

Suleyman CENGIZCI, Ph.D.

Lecturer of Computer Programming
Ph.D. in Scientific Computing

Antalya Bilim University

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EDUCATION

- **Ph.D. in Scientific Computing** (September 2014 – March 2022) [Institute of Applied Mathematics, Middle East Technical University, Ankara / Turkey](#)

Specializations: Scientific Computing, Numerical Solutions of Ordinary and Partial Differential Equations, Finite Element Methods (FEM), Computational Fluid Dynamics (CFD), Hypersonic Flows, Stabilized Formulations

Thesis: Stabilized Finite Element Simulations of Multispecies Inviscid Hypersonic Flows in Thermochemical Nonequilibrium

Thesis Supervisor: [Prof. Dr. Ömür Uğur](#) (Scientific Computing, Institute of Applied Mathematics, Middle East Technical University)

Thesis Co-advisor: [Prof. Dr. Tayfun E. Tezduyar](#) (Mechanical Engineering, Rice University; Faculty of Science and Engineering, Waseda University)

- **M.S in Applied Mathematics** (August 2014) [Nevşehir Hacı Bektaş Veli University](#) (Middle East Technical University – Engineering Sciences, Ankara / Turkey), Graduate School of Natural and Applied Sciences, Nevşehir / Turkey

Specializations: Applied Mathematics (Asymptotic Methods, Singular Perturbation Problems),
: Spectral Methods ([Middle East Technical University – Engineering Sciences](#))

Thesis: Asymptotic Analysis of Singular Perturbation Problems

Thesis Supervisor: Asst. Prof. Dr. Aytekin Eryılmaz & Asst. Prof. Dr. Mehmet Tarık Atay

- **Certificate in [International Baccalaureate Mathematics Education](#)** (November 2019),
- **Certificate in Mathematical Education** (June 2014) Pedagogical Formation, [Akdeniz University \(Antalya/Turkey\)](#), Faculty of Education
- **Bachelor Degree in Mathematics** (June, 2012) [Niğde Ömer Halisdemir University \(Niğde/Turkey\)](#), Department of Mathematics
Graduation project: *Dual Spaces*

- **High School** (June, 2007) [Metin-Nuran Çakallıklı Anadolu Lisesi](#) (Antalya / Turkey), Natural Sciences

ACADEMIC FACILITIES

- **Postdoctoral Visiting Researcher**, *March 2022 – onwards*
[TAFSM](#), [Department of Mechanical Engineering](#), [Rice University](#), Houston, TX / USA
- **Lecturer**, *December 2017 - onwards*
Computer Programming, [Antalya Bilim University](#), Antalya / Turkey
- **Research Assistant**, *September 2014 – December 2017*
Department of Economics, College of Business, [Antalya Bilim University](#), Antalya / Turkey

OTHER FACILITIES

- **IB (International Baccalaureate) Math Teacher**, *November 2019 – January 2021*
[Antalya Yusuf Ziya Öner Fen Lisesi](#), Antalya / Turkey
Courses: International Baccalaureate, Higher Level (HL) Mathematics
- **Trainee Teacher**, *January 2014 – June 2014*
[Hüsnüye Özdelek Mesleki ve Teknik Anadolu Lisesi](#), Antalya / Turkey
Courses: High School Mathematics
- **Trainee Teacher**, *June 2013 – May 2014*
Antalya Vahap Yılmaz Private Educational Institution, Antalya / Turkey
Courses: High School Mathematics & Geometry

EDUCATIONAL FACILITIES

I. **Antalya Bilim University** (as a TA, 2014–2017):

- *Calculus for Social Sciences I* (x3)
- *Calculus for Social Sciences II* (x3)
- *Introduction to Linear Algebra* (x1)
- *Mathematical Economics* (x1)

II. **Antalya Bilim University** (as a Lecturer, 2017–)

- *Introduction to Linear Algebra* (x4)
- *Information Technologies* (x2)
- *Calculus for Social Sciences I – II* (x4)
- *Statistics for Social Sciences* (x4)
- *Computer Hardware* (x1)
- *Matematik (in Turkish)* (x3)
- *Computer Security (in Turkish)* (x1)
- *Technical Mathematics* (x1)
- *Introduction to Programming II (Python Programming)* (x2)

