

Ramin Jalali

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EDUCATION

PHD IN AEROSPACE ENGINEERING | SHARIF UNIVERSITY OF TECHNOLOGY (SUT)

Expected Nov 2021 | Aerodynamics | Tehran, Iran | Cum. GPA: 19.25/20.0 or 4.0/4.0, Ranked 1st

Dissertation: Development of One of the Secondary Air System Components using 1D Flow Network and CFD

MSC IN AEROSPACE ENGINEERING | SHARIF UNIVERSITY OF TECHNOLOGY (SUT)

Sep 2015 | Aerodynamics | Tehran, Iran | Cum. GPA: 19.49/20.0 or 4.0/4.0, Ranked 1st

Thesis: The Effect of Rotor Deflection on the Aerodynamic Performance of Megawatt Wind Turbine Using the Actuator Line Model (20.0/20.0 or 4.0/4.0)

BSC IN AEROSPACE ENGINEERING | SHARIF UNIVERSITY OF TECHNOLOGY (SUT)

Jul 2013 | Tehran, Iran | Cum. GPA: 17.32/20.0 or 3.86/4.0, Top 10

Project: Optimization of Wind Turbine Blade's Aerodynamics Using Technical Software and CFD (20.0/20.0 or 4.0/4.0)

DIPLOMA IN MATHEMATICS AND PHYSICS | ALLAME-HELLI HIGH-SCHOOL (NODET)

Jul 2009 | Tehran, Iran • Cum. GPA: 4.00 • Top 10

PUBLICATIONS

JALALI, R., DARBANDI, M., SCHNEIDER, G., "OPTIMAL CONFIGURATION OF ANGLED RIB TURBULATORS FOR CONJUGATE HEAT TRANSFER SIMULATION," JOINT CSME-CFDSC (2019), JUNE 2-5, LONDON, ONTARIO, CANADA. DOI:10.6084/8218766

JALALI, R., DARBANDI, M., SCHNEIDER, G., "ROBUST 1-D FLUID FLOW AND HEAT TRANSFER PREDICTIONS IN GAS TURBINE COOLING PASSAGES," AIAA PROPULSION AND ENERGY FORUM (2019), AUGUST 19-22, JW MARRIOTT, INDIANAPOLIS, INDIANA, USA. DOI: 10.2514/6.2019-4057

JALALI, R., DARBANDI, M., "SENSITIVIY ANALYSIS ON GAS TURBINE VANE TEMPERATURE DISTRIBUTION USING A ROBUST 1-D FLUID FLOW AND HEAT TRANSFER SIMULATOR," ASME, GAS TURBINE-INDIA (2019), DECEMBER 5-6, INDIAN INSTITUTE OF TECHNOLOGY MADRAS, TAMIL NADU, INDIA.

JALALI, R., DARBANDI, M., BEHROUZIFAR, A., SCHNEIDER, G., "WIND TURBINE FAR WAKE AND PERFORMANCE PREDICTION USING ACTUATOR LINE MODEL," 34TH WIND ENERGY SYMPOSIUM, AIAA SCIENCE AND TECHNOLOGY FORUM AND EXPOSITION (2016), JAN 4-8, SAN DIEGO, CALIFORNIA, USA. DOI: 10.2514/6.2016-1519

JALALI, R., DARBANDI, M., BEHROUZIFAR, A., SCHNEIDER, G., "IMPROVING THE DRY COOLING TOWER EFFICIENCY IN WINDY CONDITIONS USING A SMART STRATEGY FOR THE RE-CIRCULATION WATER," AMERICAN SOCIETY OF MECHANICAL ENGINEERING, ASME (2015), NOVEMBER 13-19, HOUSTON, TEXAS, USA.

DARBANDI, M., MOHAJER, A., BEHROUZIFAR, A., JALALI, R., SCHNEIDER, G., "THE EFFECT OF BLADE SURFACE ROUGHNESS ON THE PERFORMANCE OF MEGAWATT WIND TURBINE USING CFD," CANADIAN SOCIETY OF MECHANICAL ENGINEERING, CSME (2014), JUNE 1-4, TORONTO, CANADA.

JALALI, R., DARBANDI, M., MOHAJER, A., BEHROUZIFAR, A., SCHNEIDER, G., "INVESTIGATION OF THE SURFACE ROUGHNESS EFFECT ON CHARACTERISTICS OF MEGAWATT WIND TURBINE AIRFOILS," 10TH INTERNATIONAL CONFERENCE ON HEAT TRANSFER, FLUID MECHANICS AND THERMODYNAMICS, HEFAT (2014), JULY 14-16, ORLANDO, FLORIDA, USA.

