

MAHİR DEMİR

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EĞİTİM

- **Doktora, Biyo-Matematik**, University of Tennessee, Knoxville *Mayıs 2019*
- **Doktora Yandal, İstatistik**, University of Tennessee, Knoxville *Mayıs 2019*
- **Doktora Yandal, Computational Science (Yazılım/Kodlama)**, University of Tennessee *Mayıs 2019*
- **Yüksek Lisans, Matematik**, University of Tennessee, Knoxville *Aralık 2017*
- **Yüksek Lisans, Matematik (Bulanık Matematik)**, Gaziantep Üniversitesi *Haziran 2012*
- **Yüksek Lisans, Matematik Eğitimi/Öğretmenliği**, Adıyaman Üniversitesi *Haziran 2010*
- **Lisans, Matematik**, İnönü Üniversitesi *Haziran 2009*

GÖREV YERLERİ

- Öğretim Görevlisi, Giresun Üniversitesi/Güre Yerleşkesi, Giresun, Türkiye. *2021-*
- Araştırma Görevlisi (Post-Doktora), Michigan State University, East Lansing, MI, ABD *2019-2021*
- Öğretim Görevlisi, University of Tennessee, Knoxville, TN, ABD *2015-2019*
- Öğretim Görevlisi, Gaziantep Üniversitesi, Gaziantep, Türkiye *2010-2012*

ÇALIŞMA ALANLARI

- Salgın Hastalıkların Modellemesi, Kontrolü ve Tedavi Stratejileri (Infectious Diseases, i.e., COVID-19, HIV (AIDS), Kolera ve Benzeri Salgın Hastalıklar).
- Tarım, Hayvancılık ve Balıkçılık da Ekosistem Temelli Sürdürülebilir Yönetim Stratejileri, Biyolojik ve Ekolojik Sistemlerin Matematiksel Modellemeleri, Optimum Kontrol Teorisi ve Uygulamaları, Biyolojik Sistemlerin (Populasyonların) Karalılık ve Av-Avcı Analizleri, Yenilenebilir Doğal Kaynakların Ekonomik Yönetimi.
- Biyolojik ve Ekolojik Sistemlerin İstatiksel Modellemeleri ve Veri Analizleri, Veri Analizi Yöntemleri, Stokastik Süreçler ve Uygulamaları.

PROGRAMLAMA VE UYGULAMA BECERİLERİ

- HPC Cluster (Süper Bilgisayarlarda Veri Analizi ve Paralel Kodlama), MATLAB, R, Python, C, C++, XPP, SPSS, Excel, LaTeX, MAPLE.
- Optimizasyon, Dinamiksel ve Stokastik Sistemlerin Parametre Tahmini, Dinamiksel Sistemlerin Duyarlılık Analizi, Matematiksel Modellerin İnşa Edilmesi ve Validasyonu, Optimum Kontrol, Bilgisayar Temelli Hesaplamalar, Deterministik ve Stokastik Modellerin Numeriksel Çözüm Yöntemleri. Adi/Kısmi/Stokastik Differensial Denklemlerin Analitik ve Numeriksel Çözümleri.
- Makina Öğrenimi (Machine learning: supervised and unsupervised), Veri Analizi, Verilerin Görselleştirilmesi, İstatiksel Modeller ve Analizleri, Belirsizlik Analizleri ve Ölçümleri (uncertainty analysis and quantification).

PROJELER

- Joint effects of physical processes and multiple invasive species on Great Lakes zooplankton production, with implication for fish recruitment, Michigan State University.
- Multi-patch Vibrio Cholerae Epidemic Model for Different Treatments, Ohio State University.
- Analyzing SIR type infectious disease models and optimal prevention and treatment methods for HIV (AIDS), University of Tennessee.
- Analyzing Ostwald Ripening experiment with crystals of one size and multi-sizes, and observing their theoretical predictions numerically, University of Tennessee.