RESEARCH INTERESTS

- *Scientific Computing & Programming*
- *Isogeometric Analysis (IGA)*
- *Numerical Solutions of ODEs & PDEs*
- *(Stabilized) Finite Element Methods (FEM)*
- *Computational Fluid Dynamics (CFD)*
- *Mathematical Physics & Biology*

PUBLICATIONS

• Academic Papers

1. (2015) **Cengizci S.**, Eryilmaz A., “Successive complementary expansion method for solving Troesch's problem as a singular perturbation problem”, *International Journal of Engineering Mathematics*, 2015. doi:[10.1155/2015/949463](https://doi.org/10.1155/2015/949463)
2. (2016) **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” *SpringerPlus*, 5(1), 280, 2016. doi: [10.1186/s40064-016-1865-6](https://doi.org/10.1186/s40064-016-1865-6) (SCI-E)
3. (2016) Atay M. T., **Cengizci S.**, Eryilmaz 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: [10.20852/ntmsci.2016115661](https://doi.org/10.20852/ntmsci.2016115661)
4. (2017) **Süleyman Cengizci**, “An asymptotic-numerical hybrid method for solving singularly perturbed linear delay differential equations,” *International Journal of Differential Equations*, vol. 2017, Article ID 7269450, 8 pages, 2017. doi:[10.1155/2017/7269450](https://doi.org/10.1155/2017/7269450) (ESCI)
5. (2019) **S. Cengizci**, S. Natesan, M. T. Atay, “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: [10.3906/mat-1807-195](https://doi.org/10.3906/mat-1807-195) (SCI-E)
6. (2019) **Cengizci S.**, “A comparison between MMAE and SCEM for solving singularly perturbed linear boundary layer problems”, *Filomat* 33, no. 7 : 2135-2148, 2019. doi: [10.2298/FIL1907135C](https://doi.org/10.2298/FIL1907135C) (SCI-E)
7. (2021) **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. doi: <https://doi.org/10.3934/mbe.2021480> (SCI-E)

• Publications in progress / in review

1. (2021) **Cengizci S.**, Uğur Ö., Natesan S. “A stabilized formulation for numerical treatment of convection-dominated steady boundary-layer problems with $YZ\beta$ shock-capturing”, (in review).
2. (2022) **Cengizci S.**, Uğur Ö., Takizawa K., Tezduyar T. E. “A stabilized formulation for inviscid hypersonic flow around a cylinder” (in progress).
3. (2022) **Cengizci S.**, Uğur Ö., Takizawa K., Tezduyar T. E. “SUPG computation of hypersonic flows in thermochemical nonequilibrium with the $YZ\beta$ shock-capturing” (in progress).
4. (2022) **Cengizci S.**, Atay M. T., “An asymptotic approach for singularly perturbed turning point problems with dual layers”, (in review).
5. (2022) **Cengizci S.** “A hybrid method for solving singularly perturbed differential equations with fractional order” (in progress).

6. (2021) **Cengizci S.**, Ugur Ö., “A stabilized finite element formulation with discontinuity-capturing for solving viscous Burgers'-type equations at high Reynolds numbers” (in progress).

• Conference Presentations

1. (2015) **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.
2. (2016) **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, Firat University, Elazığ, Turkey.
3. (2017) **Cengizci S.**, “On an efficient hybrid method for solving singularly perturbed difference-differential equations exhibiting turning layer behavior”, 4th International Conference on Computational and Experimental Science and Engineering (ICCESN 2017), October 4–8, 2017, Antalya, Turkey.
4. (2017) **Cengizci S.**, “On an asymptotic-numerical hybrid method for solving singularly perturbed nonlinear delay differential equations”, 4th International Conference on Computational and Experimental Science and Engineering (ICCESN 2017), October 4–8, 2017, Antalya, Turkey.
5. (2017) **Cengizci S.**, “SCEM for solving a system of singularly perturbed convection-diffusion equations”, International Conference On Applied Analysis and Mathematical Modelling (ICAAMM-2017), July 3–7, 2017, Istanbul, Turkey.
6. (2017) **Cengizci S.**, “On an asymptotic-numerical hybrid scheme for solving singularly perturbed turning point problems with dual layers”, International Conference On Applied Analysis and Mathematical Modelling (ICAAMM-2017), July 3–7, 2017, Istanbul, Turkey.
7. (2018) **Cengizci S.**, “Some comparisons between MMAE and SCEM for solving singularly perturbed linear problems”, The Third International Conference on Computational Mathematics and Engineering Sciences (CMES-2018), May 4–6, 2018, Girne, Cyprus.
8. (2018) **Cengizci S.**, “A hybrid simulation for a system of singularly perturbed two-point reaction-diffusion equations”, The Third International Conference on Computational Mathematics and Engineering Sciences (CMES-2018). May 4–6, 2018, Girne, Cyprus.
9. (2019) **Cengizci S.**, “Finite element based hybrid approximations to solutions of singularly perturbed problems”, The Fourth International Conference on Computational Mathematics and Engineering Sciences (CMES-2019). April 20–22, 2019, Antalya, Turkey.
10. (2019) **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.
11. (2020) **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.
12. (2020) **Cengizci S.**, Uğur Ö., Natesan S., “A SUPG Formulation for Solving a Class of Singularly Perturbed Steady Problems in 2D”, The 20th Biennial Computational Techniques and Applications Conference (CTAC2020), 30th Aug–2nd Sep 2020, Sydney, NSW, Australia.

