

Murat Özbayoğlu

Curriculum Vitæ

TOBB University of Economics and Technology
Department of Computer Engineering
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Areas of Interests

- Applied Computational Intelligence (for Finance, Manufacturing, Chemical Processes, Materials Science)
- Machine/Deep Learning and Pattern Recognition
- Data Science, Big Data Analytics, Internet of Things
- Computer Vision and Image Processing
- Evolutionary Computation

Education

- 1993
1996 **PhD Engineering Management**, *Missouri University of Science & Technology*, formerly known as University of Missouri-Rolla, **GPA: 3.82/4.0**, Rolla, MO, USA.
Thesis: Hierarchical Fingerprint Identification based on an Unsupervised Neural Network
- 1992
1993 **M.S. Engineering Management**, *Missouri University of Science & Technology*, **GPA: 3.91/4.0**, Rolla, MO, USA.
Emphasis on Information Technology, also completed 5 courses in Computer Science.
- 2019 **B.A. Philosophy**, *Distant Education*, Faculty of Art & Science, Istanbul University.
- 1987
1991 **B.S. Electrical Engineering**, *Middle East Technical University*, Ankara, Turkey.
Emphasis on Telecommunications and Computer

Employment History

- 2020 **Chairman**, *Faculty of Engineering*, Department of Artificial Intelligence Engineering. TOBB University of Economics and Technology (TOBB ETU), Ankara, Turkey
- 2019 **Visiting Scholar**, *E. L. Ginzton Laboratory*, Spilker Engineering and Applied Science Bldg. Stanford University, Stanford, CA 94305-4088
- 2005 **Faculty**, *Faculty of Engineering*, Department of Computer Engineering, TOBB ETU.
- 2001
2005 **Senior Programmer/Analyst**, *Manufacturing MIS Department*, St. Peters Plant. MEMC Electronic Materials, Inc., St. Louis, MO, USA
- 2001 **Software/Database Engineer**, *Vizyonsoft*, ARIA Mobile Services, Istanbul, Turkey.
- 1997
2001 **Software Engineer/Consultant**, *Beyond Inc.*, St. Peters, MO, USA.
- 1996
1997 **Product Development Engineer**, *Beyond Inc*, St. Peters, MO, USA.
- 1995
1996 **Industrial Engineer**, *Marathon Electric Co.*, West Plains, MO, USA.
- 1992
1995 **Graduate Research Assistant**, *Smart Engineering Systems Lab*. University of Missouri-Rolla, Rolla, MO, USA
- 1991
1992 **Technical Department Manager**, *Apple Center Senkron*, Ankara, Turkey.
- 1989 **Intern Electrical Engineer**, *Gold Fields of South Africa*, Johannesburg, RSA.

R&D and Project Experience

Principal Investigator

2016
2020

A Multi-Agent Simulation and Backtesting workbench software for Deep Learning and Evolutionary Algorithm based Options Trading Strategy Optimization,
*The Scientific and Technological Council of Turkey, TUBITAK 1001 project
Project No: 215M248, Duration: 42 months.*

Team 1 Principal Investigator, 1 consultant, 2 PhD students, 4 graduate students

Description Analysis and optimization of different option strategies for various market conditions using deep learning and evolutionary computation methodologies

Keywords Deep learning, financial markets, stock and option trading, multi-agent systems, evolutionary computation, options strategy optimization

2014
2016

ATM User Profiling and Menu Optimization,
*Ministry of Science, Industry and Technology SANTEZ project with PROVUS, A.S
Project No: STZ-0367-2013.2, Duration: 21 months.*

Team 1 Principal Investigator, 1 researcher, 2 graduate students

Description Creating customized user ATM menus optimized for faster navigation and efficiency.

Keywords Menu optimization, ETL, clustering, machine learning, evolutionary computation, computational intelligence, Hadoop Mapreduce, transaction forecasting

2008
2011

Determination Of Cuttings Transport Properties Of Gasified Drilling Fluids,
*The Scientific and Technological Council of Turkey, TUBITAK 1001 project
Project No: 108M106, Duration: 30 months.*

Team 1 Principal Investigator, 1 researcher, 2 PhD students, 1 graduate student

Description Analysis of multiphase gas-liquid-cuttings flow in eccentric annuli for extracting flow characteristics using image processing and computational intelligence techniques

Keywords Gas-liquid-cuttings flow, image processing, machine learning, computational intelligence, liquid holdup estimation, pressure drop estimation, horizontal or inclined annuli

Researcher

2018

Development of Advanced Machining Monitoring and Prediction Algorithms using Deep Learning for Industry 4.0,
*The Scientific and Technological Council of Turkey, TUBITAK 1001 project
Project No: 118M414, Duration: 24 months.*

Team 1 Principal Investigator, 1 researcher, 1 PhD and 1 graduate student

Description Develop deep learning based prediction models between process control and monitoring parameters and process consequences such as tool wear, tool breakage, and chatter for preventive maintenance

Keywords Deep learning, advanced process monitoring, computational intelligence, tool condition monitoring, Industry 4.0

2015

Establishing Crop Information System for Wheat Production to Sustain Food Security,
*The Scientific and Technological Council of Turkey, TUBITAK 3001 project
Project No: 115O850, Duration: 36 months.*

Team 1 Principal Investigator, 3 researchers, 1 graduate student

Description Analysis of wheat crop data using classical and machine learning techniques and provide a crop information system and database with a web interface

Keywords Crop information system, computational intelligence, field yield estimation, GIS

2013
2016

ECOMANINDUSTRY,

European Union FP7-LEAD-ERA Project, Duration: 36 months.

