Ethem Çanakoglu, Ph.D.

http://akademik.bahcesehir.edu.tr/web/ethemcanakoglu/

Research Interests

- Data analytics and applications
- Stochastic dynamic programming and its applications to financial engineering.
- Decision making under uncertainty.
- Data-driven decision making.
- Probability theory and stochastic processes.
- Commodity price modelling.
- Risk management in energy related problems.
- Scheduling.

Employment History

2012 – · · · · **Bahçeşehir University** **Istanbul/Turkey**
Assistant Professor in Industrial Engineering

• **Teaching**: Basics of Industrial Computing (2nd year), Statistics in Engineering (2nd year), Operations Research (service), Engineering Economy (3rd year), Financial Engineering (4th year), Introduction to Probability Models (MS), Risk Management (MS), Applied Optimization Techniques (MS), Financial Econometrics (Ph.D. in Finance), Stochastic Models (Ph.D. in IE)

• **Supervision**: Final year student projects.

• Master of Science in Industrial Engineering program coordinator.

2009 – 2012 **Warwick Business School** **Coventry /UK**
Research Fellow

• Working on the Defence Technology Centre (DTC) project funded by BAE Systems

• Designing of generic robust modelling framework and developing computational tools for mission planning and multi-agent decision-making under uncertainty.

• Modelling disruption risk on commodity prices using diffusion processes.

• Teaching: Mathematical Programming course nonlinear programming part.

• Assisted courses such as Mathematical Programming and Quantitative Methods for Resource Management.

• Supervised Ms level projects

2004 – 2009 **Koç University** **Istanbul/Turkey**
Research / Teaching Assistant

• Research: Dynamic Programming and Optimal Control applied to Financial Engineering

• Courses assisted: Stochastic Processes, Heuristic Models, Stochastic Models, Financial Engineering and Statistics

• Activities: Tutorials and lab sessions, marking coursework and taking administrative duties.

• Supervision: Final year undergraduate student projects.

Education

2004 — 2009 **Koc University** **Istanbul/Turkey**
Ph.D. Industrial Engineering & Operations Management (GPA: 3.93/4.00)
Thesis title: *Portfolio Selection in Stochastic Markets: Utility Based Approach.*
Advisor : Prof. Dr. Süleyman Özekici

2000 —2004 **Boğaziçi University** **Istanbul/Turkey**
M.S. Industrial Engineering (GPA: 3.19/4.00)
Thesis title: *Competitive Models of Telecommunication Supply Chains.* (Contract coordination between the vendor and the operator.)
Advisor : Prof. Dr. Taner Bilgiç

1995 – 2000 **Boğaziçi University** **Istanbul/Turkey**
B.S. Electrical and Electronics Engineering (GPA: 3.33/4.00)
Student Assistant in Industrial Engineering Department BUPAM (Bogaziçi University Pattern Analysis and Machine Vision) Laboratory

Research Publications

Journal Articles

1. **Çanakoğlu, E.** & Muter, İ. (2020). Identical parallel machine scheduling with discrete additional resource and an application in audit scheduling. *International Journal of Production Research*, 1–16.

2. **Çanakoğlu, E.**, Muter, İ., & Aytekin, T. (2020). Diversity based recommender systems: a genetic programming approach. Accepted for publication.

3. Adıyeke, E., **Çanakoğlu, E.**, & Ağralı, S. (2019). Risk averse investment strategies for a private electricity generating company in a carbon constrained environment. *Journal of the Operational Research Society*, 1–13. **doi:**10.1080/01605682.2018.1535265

4. Yahşi, M., **Çanakoğlu, E.**, & Ağralı, S. (2019). Carbon price forecasting models based on big data analytics. *Carbon Management*, *10*(2), 175–187. **doi:**10.1080/17583004.2019.1568138

5. **Çanakoğlu, E.**, Adıyeke, E., & Ağralı, S. (2018). Modeling of carbon credit prices using regime switching approach. *Journal of Renewable and Sustainable Energy*, *10*(3), 035901. **doi:**10.1063/1.4996653

6. **Çanakoğlu, E.**, Erzurumlu, S. S., & Erzurumlu, Y. O. (2018). How data-driven entrepreneur analyzes imperfect information for business opportunity evaluation. *IEEE Transactions on Engineering Management*, (99), 1–14. **doi:**10.1109/TEM.2018.2826983

7. Gülpınar, N., **Çanakoğlu, E.**, & Branke, J. (2018). Heuristics for the stochastic dynamic task-resource allocation problem with retry opportunities. *European Journal of Operational Research*, *266*(1), 291–303. **doi:**10.1016/j.ejor.2017.09.006

