CV

1. **Name Surname:** Bülent BİLGEHAN

2. **Title:** Professor.

3. **Education**

Degree	Field of Education	University name	Year
Undergraduate	Electrical and Electronic Eng.	Southbank University(Uk)	1983
Master	Electrical and Electronic Eng.	Eastern Mediterranean University	1991
PhD	Electrical and Electronic Eng.	Eastern Mediterranean University	2006

4. **Master's / PhD Thesis**

4.1. Master's Thesis Title and Thesis Advisor(s):

Computer Aided Illumination

Advisor: Prof. Dr. Haldun Gürmen

4.2. PhD Thesis /Medical Specialty Thesis Title and Advisor(s):

Construction of multi-wavelets from compactly supported refinable super function

Advisor: Prof. Dr. Hüseyin Özkaramanlı

5. **Academic Title:**

Asst. Prof. Dr., Electrical and Electronic Engineering, Cyprus International University. 2006-2007

Assoc. Prof. Dr., Electrical and Electronic Engineering, Girne American University

2009-2016

Professor Dr. Electrical and Electronic Engineering, Girne American University

6. Supervised Master and Ph.D. Thesis

Wireless power transfer.

Multiplicative-based path loss model for the wireless channel.

The Infrastructure-Less Instantaneous Self Standing Wireless Network for the Disaster Area.

The direction of Arrival Estimation of Wideband RF sources.

Fast Detection and DOA Estimation of the Unknown Wideband Signal Sources

Communication Network Optimization method

Artificial Intelligence Model to Assist and Evaluate the Kidney Stone on Computed Tomography Image

Real Time Battery Health Monitoring for Electric Vehicle Using Machine Learning

Optimized Calibrated Charging Capacity for Electric Vehicle Battery Packs

Fractional COVID-19 Modeling and Analysis on Successive Optimal Control Policies

7. Publications

7.1 International SCI publications

Bilgehan, B., Ozkaramanli, H., Bahti, A., "*Multiwavelets from B-spline Super Functions with Approximation Order*", Signal Processing, *Elsevier Science*, pp. 1029-1046, Aug. 2002

Bilgehan, B., Ozkaramanli, H., "*Construction of multi-wavelets from compactly supported refinable super functions*", *Digital Signal Processing, Academic Press*, vol. 13, pp. 470-494, Jul. 2003.

Özyapıcı, A., Rıza, M., Bilgehan, B., Bashirow, A.E., " *On Multiplicative Calculus and Minimizations*", *Numerical Algorithms, Springer*, 11075-013-9813-9, Dec 2013.

Bilgehan, B., "*Efficient approximation for linear, nonlinear signal representation"*, *IET signal processing*, Doi: 10.1049/iet-spr.2014.0070, 1751-9675, Volume 9, Issue 3, May 2015, p. 260 – 266

Bilgehan, B., Özyapıcı, A., "*Finite product representation via multiplicative calculus and its applications to exponential signal processing*", *Numerical Algorithms*, *Springer*, Doi: 10.1007/s11075-015-0004-8.

Bilgehan, B., Eminağa, B.,Riza,M., "*New solution method for electrical systems represented by ordinary differential equation* ", *Journal of circuits, systems, and computers*, 1650011, Vol. 25, No. 2(February 2016).

Bilgehan, B., Özyapıcı, A., " *Experimentally approved generalized model for circuit applications*" *International Journal of Circuit Theory and Applications-Wiley.* Doi: 10.1002/cta.2415 (*February, 2018*)

Bilgehan, B., Ojo, S., "*Multiplicative Based Path Loss Model", International Journal of Communication Systems – Wiley.* https://doi.org/10.1002/dac.3794 (*August 2018*)

Bilgehan, B., Özyapıcı, A., '*Generalized system of trial equation methods and their applications to biological systems'.* Applied Mathematics and Computation. Elsevier (2018). https://doi.org/10.1016/j.amc.2018.06.020

Bilgehan, B., Özyapıcı, A., "*Direct solution of nonlinear differential equations derived from real circuit applications*". Analog Integrated Circuits and Signal Processing. Springer (2019). https://doi.org/10.1007/s10470-019-01511-0

Bilgehan, B., Abdelbari, A,. "*Fast Detection and DOA Estimation of the Unknown Wideband Signal Sources*". International Journal of Communication Systems. Wiley (2019). https://doi.org/10.1002/dac.3968

Bilgehan, B , Kavalcıoğlu, C . (2020). "*Sürekli glikoz izleme (CGM) sinyalleri ile tip 1 diyabet tedavisi için sürekli dalgacık dönüşüm (CWT) tabanlı filtreleme yöntemi*" . Gazi Üniversitesi Mühendislik Mimarlık Fakültesi Dergisi , 35 (2) , 581-594 . https://doi.org/10.17341/gazimmfd.492052

