mathematics I–II (Dept. of Economics) $\times 3$
- Introduction to Linear Algebra (Dept. of Business Adm.) $\times 7$
- Professional English (Dept. of Computer Tech.) $\times 4$
- Computer Hardware (Dept. of Computer Tech.) $\times 3$
- Information Technologies (Faculty of Adm. and Soc. Sci.) $\times 2$
- Business Analytics (Dept. of Business Adm.) $\times 1$
- Numerical Analysis for Engineers (Faculty of Engineering) $\times 6$
- Advanced Engineering Mathematics (Dept. of Mechanical Eng.) $\times 1$
- Data Mining (Dept. of Computer Tech.) $\times 1$
- Differential Equations (Faculty of Engineering) $\times 1$
- Artificial Intelligence (Dept. of Computer Tech.) $\times 2$
- Statistics for Social Sciences (Dept. of Political Sciences) $\times 7$
- Decision Analysis Techniques (Faculty of Adm. and Soc. Sci.) $\times 1$
- Computer Security (Dept. of Computer Tech.) $\times 1$
- Technical Mathematics (Dept. of Architecture) $\times 3$
- Introduction to Programming II (Dept. of Computer Tech.) $\times 2$
- Fluid Mechanics I (Dept. of Mechanical Eng.) $\times 1$
- Introduction to Numerical Methods (Dept. of Business Adm.) $\times 1$
- Introduction to Computational Fluid Dynamics (Dept. of Mechanical Eng.) $\times 1$

◇ **The courses I assisted between 2014–2017 as a Teaching Assistant at Antalya Bilim University:**

- Calculus for Social Sciences I–II (Dept. of Economics) $\times 2$
- Introduction to Linear Algebra (Dept. of Business Adm.) $\times 2$
- Mathematical Economics (Dept. of Economics) $\times 1$
- Microeconomics (Dept. of Economics) $\times 1$

Student Supervision & Mentoring

Undergraduate Research Students

03.2026–Present ◇ **Undergraduate Research Supervision within the TÜBİTAK–3501 CAREER Project (225M468)**
Students: Bengisu Atli, Enes Göktekin, Eda Özbey, and Z. Ada Özkan.
Research topics: Physics-Informed Neural Networks (PINNs), stabilized finite element methods, shock-capturing techniques, scientific machine learning, and computational fluid dynamics.
Research outcome: Student co-authored conference presentation at the International Conference of Young Mathematicians (Kyiv, Ukraine, 2026).

07.2026–01.2027 ◇ **TÜBİTAK 2247-C STAR Undergraduate Researcher (Project 225M468)**
Student: (pending official confirmation)
Research topic: PINN-enhanced stabilized finite element methods for convection-dominated flows.

Skills

Languages ◇ Turkish, English, German (beginner)

Coding & Software ◇ Python (coding), C++ (coding), Matlab (computing), LaTeX, Linux (Ubuntu) (OS), FEniCS (computing), Firedrake (beginner) (computing), SU2 (beginner) (computing), Pointwise (meshing), PyTorch (Machine learning)

Miscellaneous

Referee/Reviewer

International journals (indexed in WoS) I have been reviewing for:

- Computational Mechanics
- Computers and Mathematics with Applications
- IEEE Trans. on Geoscience and Remote Sensing
- Acta Mechanica Sinica
- International Journal of Computational Fluid Dynamics
- International Journal of Numerical Methods for Heat and Fluid Flow
- International Journal for Numerical Methods in Engineering
- Computational and Applied Mathematics
- Zeitschrift für angewandte Mathematik und Physik
- Rocky Mountain Journal of Mathematics
- Journal of the Brazilian Society of Mechanical Sciences and Engineering
- IEEE Transactions on Signal Processing
- Journal of Nonlinear Modeling and Analysis
- Mathematical Sciences
- Nanotechnology Reviews
- Heliyon
- Zeitschrift für Angewandte Mathematik und Mechanik (ZAMM)
- Mathematical Methods in the Applied Sciences
- Gazi University Journal of Science
- Computational Economics
- Journal of Computational Physics
- International Communications in Heat and Mass Transfer
- Mathematics and Computers in Simulation
- Physics of Fluids
- Numerical Algorithms
- Engineering Applications of Computational Fluid Mechanics
- Industrial & Engineering Chemistry Research
- Numerical Heat Transfer, Part A: Applications
- Journal of Computational and Applied Mathematics
- Communications in Statistics - Simulation and Computation
- International Journal of Computer Mathematics
- Journal of Computational Design and Engineering
- Neural Processing Letters
- Mathematical Modelling and Analysis
- Differential Equations and Dynamical Systems
- Journal of Applied Mathematics
- Hacettepe Journal of Mathematics and Statistics
- Applied Mathematics-A Journal of Chinese Universities
- Journal of Porous Media
- IEEE Transactions on Industrial Informatics

Other Teaching Experience

2019–2021 ◇ **International Baccalaureate Math Teacher,** Antalya Yusuf Ziya Öner High School for Science, Antalya 07192, Turkey.

Certification

2019 ◇ **Educator** – Mathematics for the International Baccalaureate (IB) Diploma: Higher Level. Awarded by the IB.

2014 ◇ **Educator** – Mathematics for High Schools. Awarded by Faculty of Education, Akdeniz University, Antalya 07058, Turkey.

Panelist

2020 ◇ **Observer Panelist,** Mathematics and Physics Research Group, The Scientific and Technological Research Council of Turkey (TÜBİTAK), 18.09.2020.

Academic Awards

◇ **Doctoral thesis award,** Middle East Technical University, 2023. Link

◇ **Academic performance award,** Antalya Bilim University, 2022.

Miscellaneous (*continued*)

- **Academic publication encouragement award,** Antalya Bilim University (×3)
- **Publication encouragement award,** The Scientific and Technological Research Council of Turkey (TUBITAK) UBYT (×9)

References

Prof. Omur UGUR
Scientific Computing,
Middle East Technical University, Turkey
ougur[@]metu.edu.tr
web-page

Prof. Srinivasan NATESAN
Department of Mathematics,
Indian Institute of Technology Guwahati, India
natesan[@]iitg.ac.in
web-page

Assoc. Prof. B. Emek ABALI
Department of Materials Science and Engineering,
Uppsala University, Sweden
bilenemek[@]abali.org
web-page

Prof. Hakan F. OZTOP
Department of Mechanical Engineering,
Firat University, Turkey
hakanfoztop[@]firat.edu.tr
web-page