Why University of Adelaide (UofA)?

Sub Cruce Lumen
"The light (of learning) under the (Southern) Cross"

1 WORLD RANKING

135	**102**	**106**	**137**
Times Higher Education (THE)	US News	Top Universities (QS)	ARWU
#101-120 in Engineering	#37 in Engineering	#110 in EEE	#101-150 in Engineering

Consistently being ranked in the top 1% in the world

2 NOBEL PRIZE

- Only 15 have been awarded in Australia – and 5 of these to UofA associates.
- Two Nobel laureate in Physics, two in Physiology or Medicine, and one in Literature

3 ERA*

Assessed at **5 - Well above world standard** (the highest rating) in Electrical & Electronics Engineering in **2015** and **2018 ERA assessment**

Better than the University of Sydney, the University of Queensland, Monash University, Macquarie University, The University of Western Australia, and Queensland University of Technology.

*Excellence in Research for Australia (ERA) is the Australia's national research evaluation framework that identifies and promotes excellence across the full spectrum of research activity in Australia's higher education institutions.

4 Go8*

UofA is a member of **Group 8 (Go8)** including The Australian National University, The University of Melbourne, The University of Sydney, The University of Queensland, The University of New South Wales, Monash University, and The University of Western Australia

*Read more about Go8 in https://go8.edu.au/about/the-go8

5 ABOUT POWER SYSTEM GROUP

Australian Energy Storage Knowledge Bank project produced a fully-instrumented energy storage system, presently being tested at Cape Jervis, and a data bank showing all operational Australian energy storage systems' performance	**Mudpack** commercial software package is used by the Australian Energy Market Operator, and most power system transmission network service providers, to analyse power system dynamics and control-system design	Power-system stabiliser tuning methodologies—embedded in the **Mudpack package**—have helped facilitate power-system interconnection between South Australia and Victoria, and Queensland and New South Wales	**AULimit software** for calculating maximum secure interregional power-transfer limits is used by *ElectraNet* to help define the South Australian power system's secure technical operating envelope in all conditions.	Collaborating with various industry and government organisations, including: *ABB Utilities (Sweden), Australian Energy Market Operator, Australian Power Institute, ElectraNet, Hydro Tasmania, Powerlink (Queensland), SA Power Networks, TasNetworks, Toshiba, Transgrid (NSW)*

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SCHOLARSHIPS, FELLOWSHIPS, AND TRAVEL GRANTS

Adelaide Scholarship International	Endeavour Leadership Program	Full Fee Scholarships	China Scholarship Council (CSC)	Different Fellowships & Travel Grants
the most important scholarship program at UofA, which is held in 3 rounds every year. Read further at Information for international student about international scholarships round, eligibility criteria, and application submission.	Provides financial support for international students to undertake a postgraduate qualification at a Masters or PhD level either by coursework or research in any field of study in Australia by the federal government.	Awarded to outstanding international students from any country to undertake postgraduate research. It will ONLY be allocated to international students who have been previously awarded a stipend by the host School, Faculty, or Research Institute. Applicants must be nominated by their Principal Supervisor and Executive Dean.	CSC along with the University of Adelaide are jointly offering Postgraduate Research Scholarships to applicants from the **People's Republic of China** who intend to undertake a PhD at the University of Adelaide.	ANSTO SAAFE Research Internship Program **Australian German Association (AGA)-Goethe Fellowship** Fulbright Scholarships Program **German Academic Exchange Service (DAAD)** Swiss Government Excellence Scholarships **AINSE Travel Scholarships** Capstone Editing Conference Travel Grant **D R Stranks Travel Fellowships** Research Travel Scholarship **Walter Dorothy Duncan Trust Board Conference Travel**

For a list of partial funding scheme, please check https://international.adelaide.edu.au/admissions/scholarships

*A comprehensive list of **full postgraduate scholarships** is available at https://www.adelaide.edu.au/graduatecentre/scholarships/research-international/opportunities/*

If you have a **Master's degree** with *minimum three Q1 journal papers*, or a **Bachelor's degree** with *first class honour* with background in *stochastic modelling and control*, *optimisation*, and/or *time series analysis* and *strong programming skills*, please send me an email with your CV. We might be able to work together to put in an application for scholarships.

