AYKUT ÖZGÜN ÖNOL

Sabanci University, Istanbul, Turkey
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EDUCATION

2014 – present **MSc in Mechatronics Engineering** – 3.85 / 4.00
Faculty of Engineering and Natural Sciences
Sabanci University, Istanbul Turkey

2008 – 2013 **BSc in Control Engineering** – 3.52 / 4.00 (ranked 3rd in department)
Faculty of Electrical and Electronics Engineering
Istanbul Technical University (ITU), Istanbul, Turkey

RESEARCH EXPERIENCE

Research Assistant – Sabanci University Jan. 2014 – present

A prototype development for portable power generation with vertical axis wind turbines

- Control design and implementation (e.g., model predictive control, adaptive maximum power point tracking)
- Computational fluid dynamics modeling using COMSOL Multiphysics software
- Hardware-in-the-loop simulation design and implementation using MATLAB/Simulink and dSPACE tools

Solar Car Project – Istanbul Technical University Aug. 2011 – Nov. 2013

- Developed a solar car model and a long-distance race simulation in MATLAB/Simulink and an active solar car simulator through an IPG/CarMaker – MATLAB/Simulink co-simulation environment
- Researched the race strategy optimization problem for circuit and long-distance solar car races
- Contributed to the design, implementation and assembly of the electrical system of the solar car
- Carried out various tests for the validation of the solar car model
- Participated in Tubitak Formula G 2012 and trained the driver for the circuit-race on the active solar car simulator
- Participated in World Solar Challenge 2013 and determined the optimal race strategy
- Attended numerous events on renewable energy, technology, composite materials etc., represented the solar car team, and exhibited the active solar car simulator

Resilience 2050 (European Union Project) – Controls and Avionics Laboratory, Istanbul Technical University Aug. 2012

- Carried out a literature review on the resilience and path planning problems for air traffic management systems
- Developed communication software between the Microsoft Flight Simulator X software and a web-based interface using Python

Diesel Engine Speed Control Project – Automotive Laboratory, Istanbul Technical University Oct. 2012 – May 2013

- Modeled the diesel engine through system identification techniques
- Designed several linear control methods that manipulates common rail direct fuel injection to regulate the engine speed
- Developed a PLC program for Siemens S7-1200 device to implement control

OTHER EXPERIENCE

Teaching Assistant – Sabanci University Jan. 2014 – present

- Carried out the following for Systems Modeling & Control (1 semester) and Industrial Control (3 semesters) courses: Conducting recitation and lab sessions, grading, and proctoring

Intern – Alstom Power Grid, Kocaeli, Turkey Jul. – Aug. 2011

- A four-week internship at power transformers department
- Observed the power transformer engineers during installation, commissioning, troubleshooting, testing, and design

RESEARCH SKILLS

Control theory, modeling and simulation, optimization, model predictive control (MPC), computational fluid dynamics (CFD), hardware-in-the-loop (HIL) simulations, renewable energy, vertical axis wind turbines, electric vehicles, system identification, power electronics, image processing, 3D vision

PUBLICATIONS

Journal Articles

Onol, A.O., & Yesilyurt, S. (2015). Application of CFD modeling to control design for vertical axis wind turbines. (Submitted)

Onol, A.O., Atabay, O., Icke, A., & Serin, O. (2015). Longitudinal dynamics simulation of a solar electric vehicle for driving strategy optimization. *International Journal of Vehicle Design*. (Accepted)

Conference Proceedings

Sancar, U., **Onol, A.O.**, Onat, A., & Yesilyurt, S. (2015, November). Hardware-in-the-loop simulations and control design for small vertical axis wind turbines. In *2015 XXV International Conference on Information, Communication and Automation Technologies (ICAT)*. IEEE.

Onol, A.O., Sancar, U., Onat, A., & Yesilyurt, S. (2015, October). Model predictive control for energy maximization of small vertical axis wind turbines. In *ASME 2015 Dynamic Systems and Control Conference*, Columbus, Ohio, USA. American Society of Mechanical Engineers.

Sinlak, A. and Kaleli, C., **Onol, A.O.**, & Yesilyurt, S. (2015, September). *Simple control design for a small vertical axis wind turbine.* In *17th Turkish National Committee for Automatic Control Meeting* (TOK'2015), Denizli, Turkey. (In Turkish)

Yesil, E., **Onol, A.O**., Icke, A., & Atabay, O. (2013, November). Strategy optimization of a solar car for a long-distance race using Big Bang—Big Crunch optimization. In *Computational Intelligence and Informatics (CINTI), 2013 IEEE 14th International Symposium on* (pp. 521-526). IEEE.

SOFTWARE

MATLAB, Simulink, dSPACE, COMSOL Multiphysics, Mathematica, C, IPG/CarMaker, PSpice, PSIM, Proteus Isis/Ares, SIMATIC STEP 7, CentOS, LaTeX, and Microsoft Office

AWARDS & HONORS

2014 Full-Tuition Scholarship (MSc), Sabanci University
2013 3rd rank in Control Engineering Department of ITU
2013 High honor list of ITU
2012 Best Design & Engineering Award in the national solar car race, Tubitak Formula G, with ITU Solar Car Team
2012 2nd place in the national solar car race, Tubitak Formula G, with ITU Solar Car Team

EXTRACURRICULAR ACTIVITIES

2008 – 2010 ITU Control and Automation Student Club

- Contributed to the organization of ITU Robot Olympics in 2008 and 2009
- Attended a number of seminars and workshops on automation, robotics, and control theory

Hobbies: Mountain biking, flamenco guitar playing, reading, traveling

LANGUAGES

English (TOEFL: 102/120, IELTS: 7/9), German (beginner), Turkish (native)

REFERENCES

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