

# Furkan K. Yildirim

COMPUTER SCIENCE & INDUSTRIAL ENGINEERING · MASTER OF SCIENCE STUDENT

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## Education

### Sabancı University

Istanbul, Turkey

M.Sc. IN INDUSTRIAL ENGINEERING - FULL SCHOLARSHIP

Feb. 2024 - Expected: Jan. 2027

- **Featured Courses:** Linear Programming & Extensions, Stochastic Processes, Methods of Statistical Inference, Energy Systems Optimization, Graph Theory & Network Flows, Facility Design & Analysis, Cloud Computing.

### Sabancı University

Istanbul, Turkey

B.S. IN COMPUTER SCIENCE & INDUSTRIAL ENGINEERING (DROPPED OUT DUE TO STARTING M.Sc.) - BUSINESS ANALYTICS

Sep. 2019 - Jan. 2024

- **Computer Science Featured Courses:** Data Structures & Algorithms, Software Engineering, Programming Languages, Operating Systems, Database Systems, Network Systems, Mobile Application Development, Data Visualization & Analysis, Machine Learning, Logic & Digital System Design, Cybersecurity Practices and Applications.
- **Industrial Engineering Featured Courses:** Operation Research, Business Strategy, Simulations, Decision Economics, Information Systems, Logistic System Planing & Design, Decision Making Under Uncertainty, Management Information Systems.

## Skills

**Front-end** React, React Native, Flutter, HTML5, CSS

**Back-end** FastAPI, Flask, ASP.NET, REST API

**Programming** Python, C++, C#, R, JavaScript, Dart, SQL, Verilog, Rockwell Arena

**Other** Discrete Event Simulation, Vehicle Routing Problems, Software Architecture & Design, Mobile Application Development, Web Development, Agile Software Development, Data Analysis, CI & CD

## Professional Experience

### Flio.ai

Istanbul, Turkey

FOUNDER

Aug. 2023 - Present

- Engineer an end-to-end Order Management System integrated with a Vehicle Routing Optimization Engine, leveraging mathematical modeling and advanced heuristic algorithms to address complex logistical constraints and enhance operational efficiency in supply chain networks.
- Collaborate with Sabancı University and its entrepreneurship program SUCool (Start-Up Company League) during the development of the system, which secured investment through TÜBİTAK 1512 BIGG and reached a \$1M valuation.
- Develop the software using Python's FastAPI for the backend and JavaScript frameworks React and React Native for web and mobile frontends. Implemented CI/CD pipelines with Docker, deploying scalable microservices architecture on both Google Cloud and AWS platforms.

### Getir

Istanbul, Turkey

ALGORITHM DEVELOPER

Nov. 2022 - Nov. 2023

- Took role in the improvement and development of micro-services that receive 1.2M orders per day by using Python.
- Participated in the development of business logic algorithms to deliver orders in the most efficient way in GetirMarket domain.
- Maintained in the development of Discrete Event Simulation to optimizing test and run-time performances of the algorithms by using Python, FastAPI, Numpy and Pandas in GetirMarket domain.
- Worked on visualizing and analyzing data results from VROOM, OSRM and New Relic on the Getir Market platform using Python.

ALGORITHM DEVELOPER INTERN

Apr. 2022 - Nov. 2022

- Worked on optimization test and run-time performances of OSRM and VROOM results with Discrete Event Simulation on Getir Market platform using Python libraries FastAPI, Numpy and Pandas.
- Developed unit tests, developed integration tests and refactored code-bases for micro-services of the Getir Market platform using Python.

### Sabancı University

Istanbul, Turkey

LEARNING & TEACHING ASSISTANT

Oct. 2021 - Jun. 2022

- Assisted Instructor Gülşen Demiröz on Data Structures Course, gave homework, graded, and helped students on assignments, also held weekly office hours.
- Assisted students with their Python learning through weekly recitation sessions in the Computational Approaching to Problem Solving Course.
- Under the supervision of Prof. İnanç Arın, extracted Turkish texts from PDF images using Python and certain API's with Sabancı University Center of Excellence in Data Analytic.

### CRS Software

Istanbul, Turkey

SOFTWARE ENGINEER INTERN

Jan. 2022 - Feb. 2022

- Created and developed an e-commerce platform with .NET using C# language during the internship.
- Gained information on how to do market research and processes of system design.

