



## Mustafa Coşkun

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### WORK EXPERIENCE

ANKARA, TÜRKIYE

**ASSOCIATE PROF** – 2023 – CURRENT

Department of Artificial Intelligence, at Ankara University, Turkey

KAYSERI, TÜRKIYE

**ASSISTANT PROF.** – 2018 – 2022

Department of Computer Engineering, at Abdullah Gul University, Turkey

### EDUCATION AND TRAINING

2012 – 2017

**PHD** Case Western Reserve University, Electrical Engineering Computer Science, USA, 3.43

2011 – 2012

**M.S** University of Texas at Arlington, Computing, USA, 3.33 Advisor: Ren-Cang Li at UTA

2003 – 2007

**B.S** Gaziosmanpasa University, Mathematics, Turkey, 3.03

### PROJECTS

2015 – 2017

**Purdue University High Performance Computation for Graph Mining Project**

I developed four algorithms for this project and resulting algorithms are published at SIGKDD, ICDM, Nature, and VLDB

01/2020 – 12/2020

**Deep Learning Traffic Light Optimization**

In this project, the master students I and Cagri Gungor guided completed deep learning approaches for Kayseri Ulasim A.Ş, with funding 60K TL

### HONOURS AND AWARDS

2023

**The best PhD award of Tüseb – TUSEB government Health Funding Agency**

2017

**Turkish Government Scholarship – Turkish Government (all tuitions, fees, and a stipend)**

2015

**ICDM Travel Grant**

### PUBLICATIONS

2024

## **IEEE/ACM Transactions on Computational Biology and Bioinformatics**

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J: Q1 Li, Mengzhen, Mustafa Coşkun, and Mehmet Koyutürk. "Topological-Similarity Based Canonical Representations for Biological Link Prediction." IEEE/ACM Transactions on Computational Biology and Bioinformatics (2024).

2024

## **Computer Standards & Interfaces 87 (2024): 103771.**

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J: Q1 Thahir, Adam Rizvi, Mustafa Coskun, Sultan Kubra Kilic, and Vehbi Cagri Gungor. "Intelligent traffic light systems using edge flow predictions." Computer Standards & Interfaces 87 (2024): 103771.

2023

## **PeerJ 11 (2023): e15313**

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J: Q2 Temiz, Mustafa, Burcu Bakir-Gungor, Pinar Guner Sahan, and Mustafa Coskun. "Topological feature generation for link prediction in biological networks." PeerJ 11 (2023): e15313.

2022

## **Consensus Embedding for Multiple Networks: Computation and Applications (Network Science, Cambridge University Press) , (Google Scholar h-5 Index: 18)**

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J: Mengzhen Li, M. Coşkun, and Mehmet Koyuturk. Consensus Embedding for Multiple Networks: Computation and Applications (Network Science, Cambridge University Press) , 2022, (Google Scholar h-5 Index: 18)

2022

## **Intrinsic Graph Topological Correlation for Graph Convolutional Network Propagation, Computer Standards & Interfaces**

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J: Q1 Mustafa Coskun Intrinsic Graph Topological Correlation for Graph Convolutional Network Propagation, Computer Standards & Interfaces (2022), (Google Scholar h-5 Index: 46) <https://doi.org/10.1016/j.csi.2022.103655> (SCI-SCIE)

## **Developing a label propagation approach for cancer subtype identification problem**

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J: Q2 Pinar Güner, Burcu Gungor and M. Coşkun Developing a label propagation approach for cancer subtype identification problem, Turkish Journal of Biology, April 2022 (Google Scholar h-5 Index: 21)(<https://doi.org/10.3906/biy-2108-83>) (SCI-SCIE).

2021

## **Node Similarity-Based Graph Convolutional Networks for Biological Link Prediction**

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J: Q1 M. Coşkun and M. Koyutürk Node Similarity-Based Graph Convolutional Networks for Biological Link Prediction, Bioinformatics Oxford, June 2021, (Google Scholar h-5 Index: 142)(<https://doi.org/10.1093/bioinformatics/btab464>) (SCI-SCIE).

## **Fast Computation of Katz Index for Efficient Processing of Link Prediction Queries, Data Mining and Knowledge Discovery**

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J: Q1 M. Coşkun, A. Baggag, M. Koyutürk Fast Computation of Katz Index for Efficient Processing of Link Prediction Queries, Data Mining and Knowledge Discovery, 35, 1342-1368 Springer DMKD, April 2021, (Google Scholar h-5 Index: 37) <https://doi.org/10.1007/s10618-021-00754-8> (SCI-SCIE).