Team 3 international partners, 6 researchers, 2 programmers, 2 graduate students

Description Creating a web based software for data collection and identifying clean production and industrial symbiosis potentials for companies

Keywords Clean Production, Industrial Symbiosis, software development, database, GIS

2012
2015

A Virtual Factory Framework for SMEs,

Ministry of Science, Industry and Technology SANTEZ project with OSTIM Teknoloji, A.S, Duration: 36 months.

Team 1 Principal Investigator, 3 researchers, 1 PhD student, 3 graduate students

Description Development of an Ontology based Multi-Agent Operational Virtual Factory Framework for Production High Value Added Products by SMEs

Keywords Virtual Enterprise, ontology, multi-agent systems, partner selection, high value added products manufacturing

2009
2010

SIMOD - Simulation and Modeling for Coal Gasification,

Turkish Coal Industries Research project, Duration: 9 months.

Team 1 Principal Investigator, 4 researchers

Description Identifying and optimizing coal gasification parameters and modeling different coal gasification setups with Matlab and MFIX

Keywords Coal gasification, process optimization

Consultant

2020
2021

Smart Forestry - Automated Tree Trunk Volume Estimation,

BridgeWiz & Department of Forestry, Duration: 12 months.

Team 2 BridgeWiz Software Developers & 2 faculty from METU Civil Engineering Dept.

Description Consulting on developing computer vision and machine/deep learning models for automated tree detection and tree trunk diameter/volume estimation

Keywords Machine Learning, Deep Learning, Image Processing, Computer Vision, Object Detection

2018
2020

PrimeApps - Smart Application Development for SaaS Platforms,

The Scientific and Technological Council of Turkey, TUBITAK TEYDEB project with Ofisim.com, Duration: 18 months.

Team Ofisim.com team & 2 consultants from TOBB ETU

Description Consulting on machine learning models for developer and user comfort analysis for application development process with a recommendation engine for tool and command selection on the apps

Keywords Machine Learning, SaaS Platform, Application Development, Recommendation Engines, Data Mining

2016
2017

CyDecSys - Advanced Cybersecurity Decision Support System Development,

The Scientific and Technological Council of Turkey, TUBITAK TEYDEB project with STM A.Ş, Duration: 14 months.

Team STM team & 2 consultants from TOBB ETU

Description Development of rule-based and machine learning algorithms for vulnerability classification, pre-condition and postcondition analysis, attack graph generation

Keywords Machine Learning, Cybersecurity Vulnerability Classification

2015
2017

Big Data Analytics, STM Technology , Duration: 24 months.

Team STM R&D Department Researchers and Engineers

Description Technical consultancy in Big Data Analytics projects

Keywords Traffic Flow Analysis, Social Network Analysis, Forecasting Models, Data Science, User profiling

2014
2017

SEAS - Smart Energy Awareness System, Budget: 3,5 Million Euro
European Union H2020 Project, Duration: 36 months.

Team 21 international partners, 3 consultants from TOBB ETU

Description Developing a framework for smart grids for energy efficiency in producer-consumer networks and demonstrating the system on a micro-grid located in Ankara.

Keywords Smart Grid, Energy Efficiency, ontology, pattern recognition

2010
2011

Telegraph-A recommendation system for Interactive TV,
The Scientific and Technological Council of Turkey, TUBITAK TEYDEB project with ANEL-ARGE A.Ş, Duration: 10 months.

Team ANEL-ARGE team & 3 consultants from TOBB ETU

Description Development of a web-based interactive TV application providing a user information and recommendation system

Keywords Interactive TV, recommendation systems, software development

Teaching Experience

Undergraduate courses at TOBB ETU

BIL 001	Introduction to Computer Engineering	Fall '05
BIL 102	Programming with Java	Fall '05, Spring '06,'07,'08
BIL 106	Database Management	Spring '18
BIL 114	Programming with C/C++	Spring '12, Summer '12
BIL 132	Discrete Mathematics	Spring '07,'08,'09,'14,'15,'16,'17,'18,'19,'20, Summer '14,'15,'16,'17,'18,'20
BIL 331	Analysis of Algorithms	Fall '07,'08,'09, Spring '10,'11,'13,'14, Summer '11,'12
BIL 441	Artificial Intelligence	Fall '07,'08, Spring '10, Summer '13,'20
BIL 442	Artificial Neural Networks	Summer '16
BIL 443	Pattern Recognition	Fall '06,'09, Spring '09,'12, Summer '14,'17, '18
BIL 467	Image Processing	Fall '10, Spring '08

Graduate courses at TOBB ETU

BIL 531	Design and Analysis of Algorithms	Fall '07, Spring '06
BIL 574	Computational Intelligence in Finance	Spring '12,'15,'17
BIL 587	Computer Vision	Spring '19, Fall '19

Online courses (for Ahmet Yesevi University)

TBIL 403	Database Design and Management	Fall '12, Spring '13
TBIL 503	Graduation Design Project	Fall '12
	Artificial Intelligence (for Kazakhstan campus)	Fall '12

