

# Prof. KAĞAN GÖKBAYRAK

## Personal Information

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## Education Information

Doctorate, Boston University, Engineering, Manufacturing Engineering, United States Of America 1997 - 2001

Postgraduate, University of Massachusetts Amherst, Engineering, Electrical and Computer Engineering, United States Of America 1995 - 1997

Undergraduate Double Major, Bogazici University, Faculty Of Arts And Sciences, Department Of Mathematics, Turkey 1990 - 1995

Undergraduate Double Major, Bogazici University, Faculty Of Engineering, Department Of Electrical And Electronics Engineering, Turkey 1990 - 1995

## Research Areas

Stochastic Modeling, Queueing Theory and Applications, Stochastic Processes, Nonlinear Programming, Linear Programming, Heuristic Methods, Integer and Mixed Integer Programming, Simulation, Simulation Optimization, Discrete Simulation, System Dynamics, Inventory Systems, Facility Location and Design, Network Design

## Academic Titles / Tasks

Professor, Hacettepe University, Mühendislik Fakültesi, Endüstri Mühendisliği Bölümü, 2019 - Continues

Lecturer PhD, Ihsan Dogramaci Bilkent University, Faculty Of Engineering, Department Of Industrial Engineering, 2003 - 2019

## Advising Theses

Gökbayrak K., Nadar E., Optimal structural results for average-cost inventory systems with partially observed Markov-modulated demand,, Postgraduate, H.Avcı(Student), 2018

Gökbayrak K., Nadar E., Perturbation analysis methods for inventory systems with partially- observed Markov-modulated demand, Postgraduate, S.Güleçyüz(Student), 2018

Gökbayrak K., Kocaman A. S. , A two-level network design problem with decentralized and centralized intermediate facilities, Postgraduate, E.Buğday(Student), 2017

Gökbayrak K., Yıldırım E. A. , Solution methods for planning problems in wireless mesh networks, Postgraduate, G.Özdemir(Student), 2012

Gökbayrak K., Yıldırım E. A. , Joint routing, gateway selection, scheduling, and power management optimization in wireless mesh networks, Postgraduate, O.Uzunlar(Student), 2011

Gökbayrak K., Finite perturbation analysis methods for optimization of periodic (s,S) inventory control systems, Postgraduate, E.Mert(Student), 2008

Gökbayrak K., Service time optimization of flow shop systems, Doctorate, Ö.SELVİ(Student), 2008

## Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- I. **A voltage drop limited decentralized electric power distribution network**  
GÖKBAYRAK K., Avci H.  
COMPUTERS & OPERATIONS RESEARCH, vol.118, 2020 (Journal Indexed in SCI)
- II. **Structural Results for Average-Cost Inventory Models with Markov-Modulated Demand and Partial Information**  
Avci H., Gokbayrak K., Nadar E.  
PRODUCTION AND OPERATIONS MANAGEMENT, vol.29, no.1, pp.156-173, 2020 (Journal Indexed in SCI)
- III. **Robust gateway placement in wireless mesh networks**  
Gokbayrak K.  
COMPUTERS & OPERATIONS RESEARCH, vol.97, pp.84-95, 2018 (Journal Indexed in SCI)
- IV. **A distance-limited continuous location-allocation problem for spatial planning of decentralized systems**  
Gokbayrak K., Kocaman A. S.  
COMPUTERS & OPERATIONS RESEARCH, vol.88, pp.15-29, 2017 (Journal Indexed in SCI)
- V. **Exact and heuristic approaches based on noninterfering transmissions for joint gateway selection, time slot allocation, routing and power control for wireless mesh networks**  
Gokbayrak K., Yildirim E. A.  
COMPUTERS & OPERATIONS RESEARCH, vol.81, pp.102-118, 2017 (Journal Indexed in SCI)
- VI. **Joint gateway selection, transmission slot assignment, routing and power control for wireless mesh networks**  
Gokbayrak K., Yildirim E. A.  
COMPUTERS & OPERATIONS RESEARCH, vol.40, no.7, pp.1671-1679, 2013 (Journal Indexed in SCI)
- VII. **State-dependent Control of a Single Stage Hybrid System with Poisson Arrivals**  
Gokbayrak K.  
DISCRETE EVENT DYNAMIC SYSTEMS-THEORY AND APPLICATIONS, vol.21, no.4, pp.577-592, 2011 (Journal Indexed in SCI)
- VIII. **Receding Horizon Control of Mixed Line Flow Shop Systems**  
Gokbayrak K.  
DISCRETE EVENT DYNAMIC SYSTEMS-THEORY AND APPLICATIONS, vol.21, no.1, pp.1-10, 2011 (Journal Indexed in SCI)
- IX. **A search method for optimal control of a flow shop system of traditional machines**  
Selvi O., Gokbayrak K.  
EUROPEAN JOURNAL OF OPERATIONAL RESEARCH, vol.205, no.2, pp.325-331, 2010 (Journal Indexed in SCI)
- X. **Service Time Optimization of Mixed-Line Flow Shop Systems**  
Gokbayrak K., Selvi O.  
IEEE TRANSACTIONS ON AUTOMATIC CONTROL, vol.55, no.2, pp.395-404, 2010 (Journal Indexed in SCI)
- XI. **A Subgradient Descent Algorithm for Optimization of Initially Controllable Flow Shop Systems**  
Gokbayrak K., Selvi O.  
DISCRETE EVENT DYNAMIC SYSTEMS-THEORY AND APPLICATIONS, vol.19, no.2, pp.267-282, 2009 (Journal Indexed in SCI)
- XII. **Optimization of a Flow Shop System of Initially Controllable Machines**  
Gokbayrak K., Selvi O.  
IEEE TRANSACTIONS ON AUTOMATIC CONTROL, vol.53, no.11, pp.2665-2668, 2008 (Journal Indexed in SCI)
- XIII. **Constrained optimal hybrid control of a flow shop system**  
Gokbayrak K., Selvi O.  
IEEE TRANSACTIONS ON AUTOMATIC CONTROL, vol.52, no.12, pp.2270-2281, 2007 (Journal Indexed in SCI)
- XIV. **Generalized surrogate problem methodology for online stochastic discrete optimization**  
Gokbayrak K., Cassandras C.  
JOURNAL OF OPTIMIZATION THEORY AND APPLICATIONS, vol.114, no.1, pp.97-132, 2002 (Journal Indexed in SCI)
- XV. **Adaptive call admission control in circuit-switched networks**

