

1 Summary

I have studied software engineering bachelor's in Izmir University of Economics from 2007 to 2011. Just after I have graduated in 2011, I have started doing master's degree in the department of intelligent engineering systems at the Izmir University of Economics. In February 2012, I started working as a research assistant at the same university. In February 2015, I received my master's degree and started pursuing a Ph.D. in the field of computer engineering at the same university.

In February 2016, I am enrolled to Faculty of Informatics, Masaryk University as a full-time PhD student.

In September 2016, I was hired as a researcher and a teaching assistant at the Masaryk University, Faculty of Informatics.

In October 2021, I have finished my PhD and now I am a postdoctoral researcher at Toronto Metropolitan University (previously Ryerson University).

My main area of interest is computational geometry. I enjoy studying combinatorial problems on visibility graphs and unit disk graphs.

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|-----------|-------------------------|---------------------------------|-------------------------|
| 2022 | Visiting researcher | Jagiellonian University | Kraków, Poland |
| 2021 – | Postdoctoral researcher | Toronto Metropolitan University | Toronto, Canada |
| 2016 – 21 | PhD | Masaryk University | Brno, Czech Republic |
| 2019 | Visiting researcher | ENS de Lyon | Lyon, France |
| 2017 | Visiting researcher | Jagiellonian University | Kraków, Poland |
| | Visiting researcher | Cinvestav | Mexico City, Mexico |
| | Visiting researcher | UNAM | Mexico City, Mexico |
| | Visiting researcher | UASLP | San Luis Potosí, Mexico |
| 2012 – 15 | MSc | Izmir University of Economics | Izmir, Turkey |
| 2010 | Internship | University of Cantabria | Santander, Spain |
| 2008 | Internship | Coretech | Istanbul, Turkey |
| 2007 – 11 | BSc | Izmir University of Economics | Izmir, Turkey |

2 Research Interests

Conflict-free coloring of polygon visibility graphs

Unit disk graph recognition on restricted domains

Maximum clique of a disk set

3 Publications

- [1] S. M. L. Onur Çağırıcı, Yeganeh Bahoo. Bouncing Robots in Rectilinear Polygons. In *Methods and Models in Automation and Robotics*, Aug. 2022. accepted, to be published.
- [2] O. Çağırıcı, P. Hliněný, F. Pokrývka, and A. Sankaran. Clique-Width of Point Configurations. *Journal of Combinatorial Theory, Series B*, Sept. 2021.

*My name and surname are pronounced as [onur tʃa:ɾudʒu]

- [3] O. Çağırıcı. Computational Aspects of Problems on Visibility and Disk Graph Representations. PhD. Thesis, Oct. 2021. url: <https://arxiv.org/abs/2111.00609>.
- [4] D. Ağaoğlu and O. Çağırıcı. Unit Disk Visibility Graphs. In *European Conference on Combinatorics, Graph Theory and Applications*, Sept. 2021.
- [5] O. Çağırıcı, P. Hliněný, F. Pokrývka, and A. Sankaran. Clique-Width of Point Configurations. In *Workshop on Graph-Theoretic Concepts in Computer Science*, June 2020.
- [6] O. Çağırıcı. On embeddability of unit disk graphs onto straight lines. In *Computer Science in Russia*, June 2020.
- [7] O. Çağırıcı, P. Hliněný, and B. Roy. On Conflict-Free Chromatic Guarding of Simple Polygons. In *Combinatorial Optimization and Applications*, Dec. 2019.
- [8] O. Çağırıcı, P. Hliněný, and B. Roy. On Colourability of Polygon Visibility Graphs. In *Foundations of Software Technology and Theoretical Computer Science*, Dec. 2017.
- [9] O. Çağırıcı, L. Casuso, C. Medina, T. Patino, M. Raggi, E. Roldan-Pensado, G. Salazar, and J. Urrutia. On upward straight-line embeddings of oriented paths. In *XVII Spanish Meeting on Computational Geometry (ECG)*, July 2017.
- [10] O. Çağırıcı. Exploiting Coplanar Clusters to Enhance 3D Localization in Wireless Sensor Networks. MSc. Thesis, Feb. 2015. url: <http://arxiv.org/abs/1502.07790>.