Invited talks / Tutorials / Short courses

- 2019 ● **Machine / Deep Learning Models for High Focus Ultrasound Imaging**, *Stanford University*, Stanford, CA 94305, California, 7 August 2019.
- 2018 ● **Deep Learning and Evolutionary Optimization Models for Algorithmic Trading**, *Nazarbayev University*, Astana, Kazakhstan, 23 November 2018.
- 2018 ● **Evolutionary Optimized Options Trading Strategies**, *Ankara University*, Ankara, 21 November 2018.
- 2018 ● **Algorithmic Trading Models**, *Capital Markets Board of Turkey, SPK.*, Istanbul, 14 November 2018.
- 2018 ● **Technical Analysis Optimization and Deep Learning based Algorithmic Stock Trading**, *IDEA Technology Solutions, Inc.*, Istanbul, 23 October 2018.
- 2018 ● **Algorithmic Trading with Evolutionary Algorithms and Deep Learning**, *TOBB University*, Ankara, 18 January 2018.
- 2017 ● **Machine Learning & Pattern Recognition Course**, *STM Inc.*, Ankara, 15-22 November 2017.
- 2017 ● **Open Data Analytics with Deep Learning**, *National Workshop on Big and Open Data*, Ministry of Telecommunications, Ankara, 23 May 2017.
- 2016 ● **Evolutionary Algorithms in Finance**, *Department of Computer Engineering Seminars*, TOBB University of Economics & Technology, Ankara, 16 November 2016.
- 2016 ● **Data Science in Cyber Environments**, *3rd Int. Cyber Security Workshop*, Gelisim University, Istanbul, 10-14 October 2016.
- 2016 ● **Data Science with Big Data**, *Data Science Meetup*, Bilkent Univ., Ankara, 25 January 2016.
- 2015 ● **Design and Development of an Ontology based Multi Agent Virtual Enterprise (OMAVE) System**, *Engineering Management and Systems Engineering Webex seminars*, Missouri University of Science and Technology, Rolla, MO, USA, 13 February 2015.
- 2014 ● **Pattern Recognition Course**, *Baskent Elektrik, ENERJISA Inc.*, Ankara, 4 September 2014.
- 2012 ● **Applications of Neural Networks**, *Department of Mathematics Seminars*, Ankara, 15 May 2012.

Industrial Experience

2001
2005

Senior Programmer/Analyst, MEMC Electronics Inc., St.Louis MO, USA.

Worked as a member of the Data Automation and Manufacturing MIS Group. Responsibilities include project leading, software development, maintaining and reporting for the plant-wide data collection and automation systems.

Highlights:

- Investigated hardware and software platforms to determine approved devices for special client needs and provided the appropriate requirements;
- Developed GUIs and APIs for wafer manufacturing and test equipments for engineers and technicians;
- Developed three-tier systems (Windows-Unix-Oracle) for client/server applications for data retrieval, querying and reporting tools for plant-wide usage;
- Developed low-level services for wafer manufacturing equipments and processes;
- Provided 24/7 technical assistance for the developed data automation systems;
- Implemented Software Development Life Cycle (SDLC) model in every stage of the software development process during the automation projects;

Noteworthy Projects and Tasks:

- Team Leader in Automated Label Printing System for Wafer Cassette Labels Project (VB, ActiveX, SQL, SAP)
- Team leader in Lasermark Verification Application Project for wafer mix prevention (CellWorks, SQL);
- Team leader in ADE Wafer Thickness and Resistivity Automated Data Collection and GUI development (CellWorks, SQL, VB);
- Tencor and CR80 Wafer Particle Count Data Collection System (Cellworks, SQL);
- Final Shipping Automated Shipment Verification Application (C);
- Automated SPC System and GUI Development in Etching, Lapping and Polishing Departments (VB, Cellworks, SQL);

2001

Software/Database Engineer, Vizyonsoft, contracted to ARIA Mobile Serv., Istanbul, Turkey.

Worked as a member of the Infrastructure, Software and Database Technical Support team for the newly-formed third mobile telecom service provider in Turkey for a 4 month project

1997
2001

Software Engineer/Consultant, Beyond Inc. contracted to MEMC Electronics Inc., St.Louis MO, USA.

Worked as a consultant/project manager in MEMC QRDAP (Quality Renewal Data Automation Project) and developed data collection / process control applications

1996
1997

Product Development Engineer, Beyond Inc., St.Louis MO, USA.

Worked on developing specific hardware/software tools for enhancing wafer manufacturing data automation systems and also implemented various in-house software applications.

Highlights:

- Implemented the design and development (hardware and software) of Silicount (Wafer Counter) which is an automated wafer counting device using opto-electronic circuitry to provide the capability of touchless accurate wafer count in a cassette which is crucial in Silicon Wafer Manufacturing Industry. Several of them are being used on production floor in MEMC Electronics.
- Developed the software and database for Beyond Inc. Inventory Control and GUI;
- Developed an expert system for parts and components identification for wafer polishing equipments;

1995
1996

Industrial Engineer, Marathon Electric Co., West Plains, MO, USA.

Worked as a co-op industrial engineer in electrical motor production facility. Responsibilities include the development of the production standards for various departments, MTM studies, process design and maintenance, factory layout, scheduling and routings

1991

Technical Department Manager, Senkron Apple Center, Ankara, Turkey.