HAKEMLİK YAPILAN DERGİLER

- Hakem: Evolution Equations and Control Theory
- Hakem: Natural Resources Modeling
- Hakem: Bulletin of Mathematical Biology (BMAB)
- Hakem: Mathematical Reviews/MathSciNet
- Hakem: Turkish Journal of Fisheries and Aquatic Sciences
- Hakem: Mugla Journal of Science and Technology

SCI (EXPANDED) HAKEMLİ YAYINLAR

1. Sahin, M. and Demir, M., Lattice-valued Caratheodory Extension Theorem, Archives Des Sciences, Vol 65, No.7; Jul 2012, 89-106.
2. Demir, M. and Lenhart, S. (2019), Optimal sustainable fishery management of the Black Sea anchovy with food chain modeling framework. *Nat Resour Modeling*, 33(2):1–29.
3. Demir, M. and Lenhart, S. (2021), A Spatial Food Chain Model for the Black Sea Anchovy, and its Optimal Fishery, *Discrete and Continuous Dynamical Systems Series B*, 26(1): 155-171.
4. Aslan, H. I., Demir, M., Wise, M. M., and Lenhart, S., Modeling COVID-19: Forecasting and Analyzing the dynamics of the outbreak in Hubei and Turkey, *Mathematical Methods in the Applied Sciences* (Accepted, 2021) Preprint version is available in [medRxiv](#)
5. Demir, M., Aslan, H. I., and Lenhart, S. (2021), Analyzing the effect of relaxing restriction on the COVID-19 outbreak for some US states, *Mathematical Medicine and Biology* (Submitted). Preprint version is available in [medRxiv](#)
6. Lee Spence, David E. Anderson, Mahir Demir, Ibrahim Halil Aslan, Chika C. Okafor, Marcy Jan Souza and Suzanne Lenhart (2021), The Effect of Changing COVID-19 Restrictions on the Transmission Rate in a Veterinary Clinic, *PLOS ONE* (Submitted).
7. Mahir Demir, James R. Bence, John A. Marino, Henry A. Vanderploeg, Steven A. Pothoven, Edward L. Ionides, and Scott D. Peacor (2021), Pervasive nonconsumptive predator effects on two zooplankton species across depths in Lake Michigan (In progress).
8. Mahir Demir, James R. Bence, John A. Marino, Henry A. Vanderploeg, Steven A. Pothoven, Edward L. Ionides, and Scott D. Peacor (2021), Essential and new diagnostic methods to understand the results of state space models in complex aquatic systems (In progress).
9. Demir, M. and Aslan, H. I. (2021), Efficiency analysis of vaccination on control of COVID-19 (In progress).

KONFERANSLAR VE SEMPOZYUMLAR

1. Mahir Demir, **Davetli Konuşmacı:** A PDE Model for the Black Sea Anchovy and Ecosystem-Based Optimal Fishery, Season on Natural Resources Modeling, Joint Mathematics Meetings, Baltimore, USA, January 2019.
2. Mahir Demir, **Katılımcı Konuşmacı :** Ecosystem-Based Fishery Management for the Black Sea anchovy, Southeastern-Atlantic Regional Conference on Differential Equations in Oakwood GA, October 2018.
3. Mahir Demir, **Davetli Konuşmacı :** A Spatial Fishery Model for the Black Sea Anchovy on the Southern Part of the Black Sea, SIAM Conference on Mathematics of Planet Earth, Season on Sustainable management of renewable resources, ecosystems, and biodiversity, Philadelphia, USA, September 2018. Bu konuşma SIAM News Blog, Amerikan Bilim gazetesinde yayımlandı: [Improving Ecosystem-Based Harvest of the European Anchovy](#)
4. NSF-CBMS Conference on Computational Methods in Optimal Control, Jackson State University, Jackson, MS, June 2018. **Labs:** Numerical Solutions of Optimal Control by using GPOPS-II: Next-Generation Optimal Control Software in MATLAB.
5. 46th Annual John H. Barrett Memorial Lectures, Modeling and Analysis of Nonlinear PDEs in Spatial Ecology, University of Tennessee, Knoxville, May 2016.
6. NIMBioS-MBI-CAMBAM Summer Graduate Program: Connecting Models with Biological Data, U of Tennessee, Knoxville, June 2017. **Labs:** Parameter Estimation and Sensitivity Analysis in MATLAB.
7. US-Canadian Institutes Epidemiology Summer School: Mathematical Modeling of Infection Disease Spread at MBI in Columbus Ohio, June 2016.
Proje: Multi-patch Vibrio Cholerae Epidemic Model for Different Treatments.
Davetli Konuşmacı: Multi-patch Vibrio Cholerae Epidemic Model for Different Treatments.
8. Joint Mathematics Meetings, Atlanta, GA, USA, January 2017
9. Ibrahim Halil Aslan, Mahir Demir, Michael Morgan Wise, and Suzanne Lenhart, **Davetli Konuşmacı:** Modeling COVID-19: Forecasting and analysing the dynamics of the outbreak in Hubei and Turkey, Bilim Akademisi Covid-19 Modelleme Çalıştayı. 22 Haziran 2020.
10. Suzanne Lenhart and Mahir Demir. **Davetli Konuşmacı:** Optimal control of two ecological models. Banff International Research Station for Mathematical Innovation and Discovery. July 26, 2019.
11. Suzanne Lenhart and Mahir Demir. **Davetli Konuşmacı:** Optimal control of management of aquatic population models. Life on Planet Earth: Above and Below. Mathematical Biosciences Institute, August 11-13, 2020.
12. Mahir Demir, James R. Bence, John A. Marino, Henry A. Vanderploeg, Steven A. Pothoven, Edward L. Ionides, and Scott D. Peacor. **Davetli Konuşmacı:** Essential and new diagnostic methods to understand the results of state space models in complex aquatic systems. American Fisheries Society. Virtual Annual Meeting. September 14-25, 2020.