4 Review Activities

Journal Reviews

Computational Geometry: Theory and Applications (CGTA) – 1 article

IEEE Transactions on Wireless Communications (TWC) – 1 article

Conference Reviews

Canadian Conference on Computational Geometry (CCCG) – 3 articles

International Workshop on Combinatorial Algorithms (IWOCA) – 1 article

International Symposium on Computational Geometry (SoCG) – 1 article

The International Conference on Algorithms and Discrete Applied Mathematics (CALDAM) – 1 article

ACM-SIAM Symposium on Discrete Algorithms (SODA) – 1 article

Mathematical Foundations of Computer Science (MFCS) – 1 article

5 Education

Ph.D.

Masaryk University, Brno, Czech Republic

Duration: September 2016[†] - October 2021

Department: Computer Science

[†]I have enrolled for the studies in February 2016, but I was able to start only in September 2016.

Thesis: Computational Aspects of Problems on Visibility and Disk Graph Representations

Supervisor: Petr Hliněný

Ph.D. (unfinished)

Izmir University of Economics, Izmir, Turkey

Duration: February 2015 - March 2016

Department: Computer Engineering

Supervisor: Cem Evrendilek

M.Sc.

Izmir University of Economics, Izmir, Turkey

Duration: February 2012 - February 2015 (3 years)

Department: Intelligent Engineering Systems

Thesis: Exploiting Coplanar Clusters to Enhance 3D Localization in Wireless Sensor Networks

Supervisors: Cem Evrendilek and Huseyin Akcan

B.Sc.

Izmir University of Economics, Izmir, Turkey

Duration: September 2007 - June 2011 (4 years)

Department: Software Engineering

Senior Project: An investigation of image processing features using neural networks in SAR remote sensing classification

Supervisor: Turker Ince

6 Professional Experience

Ryerson University

Toronto, Canada

Duration: October 2021 - ongoing

Position: Postdoctoral Researcher

Department: Computer Science

Courses Offered:

CPS616 “Algorithms” (Winter ‘22)

Masaryk University

Brno, Czech Republic

Duration: September 2016 - October 2021

Position: Researcher, Teaching Assistant

Department: Computer Science

Courses Assisted:

FI:MA010 “Graph Theory” (Fall ‘16 - ‘19)

Izmir University of Economics

Izmir, Turkey

Duration: November 2011 - April 2016

Position: Research Assistant, Teaching Assistant.

Department: Software Engineering.

Courses Assisted:

SE 115 “Introduction to Programming I” (Fall ‘11, ‘14, ‘15)

SE 116 “Introduction to Programming II” (Spring ‘12, ‘13)

CE 215 “Discrete Structures of Computer Science” (Fall ‘12)

CE 221 “Data Structures and Algorithms I” (Fall ‘11 - ‘15; Summer ‘12, ‘14)

CE 222 “Data Structures and Algorithms II” (Spring ‘12 - ‘14, Summer ‘13)

CE 223 “Database Systems” (Fall ‘14, Spring ‘16)

CE 302 “Microprocessors” (Fall ‘13, Spring ‘14, ‘15)

CE 401 “Algorithm Design” (Spring ‘14)

University of Cantabria

Santander, Spain

Duration: June 2010 - September 2010 (3 months)

Position: Intern

Department: E.T.S.I. de Caminos, Canales y Puertos

Duty: Algorithm design and software architecture of a computer game named “Santandeuropa”

Project Supervisor: Andres Iglesias

Logo Yazılım (Formally Coretech)

Istanbul, Turkey

Duration: June 2009 - July 2009 (1 month)

Position: Intern

Department: Database Management

Duty: Database management for online billing program “Diva”