## **Integrated Querying and Version Control of Context-Specific Biological Networks**

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J: Q1 T. Cowman, M. Coşkun, A. Grama, and M. Koyuturk. Integrated Querying and Version Control of Context-Specific Biological Networks ( The Journal of Biological Databases and Curation, Oxford), April 15 2020, (Google Scholar h-5 Index: 39) <https://doi.org/10.1093/database/baaa018>, (SCI-SCIE).

## **Indexed Fast Network Proximity Querying. 44th Very Large Databases VLDB Endowment**

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J: Q2 M. Coşkun, A. Grama, M. Koyuturk Indexed Fast Network Proximity Querying. 44th Very Large Databases VLDB Endowment ,Volume: 11 Issue: 8 Pages: 840-852.ISSN: 2/6 2150-8097, Aug 2018, (Google Scholar h-5 Index: 34) <https://doi.org/10.14778/3204028.3204029>, SCIE.

2017

### **Drug Response Prediction as a Link Prediction Problem. Nature Scientific Reports**

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J: Q1 Z. Stanfield, M. Coşkun, M. Koyuturk. Drug Response Prediction as a Link Prediction Problem. Nature Scientific Reports Volume: 7 Article Number: 44961. ISSN: 2045-2322, Aug 2017, (Google Scholar h-5 Index: 206)doi: 10.1038/srep40321(SCIE).

2019

### **Hidden Smile Correlation Discovery Across Subjects Using Random Walk with Restart IEEE Transaction On Affective Computing**

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J: Q1 H. Jiang, M. Coşkun, A. Badokhon, M. Liu, M-C. Huang Hidden Smile Correlation Discovery Across Subjects Using Random Walk with Restart IEEE Transaction On Affective Computing, Volume: 10 Issue: 1 Pages: 76-84 Special Issue: SI, ISSN: 1949-3045 , Jan 2019, (Google Scholar h-5 Index: 62) <https://doi.org/10.1109/TAFFC.2017.2774278> (SCI).

### **ArnoldiGCL: Graph Contrastive Learning via Learnable Arnoldi-Based Guided Spectral Chebyshev Polynomial Filter**

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C: Mustafa Coskun, Abdelkader Baggag, and Mehmet Koyuturk "ArnoldiGCL: Graph Contrastive Learning via Learnable Arnoldi-Based Guided Spectral Chebyshev Polynomial Filters" KDD '25: Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining V.2 Pages 380- 391 <https://doi.org/10.1145/3711896.3736847>.

### **Generalized Learning of Coefficients in Spectral Graph Convolutional Networks**

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C: Mustafa Coskun, Ananth Grama, and Mehmet Koyuturk "Generalized Learning of Coefficients in Spectral Graph Convolutional Networks" The 15th IEEE International Conference on Knowledge Graph (ICKG), December 11-12, Abu Dhabi, UAE

2024

### **Expanding label sets for graph convolutional networks**

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C: Mustafa Coskun, Ananth Grama, Burcu Gungor, and Mehmet Koyuturk "Expanding label sets for graph convolutional networks" 13 th International Conference on Complex Networks & Their Applications , December 11-12, Istanbul, Turkey, 2024.

2023

### **Canonical Representation of Biological Networks Using Graph Convolution**

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C: Li, Mengzhen, Mustafa Coskun, and Mehmet Koyuturk. "Canonical Representation of Biological Networks Using Graph Convolution." In Proceedings of the 14th ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics, pp. 1-9. 2023

2022

### **Traffic Light Management Systems Using Reinforcement Learning**

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C: Can, Sultan Kubra, Adam Thahir, Mustafa Coskun, and V. Cagri Gungor. "Traffic Light Management Systems Using Reinforcement Learning." In 2022 Innovations in Intelligent Systems and Applications Conference (ASYU), pp. 1-6. IEEE, 2022.

2020

### **Assessing Employee Attrition Using Classifications Algorithms**

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C: Fatma Ozdemir, M. Coşkun, Cengiz Gezer and V. Ç. Güngör. Assessing Employee Attrition Using Classifications Algorithms. Proceedings of the 2020 the 4th International Conference on Information System and Data Mining, May 2020 (Google Scholar h-5 Index: 12).

2019

## **OFFER: Referee Suggester Algorithm for Journal Editors**

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C: M. Coşkun, V. Ç. Güngör, H. Hacılar. OFFER: Referee Suggester Algorithm for Journal Editors. The 24th IEEE\* Symposium on Computers and Communications, March 2019.