ASİSTANLIK, BURSLAR VE ÖDÜLLER

- 2019-2021 : Research Associate (Post-Doktora), Michigan State University.
- Yaz Dönemi 2018 : Matematik Bölümü Yaz Dönemi Araştırma Bursu, University of Tennessee, Knoxville.
- 2016-2019 : Öğretim Asistanı/Görevlisi Bursu, University of Tennessee, Knoxville.
- 2014-2019 : Milli Eğitim Bakanlığı Yurtdışı Doktora Bursu (Fellowship for Ph.D).
- 2010-2012 : Yükseköğretim Kurulu (YÖK) Yüksek Lisans Bursu (Fellowship for Master's Degree).
- 2009-2010 : Başbakanlık Yüksek Lisans Bursu (Fellowship for Master's Degree).

AKADEMİK ÜYELİKLER VE HİZMETLER

- SIAM student chapter, Mali İşler Sorumlusu, University of Tennessee, 2017 - 2019 .
- Member of Society for Industrial and Applied Mathematics (SIAM), and AMS, 2016 - Present.
- Türk Öğrenciler Konseyi Başkan Yardımcılığı, University of Tennessee, 2015 - 2019.
- Adıyaman Üniversitesi Eğitim Fakültesi Öğrenci Konsey Başkanlığı, Adıyaman University, 2009-2010.
- İnönü Üniversitesi Öğrenci Konsey Başkanlığı, İnönü University, 2007-2009.

VERİLEN DERSLER

- 2018 - 2019 : İstatistik (Temel Veri Analizi ve Yöntemleri), University of Tennessee, Knoxville.
- Bahar 2018 : Temel Kalkülüs, University of Tennessee, Knoxville.
- Sonbahar 2017 : Cebir, University of Tennessee, Knoxville.
- 2010 - 2012 : Kalkülüs I and II, Gaziantep University, Gaziantep.

Asistan olarak verilen dersler:

- Bahar 2018 : Kısmi Diferansiyel Denklemler I, University of Tennessee, Knoxville.
- Bahar 2017 : Adi Diferansiyel Denklemler I, University of Tennessee, Knoxville.
- Sonbahar 2016 : Nümerik Analiz I , University of Tennessee, Knoxville.

DOKTORA DA ALINAN BAZI TEMEL DERSLER

- **Biometry** (Biological & Ecological Data Analysis and Statistical Modeling in R).
- **Survey and Statistical Methods** (Data Analysis and Data Visualization).
- **Data Mining Methods & Applications** (Data preparation, generalized linear models, classification methods, neural networks, model assessment, cluster analysis, and association analysis in R).
- **Stochastic Processes and Probability Theory I and II** (Discrete and continuous stochastic processes, i.e. (Hidden) Markov chain, Brownian motion, and Martingales; probability spaces, random variables, distributions, law of large numbers, and central limit theorem).
- **Optimal Control Theory** (Dynamical Optimization and Cost-Benefit Analysis).
- **Industrial Mathematics** (Modeling for scientific and industrial problems in MATLAB).
- **Programming for Science and Engineering** (Coding in C++, Python, and R).
- **Mathematical Ecology I and II** (Ecological and Infectious Disease Modeling and Stability Analysis).
- **Advanced Math Ecology I** (Sensitivity Analysis and Parameter Estimation in Dynamical Systems).
- **Advanced Math Ecology II** (Network Theory and Models, Model Construction and Validation).
- **Real Analysis and (Advanced) PDE I and II** (Analysis for Foundation of Applied Mathematics, Existence, Uniqueness, Priori Estimates, Weak Solutions, and Sobolev Spaces).

REFERANCES

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