8. Ağralı, S., Terzi, F., **Çanakoğlu, E.**, Adıyeke, E., & Arıkan, Y. (2017). Energy investment planning at a private company: a mathematical programming-based model and its application in Turkey. *IEEE Transactions on Power Systems*, *32*(6), 4180–4187. **doi:**10.1109/TPWRS.2017.2676819

9. Gülpınar, N. & **Çanakoğlu, E.** (2017). Robust portfolio selection problem under temperature uncertainty. *European Journal of Operational Research*, *256*(2), 500–523. **doi:**10.1016/j.ejor.2016.05.046

10 Gülpınar, N., Pachamanova, D., & **Çanakoğlu, E.** (2016). A robust asset–liability management framework for investment products with guarantees. *OR Spectrum*, *38*(4), 1007–1041. **doi:**10.1007/s00291-016-0437-z

11 Gülpınar, N., **Çanakoğlu, E.**, & Pachamanova, D. (2014). Robust investment decisions under supply disruption in petroleum markets. *Computers & Operations Research*, *44*, 75–91. **doi:**10.1016/j.cor.2013.08.006

12 Gülpınar, N., Pachamanova, D., & **Çanakoğlu, E.** (2013). Robust strategies for facility location under uncertainty. *European Journal of Operational Research*, *225*(1), 21–35. **doi:**10.1016/j.ejor.2012.08.004

13 **Çanakoğlu, E.** & Özekici, S. (2012). Hara frontiers of optimal portfolios in stochastic markets. *European Journal of Operational Research*, *221*(1), 129–137. **doi:**10.1016/j.ejor.2011.10.012

14 **Çanakoğlu, E.** & Özekici, S. (2011). Portfolio selection with imperfect information: a hidden markov model. *Applied Stochastic Models in Business and Industry*, *27*(2), 95–114. **doi:**10.1002/asmb.885

15 **Çanakoğlu, E.** & Özekici, S. (2010). Portfolio selection in stochastic markets with hara utility functions. *European Journal of Operational Research*, *201*(2), 520–536. **doi:**10.1016/j.ejor.2009.03.017

16 Gülpınar, N., **Çanakoğlu, E.**, & Thoms, J. (2010). Robust team decision-making under uncertainty. *International Journal of Applied Decision Sciences*, *3*(3), 206–220. **doi:**10.1504/IJADS.2010.036099

17 **Çanakoğlu, E.** & Özekici, S. (2009). Portfolio selection in stochastic markets with exponential utility functions. *Annals of Operations Research*, *166*(1), 281. **doi:**10.1007/s10479-008-0406-2

18 **Çanakoğlu, E.** & Bilgic, T. (2007). Analysis of a two-stage telecommunication supply chain with technology dependent demand. *European Journal of Operational Research*, *177*(2), 995–1012. **doi:**10.1016/j.ejor.2006.01.006

Conference Proceedings

1 Tekin, S. & Çanakoğlu, E. (2019). Analysis of price models in istanbul stock exchange. In *2019 27th signal processing and communications applications conference (siu)* (pp. 1–4). IEEE. **doi:**10.1109/SIU.2019.8806296

2 Erzurumlu, S., **Çanakoğlu, E.**, & Erzurumlu, Y. (2018). Data-driven entrepreneurship: a data analysis approach to business opportunity evaluation. In *Academy of management proceedings* (Vol. 2018, *1*, p. 11500). Academy of Management Briarcliff Manor, NY 10510.

3 Tekin, S. & **Çanakoğlu, E.** (2018). Prediction of stock returns in istanbul stock exchange using machine learning methods. In *2018 26th "signal processing and communications applications conference (siu)"* (pp. 1–4). IEEE. **doi:**10.1109/SIU.2018.8404607

4 Arikan, Y., Agrali, S., **Çanakoğlu, E.**, & Terzi, F. (2016). Mathematical modeling of generation expansion planning problem in a partially regulated market: private company perspective. In *Energy: Expectations and Uncertainty, 39th IAEE International Conference, Jun 19-22, 2016*. International Association for Energy Economics.

5 Gulpinar, N. & **Çanakoğlu, E.** (2010). Robust team coordination and decision making under uncertainty. In *5th seas dtc technical conference*.

6 Özekici, S. & **Çanakoğlu, E.** (2010). Linear hara frontiers in portfolio optimization. In *The third international conference "Problems of Cybernetics and Informatics", Baku, Azerbaijan.*

7. Gulpinar, N., Oliveira, F., & **Çanakoğlu, E.** (2009). Modelling team coordination in multi-agent planning. In *4th seas dtc technical conference*.

