

# Baran Önen

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## Education

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- B. Sc. Informatik (Computer Science)** · Technical University of Darmstadt 2023–current
- Started studying computer science after completing the German language course
- High School** · Sakıp Sabancı Anadolu Lisesi · Istanbul, Turkey 2018–2022
- Admitted with a top 1.21% ranking in the national entrance exam

## Experience

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- Student Research Assistant** · Institute for Railway Engineering, TU Darmstadt 2023–current
- Worked in the development of a EULYNX-compliant object controller for the model railway EBD
  - Contributed to the development of new training materials for dispatchers
  - Performed risk analysis and systems engineering tasks for remote train operation concepts
  - Developed an ERTMS/ATO simulation for the EBD, including integration with TMS and ETCS-OB
- Developer and Content Creator** · TurkishKit (local Apple developers group) 2021–2022
- Developed example applications using Swift, demonstrating new language and platform features
  - Wrote blog posts about development on Apple platforms
  - Contributed to the organization of online WWDC-related events during the pandemic

## Publications

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- M. Pejic, B. Üyümez, Baran Önen, A. Oetting, “**Maintaining Railway Infrastructure Availability Under Threats: The Potential of Fiber Optic Sensing for Fast Attack Detection and Response,**” *International Conference on System Reliability and Safety (ICSRS)*, 2025. IEEE
- B. Üyümez, Baran Önen, A. Oetting, “**Unravelling Safety-Critical Situations in Remote Operation Mode for Automated Trains - A Systematic Approach with STPA,**” *International Conference on System Reliability and Safety (ICSRS)*, 2024. IEEE

## Major Projects

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- ATSSim** · Simulation of the legacy ATS, SSI and SACEM systems of the Istanbul Metro’s M2 line
- DispatchStation** · Simulation of the EBICOS 900 traffic management system used in the Istanbul Metro’s M1 line
- Barcodes** · Apple Swift Student Challenge winner (WWDC 2021) · Swift Playground teaching how UPC barcodes work

## Student Activities

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- Founder and Team Captain** · CyberFlight 2021–2022
- Founded a high school UAV team focused on rotary-wing UAV design and development
  - Led the team at the Teknofest UAV Competition (2021), with project funding from the research council TÜBİTAK
  - Carried out flight testing activities after obtaining a UAV pilot license from the Turkish DGCA
- General Coordinator** · Loth Robotics (high school robotics club) 2021–2022
- Provided technical guidance and participated in decision-making
  - Led the organization of Turkey’s first railway engineering competition for high school students with Metro İstanbul
- Team Captain** · Loth Robotics 2020–2021
- Coordinated the development of the team’s FRC (First Robotics Competition) robot
- Programmer** · Loth Robotics 2019–2020
- Collaborated on the software development of the team’s FRC robot for the Istanbul Regional competition

## Skills

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- Programming:** Python, Java, HTML/CSS/JavaScript, Swift & SwiftUI
- Software:** Sketch (vector design), SketchUp (3D modeling), Apple iWork, L<sup>A</sup>T<sub>E</sub>X
- Languages:** Turkish (native), German (C1), English