Responsibilities include organizing the technical service and the distribution of Apple Computers to several private and government offices in Ankara. Management of technical support, presentations, developing in-house software, building systems and networks, installations and troubleshooting for Apple computer systems were also included in the job duties

1990

Intern Electrical Engineer, Vega Electromech Systems Inc., Ankara, Turkey.

Worked on technical support and installation of biomedical systems, such as sterilizers, ECG systems, surgical instruments, etc.

1989

Electrical Engineering Summer Practice, *Gold Fields of South Africa*, Johannesburg, RSA.
Worked in the project group on planning and developing the power distribution of Kloof Gold Mine, one of the largest in the world

Computer Skills

Systems Windows, UNIX, Linux, Apple OS

Program Java, Python, C, C#, C++, Pascal, Fortran, Visual Basic, Prolog

Web HTML/XHTML, Javascript, PHP, ASP, FrontPage, Dreamweaver

Office Word, Excel, Powerpoint, OpenOffice

Database MS Access, MSSQL, MySQL, Post-GreSQL, SQLLite, PL-SQL, Oracle

Scientific Matlab, Mathcad

Analysis WEKA, R, Tanagra, Neurosolutions

Imaging Coreldraw, Photoshop, Pagemaker, XView, GIMP

Automation Cellworks, Factoryworks

Project M. MS Project, Git

Source Ctr SVN, Github

Other Bibtex, L^AT_EX, T_EX

Languages

Turkish **Native**

Mother Tongue

English **Fluent**

Daily practice, All work performed in English

Polish **Beginner**

Some practice, One semester beginning level class

Books

2015

Akın Ömer and **Özbayoğlu A. Murat**. *Ayrı Matematik ve Uygulamaları - Translation of Discrete Mathematics and its Applications, 7th edition by Kenneth Rosen*. Palme Yayıncılık.

2007

Yazıcı Ali, Doğdu Erdoğan, **Özbayoğlu A. Murat**, Erten Y. Murat, and Ergin Oğuz. *Introduction to Java Programming (in Turkish)*. Palme Yayıncılık.

Book Chapters

2017

A. Murat Özbayoğlu. "Open Data Analytics with Deep Learning". In: ed. by Şeref Sağiroğlu Orhan Koç. *Big Data and Open Data Analytics: Methods and Applications (in Turkish)*. Grafiker. Chap. 7, pp. 115–130.

SCI Journal Publications

2020

Ozbayoglu, A.M., Güdelek, M.U., and Sezer, Ö.B. "Deep learning for financial applications: A survey". *Applied Soft Computing* 93.106384, DOI:10.1016/j.asoc.2020.106384.

2020

Serin, G., **Ozbayoglu, A.M.**, and Ünver, H.Ö. "Integrated energy-efficient machining of rotary impellers and multi-objective optimization". *Materials and Manufacturing Processes* 35.4, pp. 478–490.

2020 Serin, G., Sener, B., **Ozbayoglu, A.M.**, and Ünver, H.Ö. "Review of tool condition monitoring in machining and opportunities for deep learning". *The International Journal of Advanced Manufacturing Technology*.

2020 Sezer, Ö.B., Güdelek, M.U., and **Ozbayoglu, A.M.** "Financial time series forecasting with deep learning: A systematic literature review: 2005–2019". *Applied Soft Computing* 90.106181, DOI:10.1016/j.asoc.2020.106181.

2020 Sezer, Ö.B. and **Ozbayoglu, A.M.** "Financial Trading Model with Stock Bar Image Time Series with Deep Convolutional Neural Networks". *Intelligent Automation and Soft Computing* 26.2, DOI: 10.31209/2018.100000065.

2019 **Ozbayoglu, A.M.**, Akbaş, A., Yıldız, H.U., and Tavlı, B.B. "Neural Network based Instant Parameter Prediction for Wireless Sensor Network Optimization Models". *Wireless Networks* 25.6, 3405–3418, DOI:10.1007/s11276–018–1808–y.

2019 Tombul, H., **Ozbayoglu, A.M.**, and Ozbayoglu M.E. "Computational Intelligence Models for PIV based Particle (Cuttings) Direction and Velocity Estimation in Multi-Phase Flows". *Journal of Petroleum Science and Engineering* 172, 547–558, DOI:10.1016/j.petrol.2018.09.071.

2018 Ozbayoglu M.E., Erge, O., and **Ozbayoglu, A.M.** "Predicting the pressure losses while the drillstring is buckled and rotating using artificial intelligence methods". *Journal of Natural Gas Science and Engineering* 56, 72–80, DOI:10.1016/j.jngse.2018.05.028.

2018 Seyfioğlu, M.S., **Ozbayoglu, A.M.**, and Gürbüz, S.Z. "Deep Convolutional Autoencoder for Radar-Based Classification of Similar Aided and Unaided Human Activities". *IEEE Transactions on Aerospace and Electronic Systems* 54.4, 1709–1723, DOI: 10.1109/TAES.2018.2799758.

2018 Sezer, Ö.B., Dogdu, E., and **Ozbayoglu, A.M.** "Context Aware Computing, Learning and Big Data in Internet of Things: A Survey". *IEEE Internet of Things Journal* 5.1, 1–27, DOI: 10.1109/JIOT.2017.2773600.

