ONUR BARAN

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SUMMARY

I'm an aerospace engineer with a master's degree and five years of work experience. I have experience in experimental fluid dynamics, data analysis, and CFD. During my career, I had a chance to work on various projects, including two different missile fuel systems, a ramjet combustor development. Currently, I work as an early stage researcher of Marie-Curie EDEM project and pursue my PhD at City, University of London. I'm capable of working under tight schedules without compromising quality, and I have good communication skills, can work in a team or independently.

EDUCATION

CITY, University of London,UK 10.2020 – Ongoing
PhD, Mechanical Engineering

- PhD Thesis (In Progress): In Nozzle an Near Nozzle Atomisation Characteristics in Optical Injector Nozzles

Middle East Technical University, Turkey 09.2015 – 06.2019
MSc, Aerospace Engineering

- Master Thesis : Experimental and Numerical Investigations of Coaxial Pressure Swirl Injectors

In the thesis, the coaxial injector and its comprising pressure swirl atomizers were experimentally and numerically investigated at various conditions to understand the effect of oxidizer/fuel ratio, injection pressure, and recess length. For the experimental investigation phase Doppler particle analyzer (PDPA) and high-speed shadowgraphy technique are utilized. For the numerical investigation, the 2D and 3D CFD analyses were performed with ANSYS Fluent, and the results were compared with the experimental results, and the effects of investigated parameters were explained comprehensively.

Middle East Technical University, Turkey 09.2010 – 06.2015
BSc, Aerospace Engineering

WORK EXPERIENCE

Marie-Curie Early Stage Researcher, CITY, University of London
10.2020 – Present

I work as an early stage researcher for EDEM (Experimentally validated DNS and LES approaches for fuel injection, mixing, and combustion of dual-fuel engines) project. My responsibilities are to develop an experimental facility to visualize within and at the outlet region of real-size and enlarged orifices. And, using the developed facility to quantify the effect of in-nozzle phase change on spray atomisation and dynamics.

Senior Research Engineer, TUBITAK Defence Industries Research and Development Institute (TUBITAK SAGE), Ankara 08.2015 – 09.2020

I worked as a research engineer at the propulsion systems division for five years. I was responsible for injector design of a ramjet and fuel system components testing. The pressure swirl injector for a ramjet combustor is designed, manufactured and tested. Preliminary CFD analyses were carried out with ANSYS Fluent and in-house MATLAB codes. Spray characteristics of the injectors were measured utilizing different measurement techniques such as phase Doppler Particle analyzer, high-speed shadowgraphy, and Schlieren imaging. Experiment data were processed with Python/MATLAB. Technical reports and presentations were prepared.

- Designed pressure swirl injector, performed CFD analysis and conducted phase Doppler particle analyser, high-speed Shadowgraphy and Schlieren imaging experiments.
- Designed and installed experiment setups. Prepared technical specifications for the test equipment such as pressure sensors, flow-meters, temperature probes, and data acquisition equipment for fluid system tests
- Conducted performance and durability tests for the fuel system components of the missiles and the ramjet. Various tests such as pressure drop, hydro-static proof, performance, and leakage rate were performed at different ambient temperatures and pressures from 350 bar to vacuum condition for different components of missile fuel systems such as fuel tanks, pumps, filters, etc.
- Conducted 1D CFD calculations with EcosimPro to model the fuel system of different missiles and the semi-jet test facility.

COMPUTER SKILLS

- Experienced in MATLAB, Python, EcosimPro and ANSYS Fluent
- Experienced in Signal Express and, basic experience with LabVIEW
- Experienced with Solidworks and Simens NX (UG)
- Experience working in Windows and LINUX environments

COURSES AND CERTIFICATES

- Solidworks Training, 02-29 October 2014, Gazi University
- EcosimPro Training, 06-10 June 2016, EcosimPro
- Phase Doppler Particle Analyzer Training, 07-09 February 2018, TSI
- Laser Imaging of Spray Systems, 26-30 November 2018, Lund University Centre For Combustion Science and Technology

PUBLICATIONS

- Experimental and Numerical Investigations of Coaxial Pressure Swirl Injectors, O. Baran, Y. Ozyoruk, B.Sumer, AIAA SciTech, January 2019, San Diego USA

LANGUAGES

Turkish: Mother Tongue English: Fluent French: Basic