2018

## **Deep Learning Approaches for Traffic Light Optimization International Conf. Data Mining (ICDM) Workshops**

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C: M. Coşkun, A. Baggag, S. Chawla. Deep Learning Approaches for Traffic Light Optimization International Conf. Data Mining (ICDM) Workshops, Nov, 2018, (Google Scholar h-5 Index: 53)

2017

## **Drug Response Prediction as a Link Prediction Problem**

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C: Zachary Stanfield, Mustafa Coşkun, Mehmet Koyuturk. Drug Response Prediction as a Link Prediction Problem. 8th ACM International Conference On Bioinformatics (BCB) Aug, 2017, (Google Scholar h-5 Index: 28)

2016

## **Efficient processing of network proximity queries via Chebyshev acceleration.**

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C: M. Coşkun, A. Grama, and M. Koyuturk. Efficient processing of network proximity queries via Chebyshev acceleration. ACM SIGKDD Conf. Knowledge Discovery and Data Mining (KDD), Aug, 2016, (Google Scholar h-5 Index: 114).

2015

## **Link prediction in large networks by comparing the global view of nodes in the network. International Conf. Data Mining (ICDM) Workshops**

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C: M. Coşkun and M. Koyuturk. Link prediction in large networks by comparing the global view of nodes in the network. International Conf. Data Mining (ICDM) Workshops, 4852492. Nov, 2015 (Google Scholar h-5 Index: 53)

## ● **PAPER UNDER REVIEW**

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2024

## **Multiplex Embedding of Biological Networks Using Topological Similarity of Different Layers**

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Mustafa Coskun and Mehmet Koyuturk "Multiplex Embedding of Biological Networks Using Topological Similarity of Different Layers" IEEE/ACM Transactions on Computational Biology and Bioinformatics (2024) (Minor Revision)

## ● **NATIONAL PATENTS**

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### **5g ve ötesi alarda sanal ag gömme probleminin çoklu fiziksel ag yapısını kullanan derin bilgi maksimizasyonu ile çözümlenmesi yöntemi, 2021/004311.**

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P1: M. Coşkun (AGU), Cagri Gungor (AGU), and Yesim Bayramli (Havelsan). 5g ve ötesi alarda sanal ag gömme probleminin çoklu fiziksel ag yapısını kullanan derin bilgi maksimizasyonu ile çözümlenmesi yöntemi, 2021/004311

### **5G ve Ötesi Haberleşme Ağlarında Ağ Dilimleme için Kaynak Atama Probleminin Derin Öğrenme ve Gromov-Wasserstein Uzaklığı ile Yapılması**

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P2: M. Coşkun (AGU), Cagri Gungor (AGU), and Yesim Bayramli (Havelsan). 5G ve Ötesi Haberleşme Ağlarında Ağ Dilimleme için Kaynak Atama Probleminin Derin Öğrenme ve Gromov-Wasserstein Uzaklığı ile Yapılması 2020.

### **5G ve Ötesi Haberleşme Ağlarında Sanal Ag Gomme Probleminin Çoklu Fiziksel Ag Yapısını Kullanan Derin Bilgi Maksimizasyonu ile Cozumlenmesi**

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P3: M. Coşkun (AGU), Cagri Gungor (AGU), and Yesim Bayramli (Havelsan). 5G ve Ötesi Haberleşme Ağlarında Sanal Ag Gomme Probleminin Çoklu Fiziksel Ag Yapısını Kullanan Derin Bilgi Maksimizasyonu ile Cozumlenmesi 2020.

## ● **INTERNATIONAL PATENTS**

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### **Method for solving virtual net work embedding problem in 5g and beyond networks with deep information maximization using multiple physical network structure**

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WO2022186808A1 WIPO (PCT): M. Coşkun (AGU), Cagri Gungor (AGU), and Yesim Bayramli (Havelsan). Method for solving virtual net work embedding problem in 5g and beyond networks with deep information maximization using multiple physical network structure .

## ● **GRANT**

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03/2023 – 09/2025

### **Intelligent Traffic Light Management System**

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Intelligent Traffic Light Management System, 3220798 Grand Numbered Tubitak-TEYDEP Project, I work as a PI in this project Budgeted 1.465.805,00 TL

07/2020 – 07/2020

### **Recommender Systems**

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Recommender Systems, 3191234 Grand Numbered Tubitak-TEYDEP Project, I work as advisor in this project Budgeted 800K TL

## ● **REFERENCES**

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### **Mehmet Koyuturk T.&A. Professor**

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Department: Department of Electrical Engineering & Computer Science  
Address: Case Western Reserve University 10900 Euclid Avenue, Olin 512 Cleveland, OH 44106  
E-mail: mehmet.koyuturk@case.edu  
Tel: +1 216-368-2963

### **Abdelkader Baggag Associate Professor**

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Department: Department of Computer Science  
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E-mail: abaggag@hbku.edu.qa  
Tel: +974 44 547 250

### **Ananth Grama Distinguished Samuel Conte Professor**

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