7 Research visits

Jagiellonian University

Kraków, Poland

Collaborator: Tomasz Krawczyk

Duration: June 13-24, 2022

Research topic: Recognizing Medusa Graphs

École normale supérieure de Lyon

Lyon, France

Collaborator: Édouard Bonnet

Duration: March 14-24, 2019

Research topic: Maximum clique on disks with two radii

Autonomous University of San Luis Potosí

San Luis Potosí, Mexico

Collaborators: Gelasio Salazar, Carolina Medina

Duration: March 13-24, 2017

Research topic: Realizing walks on a given point set

National Autonomous University of Mexico

Mexico City, Mexico

Collaborator: Jorge Urrutia

Duration: March 6-10, 2017

Research topic: Stabbing moving things with straight lines

Cinvestav

Mexico City, Mexico

Collaborators: Ruy Fabila Monroy, Carlos Hidalgo-Toscano

Duration: February 20 - March 3, 2017

Research topic: Self-intersecting path on geometric graphs

Jagiellonian University

Kraków, Poland

Collaborator: Andrzej Grzesik

Duration: January 20-25, 2017

Research topic: Negami's Conjecture on Planar Covers

8 Talks

September 2021: *Unit disk visibility graphs*, conference, Barcelona, Spain (delivered online)

August 2020: *On some special cases of axes-parallel unit disk graph recognition problem*, workshop, Brno, Czech Republic

January 2020: *Embedding unit disks on straight lines*, workshop, Bedřichov, Czech Republic

December 2019: *On conflict-free chromatic guarding of simple polygons*, conference, Xiamen, China (delivered online)

March 2019: *Axes-parallel unit disk graph recognition is NP-hard*, group seminar, Lyon, France

May 2018: *Maximum clique of disks in convex position*, workshop, Budapest, Hungary

October 2017: *On colourability of polygon visibility graphs*, workshop, Telč, Czech Republic

March 2017: *Effect of collinearity on WSN localization*, spring school, Žďar nad Sázavou, Czech Republic

March 2017: *Hyperplanar structures realization*, group seminar, San Luis Potosi, Mexico

March 2017: *Hyperplanar structures realization*, group seminar, Mexico City, Mexico

9 Research Projects

Structural properties, parameterized tractability and hardness in combinatorial problems

Duration: October 2016 - October 2021 (5 years)

Project Funder: Czech Science Foundation

Project ID: 17-00837S

Project Type: National

On three variations of periodic vehicle routing problem

Duration: October 2015 - September 2016 (11 Months)

Project Funder: Scientific and Technological Research Council of Turkey (TÜBİTAK)

Project ID: 213M425

Project Type: National

Development and analysis of 3D position determination algorithms in mobile wireless networks

Duration: October 2012 - October 2014 (2 years)

Project Funder: Scientific and Technological Research Council of Turkey (TÜBİTAK)

Project ID: 112E099

Project Type: International (ICT COST Action TD1202)

10 Awards

Best student paper award

Conference: Computer Science in Russia '20

Paper title: On embeddability of unit disk graphs onto straight lines

Conference date: June 29 – July 03, 2020 (Held online due to COVID-19 outbreak)

Erasmus Internship Mobility Scholar

Duration: June 2010 - September 2010

TÜBİTAK Scholarship Student

October 2012 - October 2014 – *Development and analysis of 3D position determination algorithms in mobile wireless networks*

October 2015 - September 2016 – *On three variations of periodic vehicle routing problem*

Scholarships awarded by Faculty of Informatics, Masaryk University

February 2017 – *Scholarship program to support the creative quality of student Faculty of Informatics*

March 2017 - December 2017 – *Scholarship program to support the creative quality of student Faculty of Informatics*

November 2017 – *Scholarship program to support the student's creative work*

November 2017 – *Scholarship program to support studies in master's or doctoral program FI MU for foreign nationals*

January 2019 – ongoing *Scholarship to support doctoral study programs*