Abdelbari, A, Bilgehan, B. (2020). A probabilistic-based approach for direction-of-arrival estimation and localization of multiple sources. *Int J Commun Syst*. 2020; 33:e4425. https://doi.org/10.1002/dac.4425

Özyapıcı, A., Bilgehan, B., Şensoy, Z. (2020). "Generalized Probability Density Function and Applications to the Experimental Data in Electrical Circuits and Systems". International Journal of Circuit Theory and Applications-Wiley. https://doi.org/10.1002/cta.2883

Almazok, S., Bilgehan, B. (2020). "A novel dynamic source routing (DSR) protocol based on minimum execution time scheduling and moth flame optimization (MET-MFO)". EURASIP Journal on Wireless Communications and Networking-Springer. https://doi.org/10.1186/s13638-020-01802-5

Baba, B.A., Bilgehan, B. (2021). "Optimal control of a fractional order model for the COVID – 19 pandemic". Chaos, Solitons and Fractals. https://doi.org/10.1016/j.chaos.2021.110678

Abdulbari, A., Bilgehan, B. (2021). “PESO: Probabilistic Evaluation of Subspaces Orthogonality for Wideband DOA Estimation”. Multidimensional Systems and Signal Processing. Springer.
https://doi.org/10.1007/s11045-020-00757-6

Eminağa, B., Bilgehan, B. (2022).“ The Multiplicative Base Solution to the Differential Equations in Analog Circuits”. Journal of Circuits, Systems and Computers. World scientific. Volume No. 31, Issue No. 02, Article No. 2250021.
https://doi.org/10.1142/S0218126622500219

Aysegul Erem,Bülent Bilgehan,Ali Özyapıcı,Zehra Boratas Sensoy (2022). “Further theories on application of new generalized probability density function and its applications”. Quality and Reliability Engineering International. Wiley
https://doi.org/10.1002/qre.3083

Bülent Bilgehan, Ali Özyapıcı, Zakia Hammouch, Yusuf Gurefe (2022). “ Predicting the spread of COVID-19 with amachine learning technique and multiplicative calculus”. Soft Computing journal. https://doi.org/10.1007/s00500-022-06996-y

Bülent Bilgehan, Lara Kayed, Özlem Sabuncu (2022). “General probability distribution model for wireless body sensors in the medical monitoring system”,Biomedical Signal Processing and Control, Volume 77, 2022, 103777,
https://doi.org/10.1016/j.bspc.2022.103777

Hadi, M. S., & Bilgehan, B. (2022). Fractional COVID-19 Modeling and Analysis on Successive Optimal Control Policies. *Fractal and Fractional*, *6*(10), 533.
https://doi.org/10.3390/fractalfract6100533

Gürman, M., Bilgehan, B., Sabuncu, Ö., & Mirzaei, O. (2023). A powerful probabilistic model for noise analysis in medical images. *International Journal of Imaging Systems and Technology*. https://doi.org/10.1002/ima.22838

Bilgehan, B., & Sabuncu, Ö. (2023) An optimized device-to-device (D2D) blockchain network for the insurance industry. *International Journal of Communication Systems*, e5446. https://doi.org/10.1002/dac.5446

Sabuncu, Ö., & Bilgehan, B. (2023). Statistical RMS delay spread representation in 5G mm-Wave analysis using real-time measurements. *Wireless Networks*, 1-11.
https://doi.org/10.1007/s11276-023-03332-6

Sabuncu, Ö., Bilgehan, B., Kneebone, E. & Mirzaei, O. (2023). Effective deep learning classification for kidney stone using axial computed tomography (CT) images. *Biomedical Engineering / Biomedizinische Technik*. https://doi.org/10.1515/bmt-2022-0142

Bilgehan, B., & Sabuncu, Ö. (2023). Optimized blockchain network model for 6G cellular vehicle-to-everything communication. Transactions on Emerging Telecommunications Technologies, e4868. https://doi.org/10.1002/ett.4868

Sabuncu, Ö., & Bilgehan, B. (2023). Statistical RMS delay spread representation in 5G mm-Wave analysis using real-time measurements. Wireless Networks, 1-11. https://doi.org/10.1007/s11276-023-03332-6

Bilgehan, B., & Sabuncu, Ö. (2023). Component-Related Phase Noise Evaluation Method for the LC Oscillators. Circuits, Systems, and Signal Processing, 1-20. https://doi.org/10.1007/s00034-023-02472-6

Bilgehan, B., & Sabuncu, Ö. (2023). An optimized device-to-device (D2D) blockchain network for the insurance industry. International Journal of Communication Systems, 36(6), e5446. https://doi.org/10.1002/dac.5446

7.2 **International conference, Proceedings and Symposium**

Bilgehan, B., Ozkaramanli, H., Bahti, A., "*Multiwavelets from B-spline Super Functions with Approximation Order*", International Symposium on circuits and systems (ISCAS), 6-9 May 2001.

