

# ibrahimkucukkoc

assistant professor, industrial engineering

last updated: July 10, 2018

## contact

Balikesir University  
Industrial Engineering Dept.  
Cagis Campus, Balikesir  
Turkey

tel:  
+902666121194 (Ext.6402)

email:  
ikucukkoc[at]balikesir.edu.tr  
ikucukkoc[at]gmail.com

web:  
<http://ikucukkoc.baun.edu.tr>

## languages

fluent Turkish and English

## programming

Java, GAMS, IBM ILOG  
(CPLEX), Witness

## profile pages

[scopus](#)  
[orcid](#)  
[researcherID](#)  
[researchgate](#)  
[google scholar](#)

## scopus citation

### metrics

h-index: 11  
total citations: 233

## professional membership

EUROPT  
SSAISB  
DAAM  
APICS  
OR Society UK  
IBM Academic Initiative

## education

- Jan 2012 – Dec 2015 **PhD** in Manufacturing Engineering  
University of Exeter, Exeter, England  
*Thesis: Modelling and Solving Mixed-model Parallel Two-sided Assembly Line Problems*
- Jan 2010 – Jul 2011 **MSc** in Industrial Engineering  
Balikesir University, Balikesir, Turkey
- Sep 2009 – Jan 2010 **MSc** in Industrial Engineering (*Transferred to Balikesir Uni.*)  
Selcuk University, Konya, Turkey
- Sep 2005 – Jul 2009 **BSc** in Industrial Engineering  
Selcuk University, Konya, Turkey

## academic positions

- Sep 2017 – to date **Assistant Professor**  
Balikesir University, Industrial Engineering
- Dec 2015 – Sep 2017 **Research Assistant**  
Balikesir University, Industrial Engineering
- Jan 2012 – Dec 2015 **Postgraduate Researcher**  
University of Exeter, College of Engineering,  
Mathematics and Physical Sciences
- Dec 2009 – Jan 2012 **Research Assistant**  
Balikesir University, Industrial Engineering

## editorial activities

- 2016 – Now **Area Editor**  
An International Journal of Optimization and Control: Theories & Applications
- 2016 – Now **Editorial Board Member**  
Peertechz Journal of Computer Science and Engineering
- 2014 – Now **Editorial Board Member**  
News in Engineering
- 2013 – Now **Editorial Board Member**  
Journal of Computer Sciences and Applications (JCSA)
- 2012 – 2014 **Section Editor**  
IAES International Journal of Artificial Intelligence (IJ-AI)
- 2010 – 2016 **Technical Editor**  
An International Journal of Optimization and Control: Theories & Applications
- 2013 **Co-keynote Editor**  
The OR Society, OR55 Annual Conference, 3-5 September 2013, Exeter, UK
- 2013 **Keynote Editor**  
The OR Society, YOR18 Conference, 9-11 April 2013, Exeter, UK

## interests

Modelling and optimisation of manufacturing systems including assembly line balancing and production planning problems in 3D printing (additive manufacturing); and their heuristic/meta-heuristic solutions as well as agent based approaches.

## awards

TÜBİTAK International Scientific Publication Encouragement Awards  
2013, 2014, 2015, 2016, 2017, 2018

Artificial Intelligence, An International Journal (Elsevier)  
AISB 2013 Convention Registration Award, April 3-5, 2013

PhD Scholarship  
Turkish Council of Higher Education, 01/2012 – 01/2016

Master Scholarship  
TÜBİTAK BİDEB – 2210, 09/2010 – 07/2011

## projects

The Minimization of Production Dependant Lateness in 3D Printing Machines  
Balıkesir University, Scientific Research Project 2018/131, 06/2018 – 06/2019

Modelling and optimisation of sequence-dependent mixed-model two-sided assembly lines considering stochastic task times  
Balıkesir University, Scientific Research Project 2017/179, 06/2017-12/2018

Mixed Model Assembly Line Balancing Problems and an Application with Genetic Algorithms  
Balıkesir University, Scientific Research Project 2011/40, 12/2010 – 07/2011

## publications

I have published widely in the top journals and internationally recognised peer-reviewed conferences in my field.