13. (2020) **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.
14. (2021) **Cengizci S.**, Uğur Ö., Cengizci-Dursun A., “Mathematical modeling of the COVID-19 spread: a case of Turkey”, Australia and New Zealand Industrial and Applied Mathematics (ANZIAM) Annual Conference, 2021, 31 Jan–5 Feb, 2021, Virtual Conference.
15. (2021) **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/>
16. (2021) **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>
17. (2021) **Cengizci S.**, Uğur Ö., Tezduyar T. E., “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.

OTHER ACADEMIC FACILITIES

○ Referee/Reviewer:

- *Neural Processing Letters (Springer / SCI-E) x 3*
- *Mathematical Modelling and Analysis (Taylor & Francis / SCI-E) x 1*
- *Mathematical Sciences (Springer / E-SCI) x 1*
- *Gazi University Journal of Science (E-SCI) x 1*
- *Hacettepe Journal of Mathematics and Statistics (SCI-E) x 1*
- *Differential Equations and Dynamical Systems (Springer / SCI-E) x 2*
- *Mathematical Methods in the Applied Sciences (Wiley / SCI-E) x 2*
- *International Journal of Advanced Computer Science and Applications (E-SCI) x 2*

○ Visiting Research Institutions:

1. Visiting Researcher, Department of Computing + Mathematical Sciences, California Institute of Technology (CALTECH), USA. (postponed)
Supervisor: *Prof. Dr. Oscar P. Bruno*
2. Visiting Staff, *The Interdisciplinary Center for Scientific Computing (IWR)*, Ruprecht-Karls University of Heidelberg, Germany, (8-11 May, 2017)
Supervisor: *Prof. Dr. Anna Marciniak-Czochra*
3. Postdoctoral Visiting Scholar, *Mechanical Engineering, Rice University*, USA (May 1, 2022 – February 28, 2023).
Supervisor: *Prof. Dr. Tayfun E. Tezduyar*

○ Miscallaneous

1. Observer Panelist, Mathematics and Physics Reseach Group, TÜBİTAK 18.09.2020.

COMPUTER AND PROGRAMMING

Windows, Linux (Ubuntu), Microsoft Office Pack, MATLAB, FEniCS, LaTeX, C++ Programming, Fortran Programming, Python Programming

ACADEMIC MEMBERSHIPS

- [Gesellschaft für Angewandte Mathematik und Mechanik \(GAMM\)](#)
- [International Association of Engineers \(IAENG\)](#)
- [American Physical Society \(APS\)](#)
- [International Society of Difference Equations \(ISDE\)](#)

ACADEMIC AWARDS

- Academic publication encouragement award, *Antalya Bilim University* (x 3)
- Publication encouragement award, *The Scientific and Technological Research Council of Turkey (TÜBİTAK)* UBYT (x 1)

ACADEMIC RECOGNITION

- *Scopus ID: 57151353400*
- *Orcid: orcid.org/0000-0002-4345-1253*
- *ResearchGate*
- *LinkedIn*
- *Publons*
- *arxiv*

REFERENCES

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➤ **Assoc. Prof. Dr. Bilen Emek ABALI**
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➤ **Prof. Dr. Tayfun E. TEZDUYAR**
Mechanical Engineering, Rice University; Faculty of Science and Engineering, Waseda Uni.
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➤ **Assoc. Prof. Dr. Mehmet Tarık ATAY**
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➤ **Asst. Prof. Dr. Levent KUTLU**
Department of Economics, University of Texas Rio Grande Valley
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