Burhan Beycan

Nationality: Turkish **Date of birth:** 21/12/1989

Email address: burhanbeycan@hotmail.com

LinkedIn: https://www.linkedin.com/in/burhanbeycan

Home: Ankara (Türkiye)

ABOUT ME

I am a multidisciplinary researcher possessing dual B.Sc. degrees in Computer Engineering from Ankara Science University and Chemistry from Middle East Technical University, as well as both an M.Sc. and Ph.D. in Polymer Chemistry from Ankara University. My proficiency encompasses the design and execution of real-time deep-learning vision systems (YOLOv8, Deep SORT) and the synthesis and characterisation of sophisticated polymeric and composite materials (electrospun nanofibers, conductive polymers, magnetic nanoparticle composites). As of now, I have published six papers in Q1–Q2 journals and presented orally at international conferences, including the IUPAC Macro 2024 World Polymer Congress at Warwick University. Driven by a passion for AI-driven discovery, I am actively working to build sophisticated tools that streamline experimental workflows and uncover new insights at the intersection of machine learning, computer vision, and materials science. I thrive in interdisciplinary teams and am committed to leveraging cutting-edge methodologies to solve complex scientific challenges.

WORK EXPERIENCE

Middle East Technical University – Ankara, Türkiye

City: Ankara | **Country:** Türkiye

Postdoctoral Researcher

[04/08/2025 – Current]

Metallurgy & Material Engineering Lab - LiS Battery production
- TiS2 Production and Organolithium Exfoliation
- Li-S Battery Cathodes production

Scientific and Technological Research Council of Türkiye (TÜBİTAK) – Ankara, Türkiye

City: Ankara | **Country:** Türkiye

Tübitak 2209-A Researcher (Graduation Project)

[03/2025 – 06/2025]

-Autonomous Image Analysis and Threat Assessment System
-Designed and implemented real-time object detection pipeline using YOLOv8
-Integrated DeepSORT algorithms for multi-object tracking
-Developed threat assessment algorithms

Scientific and Technological Research Council of Türkiye (TÜBİTAK) – Ankara, Türkiye

City: Ankara | **Country:** Türkiye

Researcher (Tübitak 1001 Project)

[01/04/2022 – 15/09/2024]

- Development of skin-compatible, antimicrobial polymer modified fabric face mask with the help of electrospinning device
- Writing reports and articles based on research findings
- Conducting and conducting research on project topics
- Staying up-to-date on relevant literature and trends in the field

Ankara University – Ankara, Türkiye

City: Ankara | **Country:** Türkiye

R&D Polymer Chemist

[20/09/2017 – 10/10/2024]

- Synthesis of magnetic nanoparticles and preparation of their composites
- Synthesis and characterization of conductive polymers
- UV-VIS spectroscopy, contact angle, optical microscope, SEM, Electrospinning device
- Use of devices such as network analyzer to study electromagnetic wave absorption properties (Master and Doctorate)

Turkish Standards Institution – Ankara, Türkiye

City: Ankara | **Country:** Türkiye

Instrumental Chemist - Intern

[15/08/2013 – 20/09/2013]

- Performing the necessary pre-processing of samples coming for analysis
- Assisting in heavy metal detection and calibration of devices with the help of ICP-OES

EDUCATION AND TRAINING

BSc Computer Engineering

Ankara Science University [2020 – 2025]

City: Ankara | **Country:** Türkiye

- Machine Learning, Artificial Intelligence
-Image Processing Algorithms

PhD Chemistry

Ankara University [2019 – 2024]

City: Ankara | **Country:** Türkiye | **Field(s) of study:** Polymer Chemistry | **Thesis:** Coating on cotton fabric of nanofibers to be prepared from blends of gelatin and water based polyurethane polymers with poly(Ethylene imine) polymer by electrospinning method and investigation of antimicrobial properties

MSc Chemistry

Ankara University [2016 – 2019]

City: Ankara | **Country:** Türkiye | **Field(s) of study:** Polymer Chemistry | **Thesis:** Preparation, characterization and investigation of electromagnetic shielding property of poly (ethylene teraphthalate) nonwoven fabric/ polypyrrole/ferrite conductive composites

-Conductive polymers
-Electromagnetic wave absorbing composite materials

BSc Chemistry

Middle East Technical University [2010 – 2015]

City: Ankara | **Country:** Türkiye

LANGUAGE SKILLS

Mother tongue(s): Turkish | English

SKILLS

Electrospinning / Network Analyzer / • Application programming and Artificial Intelligence (Machine Learning/ Neural Network) / Python Language - Basic knowledge / Basic 3D modelling (Blender) / mobile application developer / opencv image processing / Microsoft Office package: Microsoft Word, Excel, PowerPoint, Access / Html, Java, CSS / Organ-on-chip

PUBLICATIONS

[2025]

Gelatin-Based Electrospun Nanofibers Varied in Morphologies with Poly(ethylene imine) and Poly(2-ethyl-2-oxazoline): Allantoin-Modified for Antimicrobial Skin Compatibility

Journal Name: ACS Applied Polymer Materials | **Publisher**: American Chemical Society (ACS)

Beycan,B., Kalkan Erdoğan,M.,Yangın, S., Yurdakok-Dikmen,B., Kiymaci,M., Karakışla, M.

[2025]

Tailoring Cotton Textile Properties with Hybrid, Janus, and Core-Shell Electrospun Waterborne Polyurethane/Polyethyleneimine Nanofibers: Investigating Hyaluronic Acid Functionalization for Enhanced Biocompatibility

Polymers for Advanced Technologies - Wiley

Journal Name: Polymers for Advanced Technologies | **Publisher**: Wiley

Beycan,B., Kalkan Erdoğan,M.,Yangın, S., Yurdakok-Dikmen,B., Karakışla, M.