2018 Sezer, Ö.B. and **Ozbayoglu, A.M.** "Algorithmic Financial Trading with Deep Convolutional Neural Networks: Time Series to Image Conversion Approach". *Applied Soft Computing* 70, 525–538, DOI:10.1016/j.asoc.2018.04.024.

2017 Sadigh, B. Lotfi, Nikghadam, S., **Ozbayoglu, A.M.**, Ünver, H.O., Dogdu, E., and Kilic, S.E. "An ontology-based multi-agent virtual enterprise system (OMAVE): part 2: partner selection". *International Journal of Computer Integrated Manufacturing*, DOI:10.1080/0951192X.2017.1285424, 31 January 2017.

2016 Sadigh, B. Lotfi, Nikghadam, S., Ünver, H.O., **Ozbayoglu, A.M.**, and Kilic, S.E. "An ontology-based multi-agent virtual enterprise system (OMAVE): part 1: domain modelling and rule management". *International Journal of Computer Integrated Manufacturing*, DOI: 10.1080/0951192X.2016.1145811, 19 February 2016.

2015

Nikghadam, S., Sadigh, B., Lotfi, **Ozbayoglu, A.M.**, Unver, H.O., and Kilic, S.E. "A survey of partner selection methodologies for virtual enterprises and development of a goal programming-based approach". *International Journal of Advanced Manufacturing Technology*, 1–22, DOI 10.1007/s00170-015-8068-0, 12 November 2015.

2015

Osgouei, R.E., Özbayoğlu, E., **Özbayoğlu, M.**, and Yüksel, E. "A new model to determine the two phase drilling Fluid Behaviors through Horizontal Eccentric Annular Geometry, Part A: Flow Pattern Identification and Liquid Holdup Estimation". *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects* 37.15, 1663–1673, DOI: 10.1080/15567036.2011.574192, 13 July 2015.

2015

Osgouei, R.E., Özbayoğlu, E., **Özbayoğlu, M.**, and Yüksel, E. "A new model to determine the two phase drilling Fluid Behaviors through Horizontal Eccentric Annular Geometry, Part B: Frictional Pressure Losses Estimation". *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects* 37.16, 1756–1765, DOI: 10.1080/15567036.2011.561275, 15 July 2015.

2015

Osgouei, Reza Etehad, **Özbayoğlu, A. Murat**, Ozbayoglu, Evren M., Yuksel, Ertan, and Eresen, Aydin. "Pressure drop estimation in horizontal annuli for liquid-gas 2 phase flow: Comparison of mechanistic models and computational intelligence techniques". *Computers & Fluids* 112, 108–115, DOI: 10.1016/j.compfluid.2014.11.003, 2 May 2015.

2014

Sorgun, Mehmet, **Özbayoğlu, A Murat**, and Ozbayoglu, M Evren. "Support Vector Regression and Computational Fluid Dynamics Modeling of Newtonian and Non-Newtonian Fluids in Annulus With Pipe Rotation". *Journal of Energy Resources Technology* 137.3, 5 pages, paper No 032901, DOI: 10.1115/1.4028694, 21 October 2014.

2013

Özbayoğlu, AM, Kasnakoglu, C, Gungor, A, Biyikoglu, A, and Uysal, BZ. "A Two-Stage Water-Gas Shift Reactor Model To Obtain Desired Synthesis Gas Characteristics With Adjustable Reactor Parameters". *Journal of The Faculty of Engineering And Architecture of Gazi University* 28.2, 339–351, June 2013.

2013

Sorgun, Mehmet, Osgouei, Reza E, Ozbayoglu, M Evren, and **Özbayoğlu, A Murat**. "Gas-Liquid Flow Through Horizontal Eccentric Annuli: CFD and Experiments Compared". *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects* 35.10, 891–899, DOI: 10.1080/15567036.2011.559524, 8 April 2013.

2012

Gungor, Afsin, **Özbayoğlu, Murat**, Kasnakoglu, Cosku, Biyikoglu, Atilla, and Uysal, Bekir Zuhtu. "A parametric study on coal gasification for the production of syngas". *Chemical Papers* 66.7, 677–683, DOI: 10.2478/s11696-012-0164-0, July 2012.

2012

Özbayoğlu, A Murat and Yuksel, H Ertan. "Analysis of gas-liquid behavior in eccentric horizontal annuli with image processing and artificial intelligence techniques". *Journal of Petroleum Science and Engineering* 81.1, 31–40, DOI: 10.1016/j.petrol.2011.12.008, January 2012.

2012

Ozbayoglu, Mehmet, Osgouei, Reza, **Özbayoğlu, Murat**, and Yuksel, Ertan. "Hole Cleaning Performance of Gasified Drilling Fluids in Horizontal Well Sections". *SPE Journal* 17.3, 912–923, DOI: 10.2118/131378-PA, September 2012.

2009

Ozbayoglu, E.M. and **Özbayoğlu, A M.** “Estimating flow patterns and frictional pressure losses of two-phase fluids in horizontal wellbores using artificial neural networks”. *Petroleum Science and Technology* 27.2, 135–149, DOI: 10.1080/10916460701700203, 27 January 2009.

