Ozan Göçmen

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Date of birth: 05/02/2000 **Nationality:** Turkish

ABOUT ME

I have developed extensive training and strong interdisciplinary communication skills, problem-solving skills and a strong ethical foundation in bioengineering and biotechnology. My work is shaped to investigate the molecular biology and genetics of cancer in silico methods such as bioinformatics software/tool development. I am constantly learning and discovering my potential to advance myself in this field.

WORK EXPERIENCE

[09/2023 – 12/2023]

Bioinformatics Trainee

Ege University Faculty of Medicine

City: Izmir

Country: Türkiye

As a trainee of Cancer Biology and Immunology Department, I overcame bioinformatics challenges in the search for circularRNA molecules that could be biomarkers in Head & Neck squamous cell carcinoma. I sequenced the RNAs collected from carcinoma tissues with Oxford Nanopore Technologies devices that allow long reads. By developing bioinformatic algorithms, I quantified the data and detected 22 circRNAs that could be biomarkers by collapsing their isoforms.

[07/2023 – 09/2023]

Research Intern

Izmir Biomedicine and Genome Center

City: Izmir

Country: Türkiye

Link: http://proton.tools.ibg.edu.tr:8001/new-run

As a member of the Karaca Computational Structural Biology lab, we develop novel techniques and tools to rapidly build high-accuracy structural models and help overcome the bottleneck in structural biology. During my time in the lab, I work on the use and development of the tool called Prot-ON in different areas.

[01/2023 – 04/2023]

External Project Intern

Boehringer Ingelheim

City: Remote

Business or sector: Human health and social work activities

I worked on computational biology and bioinformatics methods development for reproducible science in single cell with Computational Biology community at Boehringer Ingelheim.

1. Programming Languages(R, Python and Bash Scripting)
2. High Performance Computing and Cloud Computing
3. Biological Data Analysis
    a. Common Factor Analysis
    b. Permutation Test
    c. Weighted one sided T test
    d. Bhattacharya Distance
    e. Hierarchical Gaussian Regression model (ML approach)

[12/2022 – 04/2023]

Intern

Genfoquest Analytica Informatics

City: Izmir

Country: Türkiye

Genfoquest Analytica Informatics is a data science initiative focused on bioinformatics. As a part of the bioinformatics team we developed algorithms, software, and user-friendly applications for analyzing various types of data in the fields of comparative genomics, transcriptomics, proteomics,

pharmacogenomics, epigenetics, and molecular phylogenetics. I had the opportunity to take part as an intern in the joint project with Boehringer Ingelheim.

1. Software Development
2. Workflow Management Tools(Snakemake and Nextflow)
3. Biological Data Analysis(NGS, scRNA-seq, ATAC-seq, Spatial)

[01/03/2022 – 01/12/2022]

Intern Researcher

Bioinformatics and Molecular Genetics Laboratory / Ege University

City: Izmir

Country: Türkiye

I was intern researcher in the candidate antigen enrichment project of Dr. Yasin Kaymaz, that using the scRNAseq data integration for CAR T cell therapy against non-small cell lung cancer. I downloaded publicly available scRNAseq data from various database and analyzed data with tools such as Seurat and Scanpy. We developed a target enrichment scheme that meticulously integrates various scRNAseq datasets, filters, normalizes, and prepares for differential gene expression analysis between multiple combinations of cell types. We made the process a robust pipeline with the Snakemake workflow management tool. Analysis pipeline utilizes a machine learning approach HieRFIT, for hierarchical cell type classification of tumor and normal cell types.

1. Programming Languages(R, Python and Bash Scripting)
2. Biological Data Analysis
3. Next-Generation Sequencing
4. Single-cell RNA Sequencing

[06/2021 – 12/2022]

Core Team Member

Google Developer Students Club

City: Izmir

Country: Türkiye

At the Ege University, I took a role as a GDSC core member to disseminate Google technologies on various topics such as artificial intelligence, machine learning, cloud computing, web3.0.

EDUCATION AND TRAINING

[16/08/2019 – 2024]

Department of Bioengineering

Ege University https://biyomuhendislik.ege.edu.tr/eng-/Homepage.html

Address: Ege University, 35100, Izmir, Türkiye

Field(s) of study: Biotechnology

LANGUAGE SKILLS

Mother tongue(s): Turkish

Other language(s):

English

LISTENING C1 **READING** C1 **WRITING** C1

SPOKEN PRODUCTION C1 **SPOKEN INTERACTION** C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

Python | R | Bash | Linux | Docker | Git | Tensorflow | PyMOL | Scikit-Learn | Scanpy | Pyro | PyTorch | SwissADME | PDB

NETWORKS AND MEMBERSHIPS

[04/2022 – Current] **Member** International Society for Computational Biology (ISCB)

PROJECTS

[10/2022 – 04/2023]

Development of methodological software to map cancer-specific T cell phases across multiple indications with single-cell RNA sequencing data

Our software product aims to profile cancer-specific T cell states in multiple indications. It will provide an accessible and analytical approach for processing single-cell transcriptomic sequencing data, including common factor analysis interpretations and unsupervised machine learning

methods. The product, which is being developed in R&D, is intended for use in clinical studies for research purposes and will be integrated into common health practices for its potential social impact.

[03/2022 – 12/2022]

Enrichment of Alternative Target Antigen Pool for CAR T cell therapy Against Non-Small Cell Lung Cancer with Single Cell Genomic Data

In this project, which was developed jointly with the medical faculty hospital, we applied the SeqWell single cell sequencing method to lung cancer tissues, which was performed for the first time in Turkey. At the bioinformatics part, we aimed to collect and reprocess public lung cancer single cell transcriptomic datasets also with our datasets which are over the 100 distinct dataset to identify the tumor-specific antigens for CAR T therapy in NSCLC.

[07/2023 – 09/2023] **PROT-ON: A structure-based detection of designer PROTein interface MutatiONs**

The mutation-induced changes across protein-protein interfaces have often been observed to lead to severe diseases. Therefore, several computational tools have been developed to predict the impact of such mutations. Among these tools, FoldX and EvoEF1 stand out as fast and accurate alternatives. Expanding on the capabilities of these tools, we have developed the PROT-ON (PROTein-protein interface mutatiONs) framework, which aims at delivering the most critical protein interface mutations that can be used to design new protein binders.

HONOURS AND AWARDS

[20/03/2023] **2209B - Industry Oriented Research Project Support Programme for Undergraduate Students**
Awarding institution: THE SCIENTIFIC AND TECHNOLOGICAL RESEARCH COUNCIL OF TURKEY

The aim of the program is to provide undergraduate students studying at universities; to encourage research through industry-oriented projects. I am entitled to be supported with my "Development of methodological software to map cancer-specific T cell phases across multiple indications with single-cell RNA sequencing data" project.

[20/04/2022] **2247C STAR - Intern Researcher Scholarship Awarding institution:** THE SCIENTIFIC AND TECHNOLOGICAL RESEARCH COUNCIL OF TURKEY

It is aimed to provide scholarship support for undergraduate students who take part in research projects carried out at TUBITAK Centers and Institutes or supported by TUBITAK. I worked as a researcher in Dr. Yasin Kaymaz's project "Enrichment of Alternative Target Antigen Pool for CAR T cell therapy Against Non-Small Cell Lung Cancer with Single Cell Genomic Data" and was awarded this scholarship.

[09/2019] **Undergraduate Student Scholarship Awarding institution:** Republic of Turkey Ministry of Youth and Sports