7 QUICK FACTS

- Third oldest university in Australia
- The first university in Australia, and only second in the world, to admit women to academic courses (in 1881).
- The first Australian university to establish a Conservatorium of Music, a Chair of Music and a Doctor of Music, and the first to grant that degree to a woman (in 1918).
- Graduated the remarkable Dame Roma Mitchell who went on to become the first female: Queen's Counsel, Supreme Court Judge and Governor of an Australian state (SA).
- The highest volume of commercial research agreements of all Australian universities
- To read more about UofA campus life, please check here https://www.adelaide.edu.au/study/why-study-at-adelaide/campus-life/

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THE CITY OF ADELAIDE

Ranked among the **top 10 most liveable city in the world** by the *Economist* magazine.

https://edition.cnn.com/travel/article/worlds-most-liveable-cities-2018/index.html

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Ranked as the **most liveable city in Australia** by people in terms of cost of living, a range of quality affordable housing and being a clean, well maintained and unpolluted city.

https://www.australiasbestcity.com.au/adelaide-is-australias-most-liveable-city/

The **most affordable major city in Australia**. Check out a detailed breakdown of costs in Adelaide in here. Compare other cities with Adelaide in the website using "Compare Adelaide with" box.

https://www.numbeo.com/cost-of-living/in/Adelaide

Adelaide experiences mild winters and a warm, dry summer. It has an average maximum temperature of 29°C (84.2°F) in summer and 15 - 16°C (59 - 60.8°F) in winter.

https://www.australia.com/en/facts-and-planning/weather-in-australia/weather-in-adelaide.html

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Ideal for renewable and storage research with:

1- The *largest penetration of Wind and PV in the Australia* with 1.1 kW per person (and one of the biggest one in the world.
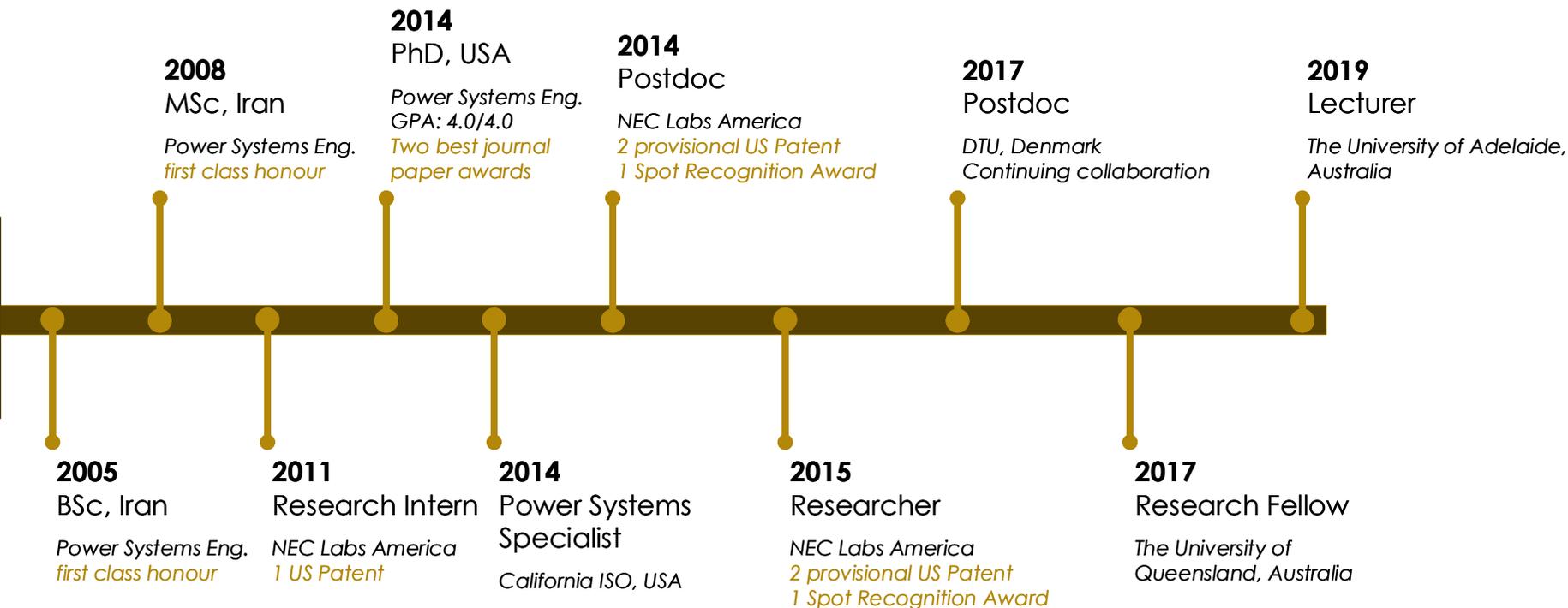
2- The largest capacity of utility-scale battery in the world with 100 MW/129 MWh Tesla battery in Hornsdale Wind Farm, 30 MW/8 MWh battery at the Dalrymple substation, and 25 MW/52 MWh battery at Lake Bonney

https://theconversation.com/at-its-current-rate-australia-is-on-track-for-50-renewable-electricity-in-2025-102903