### articles in peer-reviewed journals (SCI/SCI-E)

Branch, bound and remember algorithm for U-shaped assembly line balancing problem

Zixiang Li, Ibrahim Kucukkoc, Zikai Zhang  
Computers & Industrial Engineering  
<http://doi.org/10.1016/j.cie.2018.06.037>

Incorporating draw constraint in the lightweight and self-supporting optimisation process for selective laser melting,

Li, Z., Zhang, D.Z., Dong, P., Kucukkoc, I., Peikang, B.  
The International Journal of Advanced Manufacturing Technology  
<http://doi.org/10.1007/s00170-018-2251-z>

The influence of scan length on fabricating thin-walled components in selective laser melting

Li, Z., Xu, R., Zhang, Z., Kucukkoc, I.  
International Journal of Machine Tools and Manufacture  
<http://doi.org/10.1016/j.ijmactools.2017.11.012>

Optimising the process parameters of selective laser melting for the fabrication of Ti6Al4V alloy

Li, Z., Kucukkoc, I., Zhang, D. Z., Liu, F.  
Rapid Prototyping Journal, 24(3).  
<http://doi.org/10.1108/RPJ-03-2016-0045>

- A mathematical model and artificial bee colony algorithm for the lexicographic bottleneck mixed-model assembly line balancing problem  
Kucukkoc, I., Buyukozkan, K., Satoglu, S.I., Zhang, D. Z.  
Journal of Intelligent Manufacturing (to appear).  
<http://doi.org/10.1007/s10845-015-1150-5>
- New MILP model and station-oriented ant colony optimization algorithm for balancing U-type assembly lines  
Li, Z., Kucukkoc, I., Tang, Q.  
Computers & Industrial Engineering, 2017.  
<http://doi.org/10.1016/j.cie.2017.07.005>
- Balancing of mixed-model parallel U-shaped assembly lines considering model sequences  
Kucukkoc, I., Zhang, D. Z.  
International Journal of Production Research, 2017.  
<http://doi.org/10.1080/00207543.2017.1312586>
- Comprehensive review and evaluation of heuristics and meta-heuristics for two-sided assembly line balancing problem  
Li, Z., Kucukkoc, I., Nilakantan, J. M.  
Computers & Operations Research, 84C, pp. 146-161, 2017.  
<http://doi.org/10.1016/j.cor.2017.03.002>
- Production Planning in Additive Manufacturing and 3D Printing  
Li, Q., Kucukkoc, I., Zhang, D. Z.  
Computers & Operations Research, 83C, pp. 157-172, 2017.  
<http://doi.org/10.1016/j.cor.2017.01.013>
- A Lightweight and Support-free Design Method for Selective Laser Melting  
Li, Z., Zhang, D. Z., Dong, P., Kucukkoc, I.  
The International Journal of Advanced Manufacturing Technology (to appear).  
<http://doi.org/10.1007/s00170-016-9509-0>
- Mixed-model Parallel Two-sided Assembly Line Balancing Problem: A Flexible Agent-based Ant Colony Optimization Approach  
Kucukkoc, I., Zhang, D. Z.  
Computers & Industrial Engineering, 97, pp. 58-72, 2016.  
<http://doi.org/10.1016/j.cie.2016.04.001>
- Lexicographic Bottleneck Mixed-model Assembly Line Balancing Problem: Artificial Bee Colony and Tabu Search Approaches with Optimised Parameters  
Buyukozkan, K., Kucukkoc, I., Satoglu, S.I., Zhang, D. Z.  
Expert Systems with Applications, 50, pp. 151-166, 2016.  
<http://doi.org/10.1016/j.eswa.2015.12.018>
- Integrating ant colony and genetic algorithms in the balancing and scheduling of complex assembly lines  
Kucukkoc, I., Zhang, D. Z.  
The International Journal of Advanced Manufacturing Technology, 82(1), pp. 265-285, 2016.  
<http://doi.org/10.1007/s00170-015-7320-y>
- Balancing of parallel U-shaped assembly lines  
Kucukkoc, I., Zhang, D. Z.  
Computers & Operations Research, 64, pp. 233-244, 2016.  
<http://doi.org/10.1016/j.cor.2015.05.014>

Type-E Parallel Two-Sided Assembly Line Balancing Problem: Mathematical Model and Ant Colony Optimisation based Approach with Optimised Parameters

Kucukkoc, I., Zhang, D. Z.

Computers & Industrial Engineering, 84, pp. 56-69, 2015.

<http://doi.org/10.1016/j.cie.2014.12.037>

A Mathematical Model and Genetic Algorithm based Approach for Parallel Two-Sided Assembly Line Balancing Problem

Kucukkoc, I., Zhang, D. Z.

Production Planning & Control, 26(11), pp. 874-894, 2015.

