

KIYARASH RAHBAR

Mechanical Engineer
PH.D. | MEng

📍 Tehran

☎ +98 9123115672

✉ kiyarash.rahbar@gmail.com

🔗 in/kiyarashrahbar

EDUCATION

PH.D.

Grade: Advanced-Level
Mechanical Engineering
University of Birmingham
Birmingham | UK
11/2011 – 7/2016

MEng

Grade: First Class Honours
Mechanical Engineering
University of Birmingham
Birmingham | UK
09/2006 – 7/2011

FIELDS OF EXPERTISE

Turbomachinery
Sustainable Power Systems
Solar Thermal & Solar PV
Distributed Generation
Combined Heat & Power (CHP)
Waste Heat Recovery (WHR)
Organic Rankine Cycle (ORC)
Heat Transfer
Thermodynamics
Fluid Mechanics
CFD & FEA
Modelling & Simulation
Algorithm Development
Optimization

PUBLICATIONS

My research has resulted in **28** peer-reviewed scientific journal and conference articles (**14** of them as lead author) with more than **265** citations to date since 2015. Please refer to my [LinkedIn](#) and [Google Scholar](#) profiles for more details.

PROFILE

PH.D. Mechanical Engineer with a proven track record of delivering the highest quality, professional project standards and with particular expertise in modelling and simulation solutions, power generation platforms, turbomachinery and sustainable energy systems as well as algorithm development, thermodynamics and heat transfer disciplines. Highly organised, strongly self-motivated with keen attention to details that ensures completion of a wide variety of projects and initiatives on time, within budget and to full specification. Excellent communication and interpersonal skills (fluent in English and Persian), combined with an ability to work well either as part of a collaborative team or autonomously when required (with a minimum of executive oversight). Thrives in challenging and fast moving environments, prioritising tasks with strong time management skills and good work disciplines. Now seeking a fresh challenge that will make the most of this skill set.

CAREER SUMMARY

👤 Solar Design Engineer – Team Leader | Sep 2017 To Date

🏢 Mechanical Engineering Department | University of Tehran | Iran

- Demonstrating exceptional aptitudes in leading the University's team in a solar desalination cooling competition organised by the Mapna Group, finishing among the top 5 teams of 30 participating from leading academic institutions across Iran.
- Personally proposed and designed an innovative concentrating solar collection system (optimized with advanced modelling technique and customized for competition).
- Exhibiting excellent project management skills, coordinating team members to work together in constructing apparatus on a limited budget and playing an integral part in ensuring all tasks were delivered within tight deadlines to competition parameters.

👤 Freelance Solar Consulting Engineer | Sep 2016 To Date

🏢 Sohrevardi Shomali St | Tehran | Iran

- Commissioned by a variety of private and commercial clients to design and optimize customised solar collection systems.
- Created an innovative and effective alternative investment route, delivering 13% enhanced benefits for customers using optimized solar system designs.
- Executed optimum designs of twelve small-scale on-grid/off-grid PV plants using PV*SOL software: providing yield output, solar fraction, bankable financial reports and bills of material outputs.

RESEARCH EXPERIENCE

👤 Postdoctoral Research Associate | Sep 2017 To Date

🏢 Mechanical Engineering Department | University of Tehran | Iran

- Conducting research on Waste Heat Recovery (WHR) of Concentrating Photovoltaic/Thermal (CPV/T) collectors using Organic Rankine Cycle (ORC) and nano-fluid based optical filters.
- Introduced a novel configuration of concentrating receiver tube based on nano-fluids established by 1-D and 2-D models using EES integrated with GA that substantially improve performance.
- Successfully supervised 5 undergraduate students with their BSc final projects and majority obtained full mark.

👤 Honorary Research Fellow | Aug 2016 To Date

🏢 School of Engineering | University of Birmingham | UK

- Playing a key part in departmental research projects as well as undertaking collaborative work with other research groups.
- Offered mentorship to doctorate candidates in successful completion of their degrees to develop research planning strategies, giving them insights into what to look for by way of solutions and innovative ideas.

