

Ecem İLGÜN

✉ +(90) 506 932 4225 @ ecem.ilgun@bilkent.edu.tr ↗ theyusko.github.io ↗ Google scholar ↗ github.com/theyusko

EDUCATION

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- 2023 - 2026 **MSc Computer Engineering**, Bilkent University, Turkey (MGPA : 3.56/4.00)
2016-2022 **BSc Mathematics** (double major), Honors, Bilkent University, Turkey (CGPA : 3.32/4.00)
2015-2022 **BSc Computer Engineering**, High Honors, Bilkent University, Turkey (CGPA : 3.68/4.00) (Received comprehensive scholarship due to ranking in top 70 out of 2.1 million applicants in the university entrance exam)
2011-2015 **Science High School Diploma**, İzmir Özel Türk Science High School, Turkey (CGPA : 96.65/100) (Received tuition waiver due to ranking in top 3200 out of 2 million applicants in the high school entrance exam)

RESEARCH EXPERIENCE

September 2022 Present	Project Engineer, DEPARTMENT OF COMPUTER ENGINEERING, BILKENT UNIVERSITY, ➤ Designed and scoped undergraduate research projects, subsequently mentoring students (volunteers and CS490 Introduction to Research course participants) in key areas such as experimental design, methodology, and technical execution. ➤ Managed the intake of undergraduate volunteers and assigned them to research projects matching their skills and interests. ➤ Designed and executed a custom 4-week research preview for an undergraduate intern to simulate the scope and workflow of graduate-level research. ➤ Helped write project deliverables for BioPIM, a Horizon Europe Project. ➤ Took part in various bioinformatics projects, including indexing of genomic datasets, whole genome alignment, and characterization of alignment algorithms.
June 2021 September 2021	MATH 291 Summer Project, BILKENT UNIVERSITY, ➤ Studied the foundations of quantum computation and reproduced the proof of quantum contextuality using the CHSH inequality.
July 2019 September 2019	Research Intern, MARYLAND CYBERSECURITY CENTER, UNIVERSITY OF MARYLAND, ➤ Conducted analysis on how poisoning attacks on neural networks affect a specific data point using influence functions and representer points.
September 2018 January 2019	Undergraduate Researcher , IVIS LAB, BILKENT UNIVERSITY, ➤ Implemented high-dimensional embedding with principal component analysis to apply to compound graphs, reducing the time complexity of rendering a graph layout. ➤ Extended high-dimensional embedder algorithm to work on graphs with nodes of various sizes. ➤ Helped design heuristic algorithms to improve a spring embedder algorithm for compound graphs.
July 2017 September 2017	Research Assistant , BIOINFORMATICS INSTITUTE, A*STAR , ➤ Recorded, annotated, and preprocessed a hand gesture recognition dataset using Python and Bash scripts. ➤ Debugged labeling software written in C++ with Qt, which increased the accuracy of labeling. ➤ Developed a 3D drone simulator using OpenGL in Python. Connected the simulator to hand gesture detection software.

INDUSTRY EXPERIENCE

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- December 2021
March 2022 **Data Management - Translations Intern (Remote) , PEOPLE-ANALYTIX AG,**
➤ Translated their Digital Career Advisor product from English/German to Turkish.

June 2021	Frontend Intern (Remote), NTT DATA,
September 2021	<ul style="list-style-type: none"> ➤ Replicated the frontend of Seç Market's internal stock inquiry platform. ➤ Followed HTML, CSS, JavaScript, and React courses on Udemy.
August 2018	Natural Language Processing Intern, DATABOSS SECURITY & ANALYTICS,
October 2018	<ul style="list-style-type: none"> ➤ Implemented a lexical analyzer to improve the tagging accuracy of the NLP pipeline by minimizing false negatives. ➤ Utilized SCRUM in Agile Development, reviewed peers' codes for completeness and compared against quality standards.

TEACHING EXPERIENCE

September 2023 Present	Grader, BILKENT UNIVERSITY, <ul style="list-style-type: none"> ➤ Prepared and graded quizzes for CS 481/CS583 Bioinformatics Algorithms (senior and graduate level course) for 2 semesters and CS476 Automata Theory and Formal Languages (senior course) for 3 semesters.
October 2017 December 2017	Lab Tutor, BILKENT UNIVERSITY, <ul style="list-style-type: none"> ➤ Tutored students on their lab assignments for CS 223 Digital Design and CS 102 Algorithms & Programming II courses.
August 2014 October 2015	Private Tutor, FREELANCE, <ul style="list-style-type: none"> ➤ Taught secondary education level mathematics and natural sciences.