Bilgehan, B., Özyapıcı, A., "*Application of Multiplicative Calculus To Exponential Signal Processing*", International Symposium (ASIN2013), 6-9 September 2013.

Bilgehan, B.,"*Finite Product Representation via Multiplicative Calculus in Signal Processing*",

International Symposium on Engineering, Artificial Intelligence and Applications

(ISEAIA2013), 6-8 November 2013.

Bilgehan, B.,"*Continous time linear and nonlinear signal processing method*",

International Symposium on Engineering, Artificial Intelligence and Applications

(ISEAIA2014), 6-8 November 2014.

Bilgehan, B.,"*Robust method of solution for chaotic type circuits*",

International Symposium on Engineering, Artificial Intelligence and Applications (ISEAIA2015), 6-8 November 2015.

Bilgehan, B.,"*Intelligent Segmentation Method-Based on Band-Pass Filters Information for Detecting Fungal-Infection Treatment in Strawberry Leaves* ",9th International conference on Theory and Application of Soft Computing. (ICSCCW 2017, Elsevier), 24-25 August 2017.

Bilgehan, B., Almazok, S.,"*Sickel-Cell Anaemia Detection using a Watershed Transform and Edge Detection Processing Technique*",2nd International conference on Biomedical Engineering Congress. (IBMEC- 2018, Elsevier), 24-27 May 2018.

Bilgehan, B., Alshahad, M., Kavalcıoğlu, C., "*An Effective Fuzzy Controlled Filter for feature Extraction Method*", 13th International conference on Theory and Applications of Fuzzy Systems and Soft Computing. https://doi.org/10.1007/978-3-030-04164-9_1. (ICAFS- 2018, Springer), 27-28 August 2018.

Bilgehan, B., Kavalcıoğlu, C.," A Fuzzy Based Gaussian Weighted Moving Windowing for Denoising Electrocardiogram (ECG) Signals", 13th International conference on Theory and Applications of Fuzzy Systems and Soft Computing. (ICAFS- 2018, Springer), 27-28 August 2018. https://doi.org/10.1007/978-3-030-04164-9_18

Bilgehan, B., Alshahad, M.,"Fuzzy Controlled Robot Platform Tracking System", *10th International conference on Theory and Applications of Fuzzy Systems and Soft Computing. (ICSCCW- 2019, Springer),* 27-28 August 2019. https://doi.org/10.1007/978-3-030-35249-3_51

Bilgehan, B., Abdulbari, A.," A Novel DOA Estimation Method for Wideband Sources Based on Fuzzy Systems", *10th International Conference on Theory and Applications of Fuzzy Systems and Soft Computing. (ICSCCW- 2019, Springer),* 27-28 August 2019. https://doi.org/10.1007/978-3-030-35249-3_52

Abdelbari and B. Bilgehan, "A Novel DOA Estimation Method of Several Sources for 5G Networks," *2020 International Conference on Electrical, Communication, and Computer Engineering (ICECCE)*, Istanbul, Turkey, 2020, pp. 1-6, DOI: 10.1109/ICECCE49384.2020.9179306.

Bilgehan, B. (2021). "Fuzzy Based Wireless Channel Path Loss Prediction Model". *11th International Conference on Theory and Applications of Fuzzy Systems and Soft Computing. (ICSCCW- 2020, Springer p.515-522)*, 27-28 August 2020. https://link.springer.com/chapter/10.1007/978-3-030-64058-3_64

Bilgehan, B., Sadıkoğlu, F. (2021). "A Generic Model-Based on Probabilistic Reasoning for Path Loss of Wireless Indoor Channel". https://doi.org/10.1007/978-3-030-68004-6_61

Bilgehan, B., & Sadikoglu, F. (2021, August). Fuzzy Aided Generalized Probability Distribution Function for Wireless Wearable Medical Sensors. In *International Conference on Theory and Application of Soft Computing, Computing with Words and Perceptions* (pp. 148-155). Springer, Cham. ebook ISBN 978-3-030-92127-9 print ISBN 978-3-030-92126-2 DOI: 10.1007/978-3-030-92127-9_23

Bashir, A., B., Bilgehan, B. (2021). "Optimisation of Multi Robots Hunting Game". Third International Conference on Material Science, Smart Structures and Applications. https://doi.org/10.1063/5.0040282

B. Bilgehan and O. Mirzaei, "Enhanced Hybrid Combiner Scheme for Wireless Network Communication," 2021 International Conference on Artificial Intelligence of Things (ICAIoT), 2021, pp. 21-24, doi: 10.1109/ICAIoT53762.2021.00011.