AWARDS

Best Article Award

Best article published in the International Journal of Low-Carbon Technologies (IJLCT), during 2014 Oxford University Press 08/2015

European Union Regional Development Fund (ERDF)

For Accelerating Business-Knowledge Base Innovation Activity (ABIA) project 07/2014 – 07/2015

PhD Research Full Scholarship

School of Engineering, University of Birmingham, UK 11/2011 – 11/2014

MEng Scholarship

School of Engineering, University of Birmingham, UK 09/2009 – 07/2011

SOFTWARE SKILLS

ANSYS
CFX | Fluent | Mechanical

ANSYS Turbomachinery

Turb-Aero

CFturbo

Engineering Equation Solver
(EES)

MATLAB

SolidWorks
CAD | Simulation | OPITS

CATIA

PV*SOL & T*SOL

ABAQUS

SigmaPlot

Microsoft Packages
Office | Project | Visio

Recognised Reviewer | Jun 2015 To Date

- Conducting professional peer-reviews for Elsevier & SAGE prestigious international journals, providing authors and editors with detailed and constructive observations on articles.
- 23 papers reviewed so far in disciplines including WHR, ORC, turbomachinery, solar systems, CFD and FEA analyses in journals such as *Energy*, *Applied Energy*, *Energy Conversion and Management* and *Power and Energy*.

Doctoral Research Candidate | Nov 2011 To July 2016

School of Engineering | University of Birmingham | UK

- Conducted research on development and optimization of small-scale axial and radial-inflow turbines for WHR using ORC and investigating various strategies through modelling, simulation and testing.
- Established a novel methodology based on 1-D modelling (using EES and MATLAB), 3-D simulation (using ANSYS CFX and Structural), multi-level optimization (Using NSGA and ANSYS DesignXplorer) and experimental testing.
- Manufactured a number of prototypes with rapid prototyping techniques such as Direct Metal Laser Sintering (DMLS), Selective Laser Sintering (SLS) and rapid casting (all of which were successfully tested).
- Recorded and reviewed experimental data, prepared a complex data set in consumable and usable format and wrote manuscripts for publications.

Collaborative Researcher | Nov 2011 To Feb 2016

School of Engineering | University of Birmingham | UK

- Conducting joint research on biofuel production from biomass via fischer-tropsch synthesis with “Alternative Fuels” research group.
- Investigating the performance of the FT synthesis process for the biodiesel fuel production & syngas conversion by developing an advanced program code in MATLAB.

Assistant Supervisor | Sep 2012 To Jan 2016

School of Engineering | University of Birmingham | UK

- Supported an academic member of staff and successfully supervised 9 undergraduate and postgraduate students in the completion of their theses.
- Played a key mentoring role through facilitating training of junior members in strengthening their communication skills, maintaining a good relationship with other students and producing their results efficiently and effectively, in a timely manner.

Product Development Researcher | Jul 2014 To Jul 2015

University of Birmingham & Landy Vent | UK

- Played an integral part in securing grant finance from the European Union Regional Development Fund (ERDF) for an industry-based research project conducted under Accelerating Business-Knowledge Base Innovation Activity (ABIA) scheme.
- Personally completed a complex research initiative investigating the feasibility of performance improvement for the “ECCO” stove (a Landy Vent product).
- Discovered innovative means of delivering a 20% improvement in product performance using WHR with ORC by adopting simulation tools including ANSYS CFX and SolidWorks FlowSimulation.

Postgraduate Teaching Assistant & Lab Demonstrator | Sep 2012 To Mar 2014

School of Engineering | University of Birmingham | UK

- Assisted students to expedite their learning curve while working on modules including sustainable energy and environment, fluid flow, thermodynamic, heat transfer, water turbines lab and ORC lab.
- Acquired strong team working skills, building a group of students capable of responding constructively to each other's ideas and suggestions and actively participating in the work of the team.

MEMBERSHIPS

Member of ISME

Iran Society of Mechanical Engineers
09/2017 – Present

Member of WSST

World Society of Sustainable Energy
Technologies
03/2016 – Present

Member of ASME

American Society of Mechanical
Engineers
07/2015 – Present

Associate Member of IMechE

Institution of Mechanical Engineers
02/2015 – Present

LANGUAGES

Fluent in English
Native in Persian

REFERENCES

References are available upon
request

MEng Student – Final Year Project | Apr 2010 To Jul 2011:

School of Engineering | University of Birmingham | UK

- Developed an advanced mathematical model for thermal and optical analysis of solar thermal power cycle for domestic applications (using MATLAB platform).
- Conducted geometry optimization of Compound Parabolic Collector (CPC) with advanced ray tracing techniques using SolidWorks OPTIS suite.

Applied Mechanics Group Project – Team Leader | Sep 2008 To Jun 2009

Amirkabir University of Technology | Tehran | Iran

- Designed and fabricated a prototype of a wireless remotely controlled Robot-fish using SolidWorks for CAD modelling, ABAQUS for structural analysis and ANSYS CFX for under water aerodynamic behavior.
 - Exhibited outstanding exploitation of fabricating techniques and achieved 1st class grade.
-