2008

Özbayoğlu, Gülhan, **Özbayoğlu, A Murat**, and Özbayoğlu, M Evren. “Estimation of Hardgrove grindability index of Turkish coals by neural networks”. *International Journal of Mineral Processing* 85.4, 93–100, DOI: DOI: 10.1016/j.minpro.2007.08.003, 31 January 2008.

Other Journals

2017

Adalı, S.F., Demirci, M.F., and **Ozbayoglu, A.M.** *Automated Image Matching and New Readings for Cyrus the Great's 547 BC Campaign in the Nabonidus Chronicle (BM 35382 = ABC 7)*. *Die Welt des Orients* vol. 47, (2), pp. 153–185.

2016

Agca, M. Akif, Atac, Senol, Yucesan, M. Mert, Kucukayan, Gokhan Y., **Ozbayoglu, A. Murat**, and Dogdu, Erdogan. *Opinion Mining of Microblog Texts on Hadoop Ecosystem*. Ed. by 2nd IBM Cloud Academy Conference. *International Journal of Cloud Computing* vol. 5.1-2, 79–90, DOI: 10.1504/IJCC.2016.075096.

2015

Nikghadam, S., Lotfi Sadigh, B., **Ozbayoglu, A. M**, Unver, H. O., and Kilic, S. E. *Evaluation of Partner Companies based on Fuzzy Inference System for Establishing Virtual Enterprise Consortium*. *Lecture Notes in Computer Science – CCIS Communications in Computer Science* vol. 577, 104–115, DOI: 10.1007/978-3-319-27680-9_7, 15 Dec 2015.

2014

Adalı, Selim F., Demirci, M. Fatih, **Özbayoğlu, A. Murat**, and Ergin, Oğuz. *Why the Names? Anubanini and His Clan in the Cuthaeen Legend*. *Journal of the Ancient History and Cultures of the Eastern Mediterranean* vol. 11, pp. 15–29.

2011

Güngör, A., **Ozbayoglu, A.M.**, Kasnakoglu, C., Biyikoglu, A., and Uysal, B.Z. *Determination of Air/Fuel and Steam/Fuel Ratio for Coal Gasification Process to Produce Synthesis Gas*. *Journal of Environmental Science and Engineering* vol. 5.5, pp. 799–804.

Conference Publications

2019

Erkut, U., Bostancioğlu, F., Erten, Y.M., **Ozbayoglu, A.M.**, and Solak, E. “HSV color histogram based image retrieval with background elimination”. *IEEE 1st International Informatics and Software Engineering Conference (UBMYK)*.

2019

Maratkhan, A., Ilyassov, I., Aitzhanov, M., Demirci, M.F., and **Ozbayoglu, A.M.** “Financial Forecasting using Deep Learning with an optimized trading strategy”. *IEEE Congress on Evolutionary Computation (CEC)*, pp. 838–844.

2019

Ozbayoglu, A.M. “Unsupervised Fingerprint Classification with Directional Flow Filtering”. *IEEE 1st International Informatics and Software Engineering Conference (UBMYK)*.

2019

Yıldırım, E.O. and Uçar, M. and **Ozbayoglu, A.M.** “Evolutionary optimized stock support-resistance line detection for algorithmic trading systems”. *IEEE 1st International Informatics and Software Engineering Conference (UBMYK)*.

- 2018 Aksu, U., Bıçakçı, K., Dilek, H., and **Ozbayoglu, A.M.** "Automated Generation Of Attack Graphs Using NVD". *CODASPY '18 Eighth ACM Conference on Data and Application Security and Privacy*. Tempe, AZ, 19-21 March, 2018, 135–142, DOI:10.1145/3176258.3176339.
- 2018 Dogdu, E., **Ozbayoglu, A.M.**, Yazıcı, A., and Karakaya, Z. "Perceptions, Expectations and Implementations of Big Data in Public Sector". *UBMK 18, International Conference on Computer Engineering*. 20-23 September, Sarajevo, Bosnia-Herzegovina.
- 2018 Güdelek, U., Çırak, C., Arın, E., Sezgin, E., **Ozbayoglu, A.M.**, and Göl, M. "Load and PV generation Forecast based Cost Optimization for Nanogrids with PV and Battery". *53rd International Universities Power Engineering Conference (UPEC)*. 4-7 September, Glasgow, Scotland.
- 2018 Önal, A.C., Sezer, Ö.B., **Ozbayoglu, A.M.**, and Dogdu, E. "MIS-IoT: Modular Intelligent Server based Internet of Things Framework with Big Data and Machine Learning". *IEEE International Conference on Big Data, 2018*. Seattle, WA, USA, 10-13 December 2018, pp. 2270–2279.
- 2018 Sarı, M. and **Ozbayoglu, A.M.** "Classification of Turkish Documents using Paragraph Vector". *International Artificial Intelligence and Data Processing Symposium*. 27-28 September, Malatya, Turkey.
- 2018 Sarıkan, S.S. and **Ozbayoglu, A.M.** "Anomaly Detection in Vehicle Traffic with Image Processing and Machine Learning". *Complex Adaptive Systems 2018*. 5-7 November, Chicago, IL, USA, pp. 64–69.
- 2018 Ufuk, D.U., Temizel, A., and **Ozbayoglu, A.M.** "Optimized GPU Implementation of JPEG 2000 for Satellite Image Decompression". *CSE 2018, 21st IEEE International Conference on Computational Science and Engineering*. 29-31 October, Bucharest, Romania.
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Sadigh, B Lotfi, Nikghadam, S., Unver, H. O., **Özbayoğlu, A.M.**, and Kilic, S. E. *Operasyonel Sanal Fabrika için Esnek Veri Modeli ve Veritabanının Geliştirilmesi (in Turkish)*. 5th Workshop on Advanced Technologies, İstanbul, October 2014.