[2025]

Designing Electrospun Nanofibers in the Distinct Morphologies from Poly(2-ethyl-2-oxazoline) and Waterborne Polyurethane on the Cotton Fabric: A Multifunctional Approach for Antimicrobial Activity and Its Interaction with SARS-CoV-2

European Polymer Journal

Journal Name: European Polymer Journal | **Publisher**: Elsevier

Beycan,B., Kalkan Erdoğan,M.,Kiymaci,M., Unal,N., Yangın, S., Yurdakok-Dikmen,B., Filazi,A., Karakışla, M., Sacak,M.

[2024]

Creating Safe, Biodegradable Nanofibers for Food Protection: A Look into Waterborne Polyurethane Electrospinning

Journal Name: Industrial & Engineering Chemistry Research | **Publisher**: American Chemical Society (ACS)

Beycan, B., Erdoğan, M. K., Sancak, E., Karakışla, M., Saçak, M., (2024).

[2024]

Exploring Waste Wool Derived-Keratin Nanofiber Architectures on Cotton Fabrics: Electrospinning Strategies for Enhanced Material Properties

American Chemical Society (ACS) Applied Polymer Materials
https://pubs.acs.org/doi/10.1021/acsapm.4c00603

Başbuğ, B., Beycan, B., Erdoğan, M. K., Karakışla, M., & Saçak, M. (2024)

[2024]

Development of a Conductive Polypyrrole and Magnetic Ferrite Particles Decorated-Polyester Nonwoven Composite as an Electromagnetic Interference Shield Material

https://doi.org/10.32710/tekstilvekonfeksiyon.1140423

Beycan, B.,Erdoğan,M.K.,Karakışla,M.,Saçak. 2024

[2024]

Cotton Reimagined: Surface Functionalization of Cotton Fabric Using Waterborne Polyurethane/Poly(2-ethyl 2-oxazoline) Blends for Biomedical Textiles

IUPAC MACRO 2024 THE 50TH WORLD POLYMER CONGRESS, Warwick University, UK (Oral presentation)

Beycan, B.,Erdoğan,M.K.,Karakışla,M.,Saçak, M. IUPAC MACRO 2024 THE 50TH WORLD POLYMER CONGRESS

[2023]

Revolutionizing Textile Properties: A Study on the Electrospinning of Biocompatible Polymer Blend onto Cotton Fabric

5th Euroasia Biochemical Approaches and Technologies, Antalya, Turkey (Oral presentation)

Beycan, B.,Erdoğan,M.K.,Karakışla,M.,Saçak, M. 5th Euroasia Biochemical Approaches and Technologies

Link: https://www.ebatcongress.org/dosyalar/belge/7294_5th EBAT Abstract Book v12_compressed.pdf

[2024]

Gluten Türevi Proteinlerle Emülsifiye Edilmiş Su Bazlı Poliüretan Liflerin Sentezi ve Karakterizasyonu: Çevre Dostu Malzemelere Yeni Bir Yaklaşım

Beycan, B.,Erdoğan,M.K.,Karakışla,M.,Saçak, M. IX. Polymer Science and Technology Congress, 16-18 Eylül 2024. Ankara, Türkiye

[2019]

Preparation of poly(ethylene teraphthalate)/Polypyrrole/Fe3O4 composite and investigation of its electromagnetic shielding effectiveness

International Conference on Engineering and Natural Science, 12-16 June 2019. Prague, Czech Republic

Beycan, B.,Erdoğan, M.K., M.,Saçak, M. International Conference on Engineering and Natural Science

RECOMMENDATIONS

Name: **Mehmet Saçak** | Prof. Dr.
Supervisor
Email: sacak@science.ankara.edu.tr

Name: **Meral Karakışla** | Prof. Dr.
Prof. Dr. Meral Karakışla at Ankara University
Email: meral.karakisla@gmail.com

Name: **Meryem Kalkan Erdoğan** | Assoc. Prof. Dr.
Assoc. Prof. Dr. Meryem Kalkan Erdoğan at Ankara University
Email: mkalkan@science.ankara.edu.tr

CERTIFICATES

[07/2024 – Current]
Organ on a Chip MasterClass

METU-Micro-Electro-Mechanical Systems (MEMS)

[07/2024 – Current]
Applied Computational Fluid Dynamics - Siemens

Coursera

[2025]
Molecular Modelling for Materials Science Applications - Polymeric Materials

Schrödinger

[2025]
Molecular Modelling for Materials Science Applications - Surface Chemistry

Schrödinger

[2025]
Molecular Modelling for Materials Science Applications - Battery Materials

Schrödinger

[2025]
Molecular Modelling for Materials Science Applications - Pharmaceutical Formulations

Schrödinger

[2025]
Molecular Modelling for Materials Science Applications - Homogeneous Catalysis and Reactivity

Schrödinger

[2025]
Molecular Modelling for Materials Science Applications - Consumer Packaged Goods

Schrödinger

[2018 – Current]
Scanning Electron Microscopy (SEM)

METU-SEM

[Current]
HPLC and GC-MS

IEMA

[2023]
XPS

Ege University - Central Research Test and Analysis Laboratory Application and Research Center

[2019]
Linux

METU-SEM

[2018]

Veri Madenciliği Eğitimi

METU-SEM

[2018]

ISO 9001-2008 Kalite Yönetim Sistemi İç Tetkikçi

TOBB ETÜ SEM