Books and Chapters

1. **Çanakoğlu, E.**, Muter, İ., & Adanur, O. (2018). Audit scheduling in banking sector. In *Operations research proceedings 2016* (pp. 499–505). Springer.
2. Pachamanova, D., Gülpınar, N., & **Çanakoğlu, E.** (2017). Robust approaches to pension fund asset liability management under uncertainty. In *Optimal financial decision making under uncertainty* (pp. 89–119). Springer, Cham.

Projects

Academic Research Projects

- The Scientific and Technological Research Council of Turkey (TÜBİTAK) 1001 (Principal Investigator): Integrated Personnel and Task Scheduling. Budget: 140.000 TL 01/10/2015-01/10/2017
- The Scientific and Technological Research Council of Turkey (TÜBİTAK) 1001 (Investigator): Developing Optimization Models for Energy Generation Expansion Planning in a Carbon-Constrained Environment and the Analysis of These Models from the Perspective of Economics and Strategic Planning. 15/10/2014-15/10/2016 Budget:143.500TL
- The Scientific and Technological Research Council of Turkey (TÜBİTAK) 1001 (Principal Investigator): Robust Optimization Approach for Health Care Personnel Scheduling Under Demand and Service Level Uncertainty. Proposal submitted

Industrial Research Projects

- Churn Management in Financial Institutions - Custodian Bank Case. 01/01/2016-31/12/2016
- Dynamic and Automated Pricing for a Tourism Company. 01/10/2018 - 01/04/2020
- Monte Carlo Simulation Based Forecasting Algorithm Design for Electricity Contracts. 01/04/2019 - 31/03/2020

Honors and Awards

2004 - 2009	Fellowship for PhD study, Koç University
2000	Dean’s Academic Honour List, Boğaziçi University
1995 – 2000	Fellowship for Undergraduate Study, Boğaziçi University
	Fellowship for Undergraduate Study, TUBITAK (The Scientific and Technological Research Council of Turkey)
1995	International Mathematics Olympiad, Bronze Medal Winner.
	National Mathematics Olympiad, Silver Medal Winner.
	University entrance examination, ranked as 12th amongst 1.000.000 applicants
1994	International ECO Mathematics Olympiad, Bronze Medal Winner.

Supervised Graduate Students

PhD. Thesis Supervision

- Bahadir Duran, Integrated Personnel and Task Scheduling (On-going).
- Ahmet Akça, Corporate Hedging, Strategies and Their Effects on Shareholder Value (On-going).

MS Thesis Supervision:

- Adiyeke Esra, (2014). Electricity Spot Price Modelling and Risk-Return Trade-Off Applications.
- Gönül Lütfiye Tuğçe, (2014). Optimal Allocation of Assets of Turkish Banks Under Basel II Regulation.
- Ertem Simge, (2015), Modelling Price Series for Different Energy Commodities.
- Karakuş Alev, (2015), Stock Market Prediction Using Regime Switching Models.
- Gulay Hilal, (2016). Simulation Based Optimisation in Transportation Pricing Model.
- Gül Sefa Furkan , (2016) Natural Gas Contract Portfolio Planning and Optimization with Stochastic Modelling.
- Gülbahar Gülbin, (2017) Optimization of Water Usage in Hydroelectric Power Plant.
- Baydemir Tufan, (2017) Heuristic Based Clearance-Markdown Pricing Optimization for a Fast-Fashion Retailer.
- Karabulut, Nur Ezgi (2019) Risk Management and Risk Prioritization Using Analytic Hierarchy Process
- Hacialiefendioğlu, Yağmur (2019) Effect of Transformational And Transactional Leadership Style on Employee Performance and Optimization Field Teams in Electricity Distribution Business
- Özlen, Burak Steel Sector Commodity Price Risk and Application for Mitigation

Professional Employment History

2000 – 2003 — **Ericsson Turkey** — **İstanbul/Turkey**
Product and Solution Manager

• Solution management for GSM core network systems/GPRS systems/3rd generation mobile systems.

• Product management for switching and IP systems: Prepared major bids and offers, were responding to product/solution specific customer needs and requests, delivered presentations to customers, generated business case analyses for various mobile and IT projects.

• Made technical operability and profitability analyses for mobile applications

2000 – 2000 — **Pamukbank** — **İstanbul/Turkey**
System Programmer

• Developed first TV banking application in Turkey·

1999 – 2000 — **BUPAM Laboratory, Bogazici University** — **İstanbul/Turkey**
Student Assistant in Industrial Engineering Department

Developer on automated pattern recognition and machine vision systems. Systems used for automated manufacturing and quality control.