Seyyed Ali Pourmousavi Kani
Http://www.alipourmousavi.com

About me

2008
MSc, Iran

Power Systems Eng.
first class honour

2014
PhD, USA

Power Systems Eng.
GPA: 4.0/4.0
Two best journal
paper awards

2014
Postdoc

NEC Labs America
2 provisional US Patent
1 Spot Recognition Award

2017
Postdoc

DTU, Denmark
Continuing collaboration

2019
Lecturer

The University of Adelaide,
Australia

2005
BSc, Iran

Power Systems Eng.
first class honour

2011
Research Intern

NEC Labs America
1 US Patent

2014
Power Systems
Specialist

California ISO, USA

2015
Researcher

NEC Labs America
2 provisional US Patent
1 Spot Recognition Award

2017
Research Fellow

The University of
Queensland, Australia

PUBLICATION & CITATION			
5 US Patent & App.	**1** Book Chapter	**13** Journal Paper	**30** Conf. Paper

458 h-index: 8

Scopus **850** h-index: 13

1246 h-index: 16

RESEARCH SIGNIFICANCE	
	Battery Degradation and Optimal Management Implemented in multiple 7-Eleven stores across Malaysia in 2012, *NEC Laboratories America*.
	Optimal Battery Management System based on Cycling and Calendar Degradation Commercialised in "Distributed Storage Solution" by NEC Energy Solutions in 2017, NEC Laboratories America.
	Outperformed researchers at Go8 and Australia in FWCI*, "outputs in top 10%" and "outputs in top 25%" across *Computer Science* and *Energy* in terms of productivity during the period of 2011-2018 [SciVal, Jan 2019].
	Paper [J4]: In the top 2% of the most highly cited papers in the fields of Computer Science in the world [SciVal, Jan 2019].
	Paper [J9]: The most highly cited paper in the journal of *Electric Power Systems Research* for the year 2018 out of a total of 378 documents, the top 1% of its ESI academic field in 2018 [SciVal, Web of Science, Jan 2019].
	Papers cited by 160 institutions in 68 countries and in 20 different research areas [Scopus, Jan 2019].
	International collaborations with authors from 10 countries and 20 institutions [Scopus, Jan 2019]

Field-Weighted Citation Impact

CURRENT COLLABORATORS

Prof Henrik Madsen
Technical University of Denmark (DTU), Denmark

- Section Head of Dynamical Systems in the school of Applied Mathematics
- Knight of the Order of Dannebrog by Her Majesty the Queen of Denmark

Assoc Prof Juan Morales
University of Malaga (UMA), Spain

- Head of OASYS group in the school of Applied Mathematics
- European Research Council Starting Grant recipient

Assoc Prof Mithulan Nadarajah
The University of Queensland (UQ), Australia

- School of Information Technology and Electrical Engineering

I am exploring research collaboration and HDR exchange opportunities with a number of junior to senior professors in the USA, Europe, and Australia to expand our research network, facilitate our visibility globally, and provide opportunities for HDR to exploit international and world-class expertise through external supervision.

In the case of research relevance, strong performance, and travel support, HDR will be encouraged and assisted by me to work closely with our research collaborators at their host schools for 2-3 months in the middle of PhD/Mphil research.

About me

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FUNDING & GRANTS	~$36K, Research Infrastructure Grant School of Electrical and Electronic Engineering, The University of Adelaide
	~$82K, PhD Scholarship Grant School of Electrical and Electronic Engineering, The University of Adelaide

OFFICIAL SUPERVISION

Emma Blomgren	Technical University of Denmark (DTU)	Local market mechanisms for multi-carrier energy systems	2019 - now	--
Julian Lemos Vinasco	Technical University of Denmark (DTU)	Behind-the-meter flexibility aggregation considering network constraints	2019 - Now	--
Umer Akram	The University of Queensland (UQ)	Energy storage application for inertial and primary frequency regulation	2018 - now	--
Md Imran Azim	The University of Queensland (UQ)	Peer-to-Peer energy trading under network constraints	2018 - Now	--
Giulia De Zotti	Technical University of Denmark (DTU)	Leveraging consumers' flexibility for the provision of ancillary services	2017-2019	Energy Advisor Danish Energy Agency
Md Mehedi Hasan	The University of Queensland (UQ)	Thermal modelling and cost analysis of large-scale battery energy systems	2017-2019	Tandem Corp Pty Ltd.
Dr. Marzieh Parandehgheibi	Massachusetts Institute of Technology (MIT)	A two-layer incentive-based controller to aggregate BTM storage devices	2016	Technical Lead NIO
Dr. Shankar Mohan	University of Michigan - Ann Arbor	Battery sizing and economic benefit analysis in grid-scale application	2016	Research Engineer Ford