<http://doi.org/10.1080/09537287.2014.994685>

Mathematical Model and Agent Based Solution Approach for the Simultaneous Balancing and Sequencing of Mixed-Model Parallel Two-Sided Assembly Lines

Kucukkoc, I., Zhang, D. Z.

International Journal of Production Economics, 158, pp. 314–333, 2014.

<http://doi.org/10.1016/j.ijpe.2014.08.010>

Simultaneous balancing and sequencing of mixed-model parallel two-sided assembly lines

Kucukkoc, I., Zhang, D. Z.

International Journal of Production Research, 52(12), pp. 3665-3687, 2014.

<http://doi.org/10.1080/00207543.2013.879618>

Using response surface design to determine the optimal parameters of genetic algorithm and a case study

Kucukkoc, I., Karaoglan, A. D., Yaman, R.

International Journal of Production Research, 51(17), pp. 5039-5054, 2013.

<http://doi.org/10.1080/00207543.2013.784411>

## **articles in peer-reviewed journals (other indexes)**

A nondominated sorting ant colony optimization algorithm for complex assembly line balancing problem incorporating incompatible task sets

Kucukkoc, I.

Pamukkale University Journal of Engineering Sciences, 24 (1), pp. 147-153,

<http://doi.org/10.5505/pajes.2017.02350>

A New Hybrid Genetic Algorithm to Solve More Realistic Mixed-Model Assembly Line Balancing Problem

Kucukkoc, I. and Yaman, R.

International Journal of Logistics Systems and Management, 14(4), pp. 405-425, 2013.

<http://doi.org/10.1504/IJLSM.2013.052745>

## **peer-reviewed international conferences (full text)**

Scheduling of Multiple Additive Manufacturing and 3D Printing Machines to Minimise Maximum Lateness

Kucukkoc, I., Li, Q., He, N., Zhang, D.

In Grubbström, R.W, Hinterhuber, H.H., (Eds), PrePrints, 20th International Working Seminar on Production Economics, Innsbruck, Austria, February 19-23, vol. 1, pages 237-247.

Order Acceptance and Scheduling in Metal Additive Manufacturing: An Optimal Foraging Approach,

Li, Q., Kucukkoc, I., He, N., Zhang, D., Wang, S.

In Grubbström, R.W, Hinterhuber, H.H., (Eds), PrePrints, 20th International Working Seminar on Production Economics, Innsbruck, Austria, February 19-23, vol. 1, 225-235.

A non-dominated sorting approach to bi-objective optimisation of mixed-model two-sided assembly lines

Kucukkoc, I.

11th International Conference on Large-Scale Scientific Computations, Sozopol, Bulgaria, June 5-9, 2017, 8 pages (to be published as full text in Springer Lecture Notes in Computer Science).

Scheduling Customized Orders: A Case Study at Best Transformers Company

Ocaktan, M.A. B., Kucukkoc, I., Karaoglan, A. D., Cicibas, A., Buyukozkan, K.

The 6th International Conference on Mechanics and Industrial Engineering (ICMIE'17), Rome, Italy, June 8-10, 2017, ID:118, 8 Pages, DOI: 10.11159/icmie17.118.

Rebalancing of mixed-model two-sided assembly lines with incompatible task groups: An industrial case study

Zhang, D. Z., Kucukkoc, I., Karaoglan, A. D.

46th International Conference on Computers and Industrial Engineering (CIE46), Tianjin, China, October 29-31, 2016, ID:170, 8 pages.

Increasing the utilisation of additive manufacturing and 3D printing machines considering order delivery times

Kucukkoc, I., Li, Q., Zhang, D. Z.

In Grubbström, R.W, Hinterhuber, H.H., (Eds), PrePrints, Vol. 3, 19th International Working Seminar on Production Economics, Innsbruck, Austria, February 22-26, 2016, 195-201.

Multi-objective Optimization of Mixed-model Two-sided Assembly Lines - A Case Study

Kucukkoc, I.

International Conference on Computer Science and Engineering, Tekirdağ, Turkey, 20-23 October 2016, 249-255.

Coping with Model Variations on Parallel U-shaped Assembly Line Configurations

Kucukkoc, I., Zhang, D. Z.

Proceedings of the 15th IFAC/IEEE/IFIP/IFORS Symposium on Information Control in Manufacturing (INCOM 2015), Ottawa, Canada, May 11-13, 2015.

Lexicographic Bottleneck Mixed-model Assembly Line Balancing Problem: an Artificial Bee Colony Approach

Buyukozkan, K., Kucukkoc, I., Zhang, D. Z.

