

# Barkin Simsek

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## EDUCATION

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### New York University Abu Dhabi

*Bachelor of Science in Computer Engineering*

Expected May 2021 | Abu Dhabi, UAE

- Coursework: Engineers for Social Impact, Advanced Circuits, Advanced Digital Logic, and Object-Oriented Programming

### TEV Inanc Turkes High School

Grad. Jun 2017 | Gebze, Turkey

- Received International Baccalaureate Diploma, High Honors, and Certificate of Honorable Student

## SKILLS

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### PROGRAMMING

*Proficient*

Python • C/C++ • Java • PHP • SQL • Shell  
Git • Matlab • Conda • Flask •  $\text{\LaTeX}$   
JavaScript • MongoDB • AJAX • I<sup>2</sup>C • SPI

*Familiar*

VHDL • Keras • Pytorch • OpenCV

### COMPUTER AIDED DESIGN

*Proficient*

Autodesk Inventor/Fusion 360 • Solidworks • Onshape  
LogicWorks • EasyEDA Designer • Upverter • Eagle  
Adobe Creative Cloud • Davinci Resolve

*Familiar*

Altium Designer • Autodesk AutoCAD

### LANGUAGES

*Proficient*

Turkish • English

*Intermediate*

German

## RESEARCH EXPERIENCE

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### Engineering Design Studio at NYU Abu Dhabi | *Computer Engineer & Student Researcher*

November 2017 - Present | New York University Abu Dhabi, United Arab Emirates

- Conducting research on the fogponics, hydroponics, and aeroponics systems as a part of Team NYUAD for the Solar Decathlon Middle East Competition while managing the smart indoor vertical soil-less farming component of the project
- Developing a learning-based automation system in Python to monitor, analyze, and optimize the farming process and the sensor data stored in the relational database
- Implemented a wireless system architecture for sensor communication and orchestrating plant growth
- Designed professionally produced printed circuit boards for data sampling and programmed in C embedded systems to interface with I<sup>2</sup>C and UART peripherals

### Lab for Narrative Technologies and Spatial Installations | *Student Research Assistant*

September 2017 - Present | New York University Abu Dhabi, United Arab Emirates

- Conducting research on visual cryptography and steganography algorithms to embed multiple secret images in a real world object
- Formed engineering solutions for producing precious consumer goods out of recycled plastic
- Designed and simulated various prototypes for plastic recycling machines & plastic injection moulds by using Solidworks
- Experimented with Python and 3D map of Sao Paulo to create an interactive city landscape
- Worked on projection mapping on to the real-life objects and augmented reality with 3D models

### Ozyegin University Robotics Lab | *Summer Research Intern*

June 2016 - July 2016 | Özyeğin University, Istanbul, Turkey

- Designed and built a weather station for monitoring climatic conditions at the Ozyegin University
- Used a Raspberry Pi to gather & process data and experienced in shell scripting
- Visualized the data in real time on an online web page by using PHP, HTML, SQL, CSS, and AJAX
- Custom designed wind speed & direction measuring tools and simulated in Autodesk Inventor to improve their design, and 3D print to use in the weather station
- Learned to use Matlab for vision processing & data analysis and experienced in object-oriented programming

## PAPERS IN PROGRESS

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[1] B. Simsek and F. Beck, "Multi-image encryption using multiple shares and its applications to kinetic installations,"

[2] B. Simsek, N. Aswani, and R. Memon, "Design & construction of a decentralized, scalable, and data-driven system for efficiently sustaining plant growth with fog,"

[3] B. Simsek and N. Aswani, "A novel method for converting numerical control programs into computer-aided design and stereolithography file formats by using cartesian coordinates,"

## OTHER EXPERIENCE

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### Co-Founder & Website Administrator | *5kere.com*

April 2015 - Present (on hold) | Istanbul, Turkey

- Leading the startup team for future business plans and customer relations
- Programming and maintaining an online commerce platform for 5kere.com, an inverse commerce web platform for promotion and advertising products
- Analyzing the voluntarily shared customer data to optimize the experience and provide more relevant product suggestions

### Software Developer | *incnet.tevitol.org*

November 2012 - July 2017 | Kocaeli, Turkey

- Developed and maintained TEV Inanc High School's official school management software (Inçnet)
- Designed and implemented Inçnet's web interference for mobile devices, aiming at giving a better user experience, and easing the usage of the system
- Assisted the development of TEV Inanc High School's online application and admission software
- Developed 10+ interactive websites and applications for different student clubs in the TEV Inanc High School
- Taught fellow students computer programming principles and web design

### Design & Production Manager and R&D | *Inanc Mechatronics Club at TEV Inanc Turkes High School*

Septemember 2012 - November 2015 | Kocaeli, Turkey

- Competed in international robotics challenges such as FIRST Robotics Competition and FIRST LEGO League, and ITURO, gaining 1st place out of 200 teams
- Founded the "Electronics Division" of Inanc Mechatronics Club, aiming at spreading interest in electronics and developing know how
- Taught juniors and fellow members how to design (using CAD software), manufacture printed circuit boards and program microchips
- Experienced in CAD software, C++, and manufacturing tools

## AWARDS / EXHIBITIONS

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### Winner in Hack3D Competition at Cybersecurity Awareness Week (CSAW)

*Awarded by New York University Tandon School of Engineering*

2018 | New York, USA

- Cracked and bypassed the novel anti-counterfeiting method developed by NYU researchers to protect 3D printing files

### Guest Artist

*Electronic Language International Festival (FILE)*

2018 | Sao Paulo, Brazil

- Designed interactive projections mapped onto the FILE Festival building using Python and MadMapper software

### Winner in Applied Physics at National Secondary School Research Projects Contest

*Awarded by TUBITAK (Scientific and Technological Research Council)*

2016 | Istanbul, Turkey

- Prepared a physics project aimed to calculate liquids' density in the zero gravity environments by the help of centrifugal forces

### Volunteer of the Year

*Awarded by FIRST Robotics Off-Season*

2015 | Istanbul, Turkey

- Helped teams to solve technical problems in the FIRST Robotics Off-Season
- Checked robots before the competition to avoid dangerous situations in the FIRST Robotics Off-Season
- Attended FIRST Lego League and helped children to run competition smoothly and spread robotics in Turkey
- Experienced in video production, vector drawing, photo editing, and printed publication design

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engineer • inventor • scientist • inquisitive researcher • interested in robotics • new age farmer • entrepreneur • dreamer  
open-source developer • dauntless risk taker • adventurous traveller • ham radio addict • loves watching How It's Made  
self-taught designer • enjoys solving problems that matter • aviation and space enthusiast