PUBLICATIONS AND PREPRINTS

3. **Pairwise Whole Genome Alignment using Locally Consistent Parsing** (MS (Master of Science)). Ecem İlgun (Expected by Jan 2026). Bilkent University.
 2. **GenCore : Genomic distance estimation using Locally Consistent Parsing.** Akmuhammet Ashyralyyev, Salem Malikic, S. Cenk Sahinalp, Can Alkan, Ege Şirvan and Ecem İlgun. Submitted to RECOMB (2026). *Under review*
 1. **Robust software development practices improve citations of RNA-seq tools.** Sanskruti Sharma, Ecem İlgun, Tuna Okcu, Vladislav Ostash, Vitalina Bashynska, Can Alkan, Elisha Myoung, Naznin Nahar Alpana, Karishma Chhugani, Dhrithi Deshpande, Alex AT Bui, Kyle Ellrott, Olga Burduniuc, Tatiana V Tatarinova, Viorel Munteanu, Pawel P Labaj, Dumitru Ciorba, Viorel Bostan, Mihai Dimian, Matteo Pellegrini, Mohammed Alser and Serghei Mangul. Submitted to GigaScience 2026. *Under review*.
-  doi : [10.1101/2022.08.24.505188](https://doi.org/10.1101/2022.08.24.505188)

POSTERS

1. **Characterization of Alignment and Search Algorithms for Short Reads, Long Reads and Graph Mappers.** Ecem İlgun*, Ömer Yavuz ÖzTÜRK*, Klea Zambaku*, Juan Gómez Luna, Mohammed Alser, Ricardo Roman-Brenes, the BioPIM Project, and Can Alkan. RECOMB (2023).

[* *These authors contributed equally to this work.*]

ONGOING RESEARCH PROJECTS

2025-Present	r-indexing of Locally Consistent Parsing (LCP) Cores. Mentoring Ata Soykal with Ali Erdem Karaçay.
2025-Present	Statistical Analysis of LCP for Uniform Sequences Under Uniform Point Mutation. Mentoring Ege Şirvan with Akmuhammet Ashyralyyev.
2024-Present	Efficient Matching of LCP Cores using Prefix-Free Parsing. Mentored Şeymanur Kılıç.
2024-Present	Multiple Sequence Alignment using LCP. Collaborating with Tuna Okçu.
2023-Present	Copy Number Variation Detection Using Transformers and Mamba. Collaborated with Ozan Müjde.
2022-Present	Workload characterization of DNA read mapping algorithms. Collaborating with Berkan Şahin.

HONORS AND AWARDS

- 2022 Sabancı University, Computer Science and Engineering PhD Program,
Admitted to direct PhD program without a MSC. degree, Covering monthly stipend (Declined in favor of MSc. in Bilkent University)
- 2018 Fraunhofer Institute for Integrated Circuits, The International Summer Internship Program,
Admitted to Research Internship, Covering free housing & monthly stipend (Declined in favor of an internship in Databoss)
- 2018 Google Get Ahead Program, Participant
- 2017 Singapore International Pregraduate Award (SIPGA), 2017 Cohort Awardee
Covering monthly stipend & Training Employment Pass
- 2017 Tsinghua University, Admitted to Deep Learning Summer School,
Covering tuition and administrative fees (Declined in favor of SIPGA)
- 2017 Scholarship of TUBITAK (Scientific and Technological Research Council of Turkey),
Covering monthly stipend (Declined in favor of Scholarship of Turkish Government)
- 2016-2020 Scholarship of Turkish Government, Covering monthly stipend,
Offered to top 100 ranking students among 2 million candidates in University Entrance Exam
- 2015-2020 Bilkent University, High Honor Certificate
- 2015-2021 Bilkent University, Comprehensive Scholarship,
Covering tuition & free housing & monthly stipend
- 2015 Nationwide University Entrance Exam (LYS), English Language & Interpretation,
Ranked 27th among 2 million candidates
- 2015 Nationwide University Entrance Exam (LYS), Natural Sciences & Mathematics,
Ranked 70th among 2 million candidates

SERVICE, OUTREACH, AND LEADERSHIP

- 2023 RECOMB 2023, Volunteer
- 2018-2021 Women Techmakers Community, Member
- 2018-2019 Bilkent University Cinema Society, Treasurer
- 2017- 2018 Bilkent University Cinema Society, Vice President
- 2016- 2017 Bilkent University Cinema Society, Co-founder and President

LANGUAGES

- Programming** Python, Java, \LaTeX , C/C++
- Natural** Turkish (native), English(fluent), Spanish(elementary), Arabic(beginner)