Proceedings of the 44th International Conference on Computers and Industrial Engineering and IMSS 2014 - 9th International Symposium on Intelligent Manufacturing and Service Systems, Joint International Symposium on "The Social Impacts of Developments in Information, Manufacturing and Service Systems" (CIE 2014), Istanbul, Turkey, October 14-16, 2014, pp. 1213-1227.

An Agent Based Ant Colony Optimisation Approach for Mixed-Model Parallel Two-Sided Assembly Line Balancing Problem

Kucukkoc, I., Zhang, D. Z.

Pre-Prints of the Eighteenth International Working Seminar on Production Economics, Innsbruck, Austria, February 24-28, 2014, Volume 3, pp. 313-328.

Balancing Parallel Two-Sided Assembly Lines via a Genetic Algorithm Based Approach

Kucukkoc, I., Zhang, D. Z.

Proceedings of the 43rd International Conference on Computers and Industrial Engineering (CIE43), The University of Hong Kong, Hong Kong, October 16-18, 2013, Volume 1, pp. 106-121.

#### Balancing Mixed-Model Parallel Two-Sided Assembly Lines

Zhang, D. Z., Kucukkoc, I.

Proceedings of the International Conference on Industrial Engineering and Systems Management (IEEE-IESM'2013), École Mohammadia d'Ingénieurs de Rabat (EMI), International Institute for Innovation, Industrial Engineering and Entrepreneurship (I4E2) - Rabat, Morocco, October 28-30, 2013, pp. 391-401 (ISBN: 978-2-9600532-4-1).

#### Balancing Parallel Two-Sided Assembly Lines with Ant Colony Optimisation Algorithm

Kucukkoc, I., Zhang, D. Z., Keedwell, E. C.

Proceedings of the 2nd Symposium on Nature-Inspired Computing and Applications (NICA) at Artificial Intelligence and the Simulation of Behaviour (AISB) 2013 Convention, University of Exeter, April 3-5, 2013, pp. 21-28.

### **peer-reviewed international conferences (abstract)**

#### Integrated Assembly Line Balancing and Feeding Problem

Kucukkoc, I., Pilati, F.

In Proceedings of the First International Conference on Applied Mathematics in Engineering (ICAME'18), Balikesir, Turkey, June 27-29, Page 21.

#### New Optimal Solutions for Additive Manufacturing Production Planning Problem to Minimise Cost

Kucukkoc, I., Li, Q., Zhang, D. Z.

In Proceedings of the First International Conference on Applied Mathematics in Engineering (ICAME'18), Balikesir, Turkey, June 27-29, Page 26.

#### Application of Artificial Bee Colony Algorithm for Distance Restricted Vehicle Routing Problem

Karaoglan A. D., Atalay, I., Kucukkoc, I.

In Proceedings of the First International Conference on Applied Mathematics in Engineering (ICAME'18), Balikesir, Turkey, June 27-29, Page 241.

#### On Applications of Ant Colony Optimisation Techniques in Solving Assembly Line Balancing Problems

Kucukkoc, I., Zhang, D. Z.

Keynote Papers and Extended Abstracts Book, OR55 Annual Conference, The OR Society UK, University of Exeter, September 3-5, 2013, pp. 114-120 (Extended Abstract).

#### An Improved Ant Colony Optimisation Algorithm for Type-I Parallel Two-Sided Assembly Line Balancing Problem

Kucukkoc, I., Zhang, D. Z., Keedwell, E. C., Pakgohar, A.

YOR18 Biennial Conference, The OR Society UK, University of Exeter, April 9-11, 2013.

#### Generalised Discrete Time-Cost Trade-Off Scheduling Problem in Highway Construction Projects

Pakgohar, A., Childe, S., Kucukkoc, I., Zhang, D. Z.

YOR18 Biennial Conference, The OR Society UK, University of Exeter, April 9-11, 2013.

### **peer-reviewed national conferences (full text)**

#### A New Comsol Based Heuristic Approach to Mixed-Model Assembly Line Balancing with Parallel Workstations and Zoning Constraints

Yaman, R., Kucukkoc, I.

Proceedings of the 31th Turkish National Congress on Operations Research and Industrial Engineering, Sakarya Üniversitesi, July 5-7, 2011, pp. 219-230.

## books

OR55 Keynote Papers and Extended Abstracts (Edited Book)

Kucukkoc, I., Mustafee, N.

