Bulut Tekgül

CFD ENGINEER

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Education

Aalto University *Espoo, Finland*
DOCTOR OF PHILOSOPHY IN MECHANICAL ENGINEERING *Aug 2017 - Present*

- **CFD code and model development**
- **Numerical combustion**
- **Large-eddy simulation**
- **Combustion chemistry**
- **HPC applications and data analysis**

Middle East Technical University *Ankara, Turkey*
MASTER OF SCIENCE IN MECHANICAL ENGINEERING (3.10/4.00) *Sep 2015 - Nov 2017*

- **Master thesis titled "On the applicability of progress variable approach for large eddy simulation of premixed flames"**

Middle East Technical University *Ankara, Turkey*
BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING (2.99/4.00) *Sep 2009 - Jun 2015*

Experience

Aalto University *Espoo, Finland*
DOCTORAL CANDIDATE *Feb 2017 - Present*

- Completed master thesis as a visiting student and part time teaching assistant
- Ignition characteristics dual-fuel combustion systems
- Large-eddy simulation of spray combustion
- Scientific computing and code development

Roketsan Missiles *Ankara, Turkey*
MECHANICAL DESIGN ENGINEER *Nov. 2015 - Feb. 2017*

- CAD design of a wide range of mechanical parts used in several projects
- Aerodynamic and structural analysis using FEM and CFD
- Creating technical drawings and assemby instructions for mechanical systems
- Quality control of mechanical parts produced by 3rd party suppliers

Turbotek Turbomachinery Technologies *Ankara, Turkey*
SUMMER INTERN *Jul. 2014 - Aug. 2014*

- Implemented a re-designed onboarding flow for new retailer customers, improving the onboarding process for account managers and customers with automated Salesforce integration.

Research Efforts

Publications

- J. Kannan, M. Gadalla, **B.Tekgül**, S. Karimkashi, O. Kaario and V. Vuorinen, *Large eddy simulation of diesel spray–assisted dual-fuel ignition: A comparative study on two n-dodecane mechanisms at different ambient temperatures*, International Journal of Engine Research, 2020.

- **B. Tekgül**, H. Kahila, O. Kaario and V. Vuorinen, *Large-eddy simulation of dual-fuel spray ignition at different ambient temperatures*, Comb. and Flame, Vol. 215, 2020.

- M. Gadalla, J. Kannan, **B. Tekgül**, S. Karimkashi, O. Kaario and V. Vuorinen, *Large-eddy simulation of ECN Spray A: sensitivity study on modeling assumptions*, Energies, Vol. 13, 2020.

- H. Kahila, O. Kaario, Z. Ahmad, M. Ghaderi Masouleh, **B. Tekgül**, M. Larmi and V. Vuorinen, *A large-eddy simulation study on the influence of diesel pilot spray quantity on methane-air flame initiation*, Comb. and Flame, Vol. 206, 2019.

Submitted Papers

- B. Tekgül, H. Kahila, O. Kaario, E. Lendormy, J. Hyvönen and V. Vuorinen, *Large-eddy simulation of spray assisted dual-fuel ignition under reactivity-controlled dynamic conditions* (Under review).
- S. Karimkashi, M. Gadalla, J. Kannan, B. Tekgül, H. Kahila, O. Kaario and V. Vuorinen, *Large-eddy simulation of diesel pilot injection into lean methane-air and methanol-air mixtures at different ambient temperatures* (Under review).
- B. Tekgül, P. Peltonen, H. Kahila, O. Kaario, V. Vuorinen, *DLBFoam: An open-source dynamic load balancing model for fast reacting flow simulations in OpenFOAM* (ArXiv preprint,Under review).

Posters & Talks

- Nordic Flame Days, Turku-Finland, 2019 - Extended abstract and oral presentation on combustion characteristics of diesel sprays under RCCI conditions
- 17th International Conference on Numerical Combustion , Aachen-Germany, 2019 - Oral presentation on LES analysis of ambient temperature effect on diesel spray ignition in methane-air mixtures
- Finnish Flame Days, Espoo-Finland, 2018 - Oral presentation on influence of temperature on diesel spray ignition in methane-air mixtures
- Finnish OpenFOAM User Day, Espoo-Finland, 2018 - Oral presentation on premixed combustion analysis using XiFoam
- Princeton-Combustion Institute Summer School, Princeton-USA, 2018 - Poster presentation on LES of duel-fuel spray combustion

Teaching

- AAE-E3030 - Numerical Modeling of Multiphase Flows (Lecturer and course assistant)
- EEN-E2001 - Computational Fluid Dynamics (Course assistant)
- EEN-E1020 - Heat Transfer (Course assistant)

Skills

Programming Language	Python, C++, Fortran
Software	OpenFOAM, MATLAB, Cantera, Chem1D, Ember, CATIA, SolidWorks, COMSOL
Language	English (Full professional proficiency), Turkish (Native), Finnish (Elementary proficiency)