- Developed a cross-platform mobile application of an e-Book Library with Flutter. Deployed at **Google Play Store** and **App Store** on January'22.
- Helped develop Semantic Search API in an e-Book Library with Python Flask, Redis and MySQL.

## Projects

### Solving the Multi-layer Thin Films Problem with Optimization Techniques

RESEARCH STUDENT

Jun. 2023 - Jan. 2024

- Under the supervision of Prof. Dr. Burak Kocuk and within the scope of Sabancı PURE program, aimed to optimize the reflectivity of a metallic substrate by carefully selecting and layering dielectric materials, utilizing mixed-integer nonlinear programming techniques using Python.
- As a result of the developed models and heuristic approaches, created a producible thin film with a reflectance level of 99.8% in the visible light wavelength range.

### Delivery Route Optimization at E-Bebek Company

TEAM LEADER - ALGORITHM &amp; BACK-END DEVELOPER

Oct. 2022 - Jun. 2023

- Under the supervision of Prof. Dr. Bülent Çatay for graduation project, developing an algorithm that deal with Vehicle Routing Problem (VRP) variant that matches orders with the delivery vehicles in E-Bebek Company and determines visualizes the vehicle routes, with Python.
- As a result of the analyzes made after the developments, it is expected that the cost will be reduced by 20% and \$150K per year with the routes created using the new model.

### Voidture, E-Commerce Platform

LEAD MOBILE APPLICATION DEVELOPER &amp; BACK-END DEVELOPER

Feb. 2022 - Jun. 2022

- Developed an e-commerce mobile application for Furniture using Flutter and led the mobile application team.
- Took part in the demo presentation of the application. Used Jira and Bitbucket to maintain the project.
- Worked on the service development part of the application using FastAPI, PostgreSQL, Redis and Docker.

### SUprerequisites, Analyzing Prerequisites of Courses of Sabancı University

ALGORITHM &amp; BACK-END DEVELOPER

Oct. 2021 - Jan. 2022

- Under the supervision of Prof. Dr. Hüsnü Yenigün, developed an algorithm and a script with Python to collect and analyze the prerequisites of Sabancı University courses. Visualized the analyzed data using JavaScript and Python Flask.

### SUchedule, Mobile Application

FULL-STACK DEVELOPER

Sep. 2021 - Oct. 2021

- Developed a mobile application (SUchedule) with React Native and back-end service with Python Flask, allowing Sabancı University students to create their schedules with a friendly user interface.
- Deployed the project at **Google Play Store** and **App Store**. Reached 5000+ downloads with 4.9/5 ranks.

### WakeGuard, Location Based Alarm Application

MOBILE APPLICATION DEVELOPER

Jan. 2021 - Feb. 2021

- Created location tracking and alarm application with React Native and Firebase named WakeGuard and leading the project.
- Deployed the project at **Google Play Store** and **App Store**. Reached 1000+ downloads with 4.8/5 ranks.

## Competitions & Honors & Certificates

### COMPETITIONS

- |      |   |             |
|------|---|-------------|
| 2022 | <b>ITU ACM Algocomp'22</b> , Ranked 15th with my team among 300+ teams in the competition which is an algorithm-based coding competition.                                       | Turkey-Wide |
| 2021 | <b>Inzva Hackerspace</b> , Ranked 1st at Sabancı University and 9th on overall with my team among 200+ teams in the competition which is an algorithm-based coding competition. | Turkey-Wide |

### HONORS

- |      |  |             |
|------|--|-------------|
| 2023 | <b>Sakıp Sabancı %100 Encouragement Scholarship</b> , Awarded for academic achievement   | Turkey-Wide |
| 2023 | <b>Dean's High Honor List</b> , Achieving grade more than 3.5 over 4.0.  | Turkey-Wide |
| 2022 | <b>Sakıp Sabancı %100 Encouragement Scholarship</b> , Awarded for academic achievement   | Turkey-Wide |
| 2022 | <b>Dean's High Honor List</b> , Achieving grade more than 3.5 over 4.0.  | Turkey-Wide |
| 2021 | <b>Dean's High Honor List</b> , Achieving grade more than 3.5 over 4.0.  | Turkey-Wide |
| 2019 | <b>High Success Scholarship</b> , Ranked 1365th among 1,500,000+ students (0.09 percentile) in National University Entrance Exam (YKS 2019). | Turkey-Wide |