OR55 Annual Conference, 2013, The OR Society UK, University of Exeter,  
ISBN: 0903440555.

YOR18 Keynote Papers and Extended Abstracts (Edited Book)

Kucukkoc, I.

YOR18 Biennial Conference, 2013, The OR Society UK, University of Exeter,  
ISBN: 0903440520.

## book chapters

A Non-dominated Sorting Approach to Bi-objective Optimisation of Mixed-Model Two-Sided Assembly Lines

Kucukkoc, I.

In: Lirkov I., Margenov S. (eds) Large-Scale Scientific Computing. LSSC 2017.  
Lecture Notes in Computer Science, vol 10665. Springer.

## committee roles

Organising Committee Member

48th International Conference on Computers & Industrial Engineering (CIE48),  
2-5 December 2018, Wellington, New Zealand

International Conference on Applied Mathematics in Engineering (ICAME'18),  
27-29 June 2018, Balikesir, Turkey

19th National Ergonomics Congress, Balikesir University, 27-29 September  
2013, Balikesir, Turkey

OR55 Annual Conference, The OR Society, 3-5 September 2013, University of  
Exeter, England

YOR18 Biennial Conference, The OR Society, 9-11 April 2013, University of  
Exeter, England

Programme/Scientific Committee Member

12th International Conference on Challenges in Industrial Engineering and  
Operations Management, 11-12 September 2018, Ankara, Turkey

International Conference on Artificial Intelligence and Control Automation  
(AICA2015), 16-17 January 2015, Phuket Island, Thailand

International Conference on Advances in Computing, Communication and  
Control: ICAC3, January 2015, Mumbai

3rd International Conference on Advances in Computing, Communication and  
Control: ICAC3, 18-19 January 2013, Mumbai

## referee positions

Information Sciences, Elsevier, 2016 – Present

International Journal of Production Economics, Elsevier, 2016 – Present

Computers & Operations Research, Elsevier, 2015 – Present

Expert Systems with Applications, Elsevier, 2016 – Present

Applied Soft Computing, Elsevier, 2013 – Present

Applied Mathematical Modelling, Elsevier, 2015 – Present

International Journal of Production Research, Taylor & Francis, 2014 – Present

Assembly Automation (AA), Emerald, 2012 – Present

Journal of Intelligent Manufacturing, Springer, 2017 – Present  
Engineering Optimization, Taylor & Francis, 2016 – Present  
Journal of Facilities Management (JFM), Emerald, 2013 – Present  
Neural Computing and Applications (NCA), Springer, 2013 – Present  
International Journal of Industrial Engineering: Theory, Applications and Practice,  
2014 – Present  
Production & Manufacturing Research: An Open Access Journal, Taylor & Francis,  
2013 – Present  
The South African Journal of Industrial Engineering (SAJIE), 2013 – Present  
Iberoamerican Journal of Industrial Engineering (IJIE), 2013 – Present  
Journal of Industrial and Management Optimization, 2016 - Present  
American Journal of Applied Mathematics and Statistics (AJAMS), 2013 – Present  
American Journal of Science and Technology, AASCIT, 2014 – Present  
Gazi University Journal of Science (GUJS), Part A: Engineering and Innovation,  
2014 – Present  
International Journal of Renewable Energy Research (IJRER), 2011 – Present

## teaching experience

### Balikesir University

I have delivered following courses:

EMM3121 – Production Planning and Control, Undergraduate  
2017/18 Summer

MKI4123 – Production Planning, Undergraduate  
2017/18 Summer

BIL1202 – Int. to Algorithms and Programming, Undergraduate  
2017/18 Spring, Summer

EMT2226 – Int. to Object Oriented Programming, Undergraduate  
2017/18 Spring

EMM3208 – Optimisation Techniques, Undergraduate  
2017/18 Spring

EMM4208 – Design and Analysis of Assembly Lines, Undergraduate  
2017/18 Spring, Summer

EMM4129 – Scheduling, Undergraduate  
2017/18 Fall

EMM4131 – Population-based Algorithms, Undergraduate  
2017/18 Fall

EMM3115 – Advanced Programming, Undergraduate  
2017/18 Fall

BMM3101 – Programming Languages, Undergraduate  
2017/18 Fall

### University of Exeter

I have involved in tutoring/assisting on the following modules:

ECM1101 – Professional Studies and Skills Development  
2014/5 (T2)

ECM3171 – Computer Aided Engineering Drawing  
2014/5 (T1)

ECM2106 – Manufacturing Systems  
2013/4 (T2)