PATENTS

- Patent of improving water circulation in sectors of power plant cooling tower of Heller type to reduce power deration in windy condition (submitted patent, 2018)
- Laboratory pilot of optimum water circulation system in sectors of power plant cooling tower of Heller type to reduce power deration in windy condition (submitted patent, 2018)

WORK EXPERIENCE

MEHRKANAZ CO. | INSTRUMENTATION EXPERT

Jul 2019 - now | Tehran, Iran

- Development of refrigeration cycle simulator
- Design, development and construction of gas analyzer's cooler
- Design, development and construction of averaging pitot tube flow meter

HPCL | LAB. ASSISTANT

Apr 2018 - Jul 2019 | Tehran, Iran

- Performing computer simulations using the High Performance Computing Lab (HPCL) capabilities with 4.5 teraflops speed to simulate large industrial system behavior and physics
- Mathematical modeling and computer simulation of various engineering systems

HEAT AND REFRIGERATION LAB. | RESEARCH ASSISTANT

Jan 2013 - Jul 2019 | Tehran, Iran

- Developing standards for energy consumption systems
- Consulting and lecturing university students

TOSAN | PROJECT MANAGER AND PROJECT EXPERT

Jan 2010 - Jul 2019 | Tehran, Iran

- Design, failure detection, and performance improvements of old and modern energy systems
- Performing computer simulations using the High Performance Computing Lab (HPCL)
- Design, establishment and optimization of educational and high tech research labs
- Modeling, optimization and failure detection of various powerplant systems including their wet and dry cooling towers, their cooling and condensing systems, their furnaces and boilers, and so forth
- Research and fulfillment of projects in the field of environmental issues benefitting from advanced new technologies
- Research and fulfillment of projects in the field of innovative and sustainable energy including solar energy and wind turbines
- Providing services and fulfillment of projects for the steel construction and the steel forming industries such as increasing the capacity of their furnaces, design of auxiliary recuperator, and the pollution control activities using advanced innovative systems in their stacks

LYAN | QUANTITATOR

Jun 2018 - Sep 2018 | Tehran, Iran

- Risk Analysis
- Portfolio Optimization

SELECTED INDUSTRIAL PROJECTS

Renewable Energy

- The effect of rotor deflection on the aerodynamic performance of megawatt wind turbine using the actuator line model
- Design of Aerodynamic module of national megawatt wind turbine
- Design of both small and large scale photovoltaics farm
- Basic principles observation, collection and analysis of wave climate data, assessment of the wave resources in Oman Sea, and choosing two prone spots (one onshore and one offshore) to install the OWC system
- Evaluation of energy gain of an OWC system with a proposed optimum chamber design using the Wells turbine as the PTO
- Detail design of a wave chamber and a PTO module and system integration
- Design of an agricultural biogas plant

PowerPlant Industry

- Re-design of Bandarabbas powerplant sluice
- Re-design of main cooling system of Shahid Mofatteh Power Plant (Unit 34, EPC)
- Re-design of Heller water recirculation system to reduce its deficiency in high ambient wind velocities occurring at critical peak energy consumption hours
- Detail design of an auxiliary equipment to improve the ACC cooling system in critical peak power consumption hours
- Design of once-through cooling OTC system as an auxiliary cooling system to reduce the deficiency of the main Heller cooling system during critical peak power consumption hours
- Detail design of the TOSAN supplementary cooling system in order to reduce the power deficiency
- Re-design of both ACC and Heller dry cooling Systems to achieve minimum cooling system deficiencies in critical peak energy consumption hours

RESEARCH INTERESTS

Computational Fluid Dyn.
 Multiphase Flows
 Gas Turbine Engineering
 Renewable Energy
 Power Plant Engineering
 Deep Learning
 Reinforcement Learning
 Machine Learning

RELATED ACADEMIC COURSES

- Computational Fluid Dyn I&II. *A*
- Multiphase Flows *A+*, *TopMark*
- Finite Element Method. *A+*, *TopMark*
- Computer Programming *A+*, *TopMark*
- Numerical Analysis *A+*, *TopMark*
- Viscous Fluid Flow *A+*, *TopMark*
- Heat Transfer *A+*, *TopMark*
- Turbulence *A+*, *TopMark*
- Aerodynamics I&II *A*, *TopMark*
- Fuel & Combustion *A*, *TopMark*
- Thermodynamics *A+*, *TopMark*
- Radiation *A+*, *TopMark*
- Statistics *A*

ONLINE COURSES

- Berkeley Deep RL Bootcamp
- Deep Learning (Andrew Ng)
- Algorithms (Coursera, Stanford)

RELATED ACADEMIC PROJECTS

- Prediction of droplet size distribution in sprays of pre-filming air-blast atomizer
- Multiphase simulation of a pressure-swirl nozzle
- Analytical and numerical approaches on the effect of blade surface roughness in wind turbine performance
- Boeing-737 winglets optimization
- Optimization of water management of a power plant Heller tower
- Simulating Iran atmosphere in Linux by GrADs (using CFSR data)
- Prediction of icing possibility in Linux by GrADs (using TRMM)
- Simulating of liquid spacetime using CFD
- Identifying the best spots in Oman sea area to develop the OWC chamber design technology considering the local wave energy conditions
- Designing a 2MW wind turbine using BEM and CFD
- Investigation on the surface roughness effect on characteristics of megawatt wind turbine airfoils
- On the mathematical modeling of image processing (removing certain types of noise)