Giulia De Zotti

… I feel very privileged that I have worked with such a skilled, motivated and brilliant person. Under his guidance, I became passionate about research and I have learned a lot about power system operation, electrical engineering and mathematical modelling. Beside the professional aspect, Ali is a kind, patient and emphatic person that is very enjoyable to work with. His constant support helped me to master all the challenges of the PhD …

… I highly recommend to any motivated student to work with Ali as supervisor, as he/she will get an brilliant and inspiring mentor with a high interest in his students.
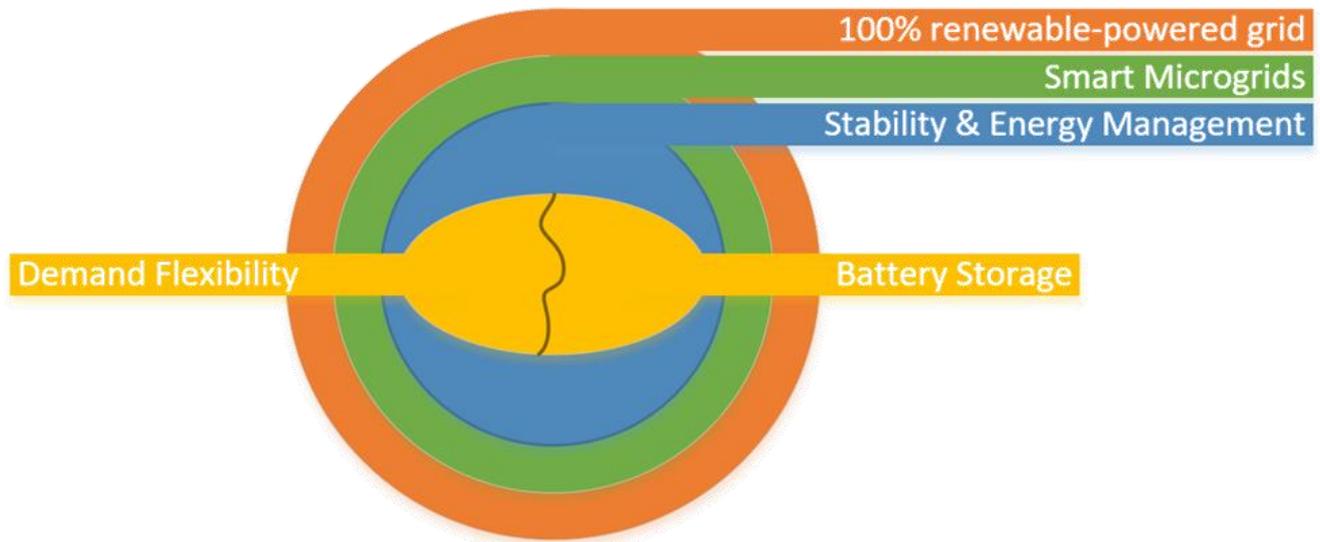
Md Mehedi Hasan

… I struggled a lot at the beginning to understand - "how does the research proceed?". Dr. Ali helped me to understand the whole process step by step through the works … I never considered him just as one of the supervisors but also a great co-worker who helped me in every step and showed me a way wherever I faced problem … He goes through every single bit of writing until it gets to a state of 100% perfection … Out of meeting schedule, he welcomed me to discuss about anything without scheduled time.

Overall, I would like to say that he follows unconventional and effective way to supervise a student according to his/her needs.

My research themes

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My research aims at developing cost-effective solutions and algorithms to pave the way to 100% renewable generation in the future grid. In that direction, our research is focused on demand flexibility exploitation and storage systems.

- On the demand flexibility, we are developing an innovative ancillary services method to facilitate demand response through smart grid technologies while preserving consumers privacy, autonomy, and welfare. We also try to extend ancillary services provision to distribution system operators in this new framework.

- On the storage technologies, our focus is currently on electrochemical battery devices. We want to take a holistic approach, i.e., we intend to extend battery optimal sizing and operation to involve different technologies (solid-state and flow batteries), form (stationary and mobile), scale (utility-scale and behind-the-meter) while considering battery ageing and stacked operation.

To do so, we need a multi-disciplinary approach in research to account for various stochasticity and uncertainty in the new environment through the application of Operations Research, Time Series, and Artificial Intelligence methods.

Seyyed Ali Pourmousavi Kani
Http://www.alipourmousavi.com