B. Bilgehan and L. Kayed, "Generalized Probability Distribution Function for Wireless Biomedical Sensors," 2021 International Conference on INnovations in Intelligent SysTems and Applications (INISTA), 2021, pp. 1-5, doi: 10.1109/INISTA52262.2021.9548411.7.3
Publication of book or chapter in a book

Ö. Sabuncu and B. Bilgehan. (2022). "Performance Evaluation for Various Deep Learning (DL) Methods Applied to Kidney Stone Diseases," *2021 International Conference on Forthcoming Networks and Sustainability in AIoT Era (FoNeS-AIoT)*, 2021, pp. 1-3, doi: 10.1109/FoNeS-AIoT54873.2021.00010.

Bilgehan, B., & Sabuncu, Ö. (2022, August). Synchronization and Analysis of Chaotic Circuit with Application to Communication in the internet of things (IoT) Services. In *2022 International Conference on Artificial Intelligence in Everything (AIE)* (pp. 674-678). IEEE. **DOI:** 10.1109/AIE57029.2022.00132

Sadıkoğlu, F., Sabuncu, Ö., & Bilgehan, B. (2023, March). A Comparative Analysis of the Different CNN Models Using Fuzzy PROMETHEE for Classification of Kidney Stone. In *15th International Conference on Applications of Fuzzy Systems, Soft Computing and Artificial Intelligence Tools–ICAFS-2022* (pp. 77-84). Cham: Springer Nature Switzerland. doi=10.1007/978-3-031-25252-5_15

A. Abdelbari and B. Bilgehan, (2023 April) "A Novel Precoding Design For Frequency-Selective Massive MIMO Channel," *2022 International Conference on Artificial Intelligence of Things and Crowdsensing (AIoTCs)*, Nicosia, Cyprus, 2022, pp. 29-32, https://doi.org/10.1109/AIoTCs58181.2022.00012

7.4 National publications

7.5 **National conference, Proceedings and Symposium**

Bilgehan, B., Ozkaramanli, H., "*Mevcut bir sinyali parametreli waveletler kullanarak çoklu çözünürlük yöntemi ile sıkıştırma*", *SİU 99, Conference.*17-25, Antalya, 1989.

7.6 Other Publications

8. **Projects**

Pace Uk. Switch-mode power supply design for satellite receivers

1983-1989

Palm Beach Hotel CCTV project

1987

Dome Hotel Tv. and radio transmission project

1988

Elvan Ltd 2.0m diameter fiberglass parabolic antenna manufacturing

1990-1995

Toros Ltd alarm system design 1991

Halk Vakfı elderly care home Founding member	1991
Aritech Uk. Wireless security system noise minimization	1991-1994
Adcola Uk. Soldering iron manufacturing company	1994-2000

9. **Administrative tasks**

Head of Electrical and Electronic Eng. Department	Cyprus International University	2006-2007
Director of Vocational School	GAU	2016-2017
ISEAIA2013 Chairman	GAU	2013-2017
ISEAIA2014 Chairman	GAU	2014
ISEAIA2014 Chairman	GAU	2015
ISEAIA2014 Chairman	GAU	2016
Head of Electrical and Electronic Eng. Department	NEU	2017-
Vice Dean	NEU	2018-2020
Dean	NEU	2020-

10. **Membership**

IEEE, IEE, EMO.

11. Awards

Second Rank B.Sc. degree in Electrical & Electronic Engineering Dept. 1983.
Tübitak research journal publication 2002
Tübitak research journal publication 2003
Tübitak research journal publication 2013
Tübitak research journal publication 2015
Tübitak research journal publication 2018
NEU Research Publication Award 2019
NEU Research Publication Award 2020
NEU Research Publication Award 2021

- ISSN International Research Awards

INTERNATIONAL BEST RESEARCHER AWARD

- Titles are Awarded by, ISSN AWARDS
  with, World Research Council & Times of Research
- Synchronization and Analysis of Chaotic Circuit with Application to Communication in the internet of things (IoT) Services" was one of the best 3 papers which got the best **paper award** for this year in the IEEE International Conference on AI in Everything (AIE) - 2022.

12. **Lecture courses offered within past two years**

Academic year	Term	Course name	Weekly hours		Number of students
			Theory	Lab	
2022-23	Fall	Signal and Systems	4		60
		Power supply and Energy Transmission	3		25
	Spring	Digital Signal Processing	3		12
		Signals and Systems	3	2	3
2023-24	Fall	Signals and Systems	3	2	80
		Graduation Project	2	2	8
	Spring	Satellite Systems	3		25
		Graduation Project II	4		15