COMPUTER SKILLS

PROGRAMMING

- Python β , C++ γ , MATLAB δ , Fortran γ

MACHINE LEARNING

- Scikit Learn β , Pandas γ , Numpy γ

DEEP LEARNING

- Keras β , Tensor Flow β

OPTIMIZATION

- Genetic Algorithm γ , Ant Colony γ , Swarm Intelligence γ , Lingo γ

CAD

- AutoCad β , SolidWorks γ

RENEWABLE ENERGY

- Wind Farm β , GH-Bladed γ , PVsyst γ , HARP_Opt δ , Qblade δ , WT_Perf δ , Xfoil & Rfoil δ

MESH GENERATOR

- Gambit δ , ICEM-CFD γ , Ansys Meshing γ

FLUID FLOW SOLVER

- Fluent δ , CFX γ

GENERAL

- Linux β , Microsoft Office γ , \LaTeX β

GRAPHICS

- Photoshop γ , Corel Draw β

Novice α
 Competent β
 Proficient γ
 Expert δ

AWARDS AND HONORS

BEST MSC THESIS | IRANIAN SOCIETY OF AEROSPACE ENGINEERING
Aerodynamics & Propulsion Division • 2016

MEMBERSHIP | NATIONAL ELITE FOUNDATION
Tehran, Iran • 2015

RANKED 1ST | MSC, GRADUATING CLASS OF 2014
Sharif University of Technology, Aerospace Engineering Department • 2015

BEST BSC PROJECT | IRANIAN SOCIETY OF AEROSPACE ENGINEERING
Aerodynamics & Propulsion Division • 2013

PRIVILEGE OF STUDYING MSC | GRADUATE FULL SCHOLARSHIP
University of British Columbia, Mechanical Engineering Department • 2013

PRIVILEGE OF STUDYING MSC | GRADUATE FULL SCHOLARSHIP
Sharif University of Technology, Aerospace Engineering Department • 2013

TOP 0.1% | NATIONAL MSc ENTRANCE EXAM
Aerospace Engineering • 2012

TEACHING EXPERIENCE

TEACHER'S ASSISTANT

Computer Engineering Dept. | Sharif University of Technology | Tehran, Iran

- Programming Language | 2 Semesters

Aerospace Engineering Dept. | Sharif University of Technology | Tehran, Iran

- Numerical Analysis | 2 Semesters
- Introduction to Fluid Dynamics | 6 Semesters
- Computational Fluid Dynamics I and II (Graduate) | 3 Semesters
- Advance Turbulence (Graduate) | 2 Semesters
- Advance Viscous Fluid Flow (Graduate) | 3 Semesters
- Thermodynamics I and II | 2 Semesters
- Automatic Control | 2 Semesters

INSTRUCTOR

Student Scientific Assosiation | Sharif University of Technology | Tehran, Iran

- MATLAB | Fall 2011 - now
- C++ | Spring 2011 - now
- Gambit and Fluent | Spring 2013 - now
- CFX and ICEM | Fall 2013 - Spring 2015

Islamic Azad University | Tehran, Iran

- Computational Fluid Dynamics | Fall 2015
- Advance Viscous Fluid Flow | Fall 2015
- Advance Subsonic | Fall 2015

AllameHelli High-school | National Organization For Development of Exceptional Talents | Tehran, Iran

- Programming | Fall 2009 - Fall 2010

AllameHelli Secondary School | National Organization For Development of Exceptional Talents | Tehran, Iran

- Programming | Fall 2009 - Fall 2010
- Physics | Fall 2009 - Fall 2010

National University Entrance Exam | Konkoor | Tehran, Iran

- Tutoring Mathematics, Physics, Statistics, Geometry and Chemistry | Fall 2009 - now

CERTIFICATIONS

DATA SCIENCE SUMMER SCHOOL | IPM

Jul 2018 | Elementary School

- Python for DS, Statistical Reasoning, Machine Learning, Topics in DS

LINUX PROFESSIONAL INSTITUTE

- LPIC-1 - System Administrator - Self Study

FLOWMASTER | PTECH

Sep 2019 | Diploma

- Final Score: 100/100

PHOTOSHOP | MFT

Sep 2019 | Diploma

- Final Score: 100/100

FLUID-SOLID INTERACTION | SUT

Aug 2017

- Appreciation in recognition of volunteering time and effort for executing The Joint Workshop of Sharif University of Technology and École Polytechnique Université Paris-Saclay in Fluid-Solid Interaction

THERMOFLOW | CEAS

May 2017

- Professional training course on design principles of thermal power plants and simulation methods

GAMBIT/FLUENT | SUT

Sep 2010 | Diploma

- Final Score: 100/100

ICEM-CFD/CFX | SUT

Sep 2010 | Diploma

- Final Score: 100/100

SOLIDWORKS | SUT

Sep 2010 | Diploma

- Final Score: 100/100

ENGLISH TEST

SCORE

IELTS | OVERALL 6.5

- Reading 6
- Listening 6
- Speaking 6.5
- Writing 6.5