2011

Özbayoğlu, A.M., Osgouei, R.E., Özbayoğlu, M.E., and Yüksel, H.E. *Gaz sıvı karışımı sondaj akışlarının kesinti (kırıntı) taşıma özelliklerinin tayini (Determination of Cuttings Transport Properties of Aerated Drilling Fluids)*. IPETGAS 2011, Ankara-Turkey.

2009

Ozbayoglu M.E., **Ozbayoglu A.M.**, Osgouei R.E., and Yuksel E. *Determination of Cutting Concentration through Horizontal Annular Geometry by using Image Processing Techniques*. IPETGAS 09, Ankara - Turkey.

2009

Ozbayoglu M.E., **Ozbayoglu A.M.**, Osgouei R.E., and Yuksel E. *Determination of Liquid Hold up through Horizontal Annular Geometry by using Image Processing Techniques*. IPETGAS 09, Ankara-Turkey.

Thesis

1996

Ozbayoglu, Ahmet Murat. "Hierarchical fingerprint identification based on an unsupervised neural network model". PhD thesis. Engineering Management Dept, University of Missouri-Rolla.

Students Supervised

PhD Students

2014

Mustafa Uçar, *ongoing*.

2015

Uğur Şahin, *ongoing*.

2017

Muhammed Yılmaz, *ongoing*.

2019

Uğur Güdelek, *ongoing*.

2014

2018

Ömer Berat Sezer, *Thesis*: Analysis and Optimization of Time Series Data with Deep Artificial Neural Networks: Financial Estimation Algorithms.

2011

2016

Ayhan Akbaş, *Thesis*: Joint Optimization of Transmission Power Level and Data Packet Size for Wireless Sensor Network Lifetime Maximization, co-supervised with Bulent Tavli.

M.S. Students

2019

Mustafa Mert Keskin, *ongoing*.

2018

Barış Güney Özdilli, *ongoing*.

2018

Erdem Karaosmanoğlu, *ongoing*.

2018

Furkan Koç, *ongoing*.

2016

2019

Uğur Güdelek, *Thesis*: Time Series Analysis and Forecasting: Deep Learning Approach.

2016

2019

Derviş Utku Ufuk, *Thesis*: Performance Optimization of JPEG 2000 Decompression for Ground Observation Satellite Operations.

2015

2019

Aras Can Önal, *Thesis*: MISIoT-Modular Intelligent Server Based Internet of Things Framework.

2016

2018

Mustafa Sarı, *Thesis*: Classification of Turkish Documents using Deep Learning Techniques.

2015

2017

Mehmet Saygın Seyfioğlu, *Thesis*: Deep Neural Network Initialization and Training Methodologies for Radar Micro Doppler Signature Classification, co-supervised with Sevgi Zubeyde Gurbuz, Melda Yuksel.

2013

2016

Gökhan Küçükayan, *Thesis*: Analysis of the Traffic Flow and Accidents with Big Data Algorithms.

2014

2016

Ceyhun Karimov, *Thesis*: Menu Optimization with Large-Scale Data.

2011

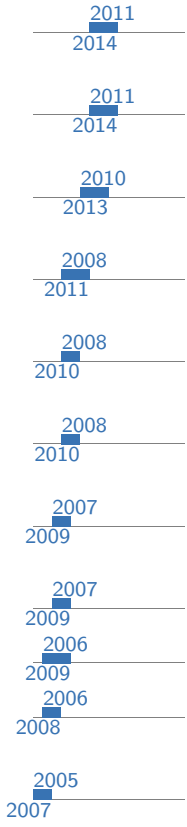
2014

Uğur Şahin, *Thesis*: Parameter Optimization of Oscillator-based Technical Analysis Indicators Using Evolutionary Algorithms on Trend-normalized Financial Data.

2011

2014

Mustafa Uçar, *Thesis*: Developing a Two Level Option Trading Strategy based on Option Pair Optimization of Spread Strategies with Evolutionary Algorithms.



Fatih Arıkan, Thesis: A Multi-Agent System Model for Company Selection Process in an Ontology-based Virtual Enterprise.

İlknur Bayram, Thesis: Three Level Covered Call Options Trading Model Optimized with Evolutionary Algorithms.

Hatice Tombul, Thesis: Computational Intelligence Models for Particle Direction and Velocity Estimation in Multi-Phase Flows.

Recep Bozer, Thesis: Estimation of the Expected Loss from a Forest Fire by Geographical and Meteorological Parameters using Artificial Intelligence Methods.

Umur Erkut, Thesis: Selection of Technical Analysis Indicator for Optimizing Portfolio Performance with Genetic Algorithms.

H. Ertan Yüksel, Thesis: Estimation of Flow Properties in Eccentric Annulus using Digital Image Processing and Artificial Intelligence Techniques.

Gökay Gökser Gül, Thesis: Object Extraction from Real Time Video Image and an Automated Object Tracking Application.