Gokbayrak K., Cassandras C.

IEEE TRANSACTIONS ON AUTOMATIC CONTROL, vol.47, no.6, pp.1004-1015, 2002 (Journal Indexed in SCI)

XVI. **Online surrogate problem methodology for stochastic discrete resource allocation problems**

Gokbayrak K., Cassandras C.

JOURNAL OF OPTIMIZATION THEORY AND APPLICATIONS, vol.108, no.2, pp.349-376, 2001 (Journal Indexed in SCI)

XVII. **Hybrid controllers for hierarchically decomposed systems**

Gokbayrak K., Cassandras C.

HYBRID SYSTEMS: COMPUTATION AND CONTROL, vol.1790, pp.117-129, 2000 (Journal Indexed in SCI)

## Refereed Congress / Symposium Publications in Proceedings

I. **Escaping Local Optima in a Class of Multi-Agent Distributed Optimization Problems: A Boosting Function Approach**

Sun X., Cassandras C. G. , Gokbayrak K.

53rd IEEE Annual Conference on Decision and Control (CDC), Los-Angeles, Chile, 15 - 17 December 2014, pp.3701-3706

II. **Optimal hybrid control of a two-stage manufacturing system**

Gokbayrak K., Selvi O.

American Control Conference 2006, Minnesota, United States Of America, 14 - 16 June 2006, pp.3364-3369

III. **Optimal control of a two-stage stochastic hybrid manufacturing system with Poisson arrivals and exponential service times**

Gokbayrak K., Selvi O.

44th IEEE Conference on Decision Control/European Control Conference (CCD-ECC), Sevilla, Spain, 12 - 15 December 2005, pp.6940-6945

IV. **Optimal control of single-stage hybrid systems with Poisson arrivals and deterministic service times**

Gokbayrak K., Misirci M.

Joint Conference of the 20th IEEE International Symposium on Intelligent Control/13th Mediterranean Conference on Control and Automation, Limassol, CYPRUS, 27 - 28 June 2005, pp.1315-1320

V. **Optimal control for discrete event and hybrid systems**

Cassandras C., Gokbayrak K.

Symposium on Modeling, Control and Optimization of Complex Systems, Cambridge, Canada, 23 - 24 June 2001, vol.14, pp.285-304

VI. **Modeling and agile control for a Joint Air Operation environment**

Cassandras C., Gokbayrak K., Castanon D., Wohletz J., Curry M., Gates M.

5th Enabling Technology for Simulation Science Conference, Florida, United States Of America, 17 - 20 April 2001, vol.4367, pp.330-341

VII. **A hierarchical decomposition method for optimal control of hybrid systems**

Gokbayrak K., Cassandras C.

39th IEEE Conference on Decision and Control, Sydney, Australia, 12 - 15 December 2000, pp.1816-1821

VIII. **Modeling and simulation-based solutions for complex resource allocation problems**

Cassandras C., Gokbayrak K.

Conference on Enabling Technology for Simulation Science III, Florida, United States Of America, 6 - 08 April 1999, vol.3696, pp.160-170

## Supported Projects

Gökbayrak K., Nadar E., TUBITAK Project, Hidden Markov model and perturbation analysis applications in inventory control, 2015 - 2017

Gökbayrak K, Yıldırım E. A. , TUBITAK Project, Multi-Objective Optimization Based Solution Methods for Planning and Operational Problems of Wireless Mesh Networks, 2010 - 2012

## **Citations**

Total Citations (WOS):186

h-index (WOS):9