İstemihan Şakir Kök, Thesis: An Indoor Localization System.

Zeynep Aydın, Thesis: Estimating Flow Control with Genetic Programming.

İsmet Bahadır, Thesis: Stock Market Forecasting based on Bayesian Decision Theory and Artificial Neural Networks.

Veli Mert Altaş, Thesis: Extracting the features of Drilling Foams with Image Processing Techniques and Data Analysis using Artificial Neural Networks.

Academic Activities

Program / Organizing Committee

- Complex Adaptive Systems Conference, USA
- Complexis International Conference on Complex Information Systems, Italy
- Ulusal Karmaşık Dinamik Sistemler ve Uygulamaları Çalıştayı

Journal Refereeing

- ACM Transactions on the Web, Applied Computational Intelligence and Soft Computing, Applied Soft Computing, Artificial Intelligence Review, Computational Economics, Computers & Security, Ekonomik Yaklaşım, Expert Systems with Applications, Financial Innovation, Gazi University Faculty of Engineering and Architecture Journal, Geomatics, Natural Hazards and Risk, IEEE Access, IEEE Transactions on Automation Science and Engineering, IEEE Transactions on Industrial Informatics, IEEE Transactions on Intelligent Transportation Systems, IEEE Transactions on Parallel and Distributed Systems, Industrial Marketing Management, Information Fusion, Information Processing and Management, Intelligent Automation and Soft Computing, International Journal of Electrical and Computer Engineering, International Journal of General Systems, International Journal of Intelligent Systems and Applications in Engineering, International Journal of Mineral Processing, International Journal of Multiphase Flow, International Journal of Oil, Gas and Coal Technology, International Journal of Semantic Computing, Internet of Things, Journal of Ambient Intelligence and Humanized Computing, Journal of Petroleum Science and Engineering, JKU-Computer and Information Sciences, Journal of Mobile Multimedia, Journal of Sensors, Knowledge-Based Systems, The Engineering Economist, Politeknik, Progress in Artificial Intelligence, Recent Advances in Computer Science and Communications, Technical Gazette, Transactions of the Institute of Measurement and Control, Turkish Journal of Electrical Engineering and Computer Sciences

Conference Refereeing

- Artificial Neural Networks in Engineering, Complex Adaptive Systems, Complexis (International Conference on Complex Information Systems), ELECO - Uluslararası Elektrik-Elektronik Mühendisliği Konferansı, International Conference on Intelligent Control Systems and Signal Processing, IEEE International Conference on Big Data, IEEE Semantic Computing for Social Networks Workshop (SCNC), IEEE SİU Sinyal İşleme Uygulamaları, IEEE Wireless Communications and Networking Conference (WCNC), Turkish Computing Society (TBD) Workshop, TOK - Turkish Automated Control Conference, UBMK - Uluslararası Bilgisayar Mühendisliği Konferansı, UMTİK - Uluslararası Makina Tasarım ve İmalat Konferansı

Service Activities

Scientific Committees

- The Scientific and Technological Council of Turkey, TUBITAK R & D (ARDEB) Project Evaluation Committee
- The Scientific and Technological Council of Turkey, TUBITAK Industrial R & D Committee for Small Enterprises
- Ministry of Science, Industry and Technology, TEKNOGİRİŞİM Startup Business Grant Selection Committee
- Ministry of Science, Industry and Technology, SANTEZ Industrial R & D Committee

Industrial Project Refereeing / Monitoring

- The Scientific and Technological Council of Turkey, TUBITAK TEYDEB Industrial R & D Project Refereeing
- The Scientific and Technological Council of Turkey, TUBITAK TEYDEB Industrial R & D Project Monitoring
- The Scientific and Technological Council of Turkey, TUBITAK Industrial R & D Center Monitoring
- Turkish Computing Society (TBD) Artificial Intelligence Applications Committee Leader
- UNESCO Turkey Branch Artificial Intelligence Advisory Board Member

University Activities

2009

2013

Department Vice Chairman, *TOBB University of Economics and Technology*, Department of Computer Engineering.

2010

Institutional Graduate Erasmus Coordinator, *TOBB University of Economics and Technology*.

2010

2012

Faculty Management Committee Member, *TOBB University of Economics and Technology*, Faculty of Engineering.

2010

2012

Web Committee Member, *TOBB University of Economics and Technology*.

2011

2012

ABET Committee Member, *TOBB University of Economics and Technology*.

2009

2011

Undergraduate Program Evaluation Committee Member, *TOBB University of Economics and Technology*.

2009

2010

Undergraduate Registration Committee Member, *TOBB University of Economics and Technology*.

2006

Departmental Erasmus Coordinator, *TOBB University of Economics and Technology*, Department of Computer Engineering.

Memberships to Professional Societies

- ACM (Association for Computing Machinery) Member
- IEEE (Institute of Electrical and Electronics Engineers) Member
- IEEE Computational Intelligence Society Member

Certificates and Achievements

- Sun Java Programmer Certificate
- Top %0.1 in National Centralized University Entrance Examination in Turkey
- 3rd place in TUBITAK Mathematics Competition for Middle School Students in Central Turkey Region
- 2nd place in TUBITAK Chemistry Competition for High School Students in Central Turkey Region
- Licensed DJ in 89.7 FM KMNR-Rolla, MO, USA

References

- Available upon request