




# Amirhossein Ahmadi — CV

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🌐 Amirhossein Ahmadi • 📄 Amirhossein Ahmadi

## Education

- **Doctor of Philosophy, Ph.D.** Sep 2021–Present  
 *University of Calgary* *Calgary-Canada*  
- Major: Electrical and Software Engineering - Energy & Environment GPA: 3.9  
- Thesis: Deep Probabilistic Learning-based Net Electricity Demand Forecasting of Responsive Loads  
· **Supervisor:** Prof. H. Zareipour, **Co-supervisor:** Prof. H. Leung
- **Master of Science, M.Sc.** Sep 2013–Nov 2015  
 *Amirkabir University of Technology* *Tehran-Iran*  
- Major: Electrical and Computer Engineering - Control Systems GPA: 3.81  
- Thesis: Fractional Order PID Controllers Tuning for Time-delay Processes Grade: 19/20  
· **Supervisor:** Prof. S. K. Y. Nikravesh
- **Bachelor of Science, B.Sc.** Sep 2008–Sep 2012  
 *University of Tabriz* *Tabriz-Iran*  
- Major: Electrical and Computer Engineering - Control Systems  
- Thesis: Sliding Mode Controller Design for Linear Time-varying Systems Grade: 19/20  
· **Supervisor:** Prof. M. A. Badamchizadeh

## Professional Experiences

- **Ambassador of Hunter Hub for Entrepreneurial Thinking** Sep 2022 - Present, Calgary, CA  
- Envoy of a community hub for activities that will support entrepreneurial student experiences, enable faculty to lead in innovation, and expand a growing community of entrepreneurial and innovative thinkers.  
- Focus on four core activities: programming & events, access to funds, cultivating a network, and creative collisions.
- **Research Assistant at Schulich School of Engineering at UCalgary** Sep 2021 - Present, Calgary, CA  
- Terminology, methodology, literature review, prototype developing and writing the PhD proposal  
- Attend project meetings and reporting results and project progress to sponsors  
- Write and publish research outputs in reputable journals
- **Research Assistant at Renewable Energy Design group at UH Manoa** Jan 2021 - Aug 2021, Hawaii, USA  
- Literature review, conceptualization, programming and writing a proposal on dynamic line rating  
- Attend project meetings and reporting results and project progress  
- Write and publish research outputs in reputable journals (refer to [2-3] in Publications)
- **Research Assistant at Smart Energy Systems group at UT** Sep 2019 - Jan 2021, Tabriz, Iran  
- Literature review, conceptualization, programming and writing a proposal on forecasting systems  
- Lead team, manage project meetings and evaluate project progress  
- Publish research outputs in reputable journals (refer to [4-8] in Publications)
- **Research Assistant at Complex Dynamical Networks group at RMIT** Sep 2017 - Jan 2019, Melbourne, AU  
- Literature review, programming and writing a proposal on data-driven control of energy power systems  
- Attend project meetings and area seminars as necessary and reporting results and project progress  
- Write and publish research outputs in reputable journals (refer to [9-10] in Publications)
- **Research and Development at Engineer Airbag Control Unit at Crouse** Sep 2018 - Jan 2019, Tehran, IR  
- Market research investigation on airbag control unit's sensors and evaluating similar products.  
- Writing proposals, developing computational models, designing prototypes, and reporting results.
- **Research Assistant at Industrial Control group at AUT** Sep 2015 - Jan 2017, Tehran, Iran  
- Literature review, simulation, prototype developing and writing a proposal on impedance-source inverters  
- Attend project meetings and area seminars as necessary and reporting results and project progress  
- Write and publish research outputs in reputable journals (refer to [11-12] in Publications)
- **Instructor for Industrial Control group at AUT** Sep 2015 - Jan 2017, Tehran, Iran  
- Developing curriculum and preparing teaching materials and course outlines  
- Teaching and supervising students automation using lectures, laboratory workshop sessions, assignments and projects  
- Answering students' questions and providing support to help them succeed

- Preparing, administering and marking tests and papers to evaluate students' knowledge and progress
- Providing students with access to assessment method guides/rubrics as well as constructive feedback
- Adjusting course outlines on an annual basis to ensure information is up-to-date and relevant
- Attended a six-months training program to stay up-to-date on trends and changes in the industry/field
- **Research Assistant at Dynamical Systems Stability group at AUT** Sep 2013 - Sep 2015, Tehran, Iran
  - Literature review, conceptualization, programming and writing a proposal on fractional order controllers
  - Attend project meetings and area seminars as necessary and reporting results and project progress
  - Write and publish research outputs in reputable journals (refer to [13-18] in Publications)
  - Supervise undergraduate students working on the research project
- **Intern at Khoy Combined Cycle Power Plant (CCPP)** Jun 2012 - Sep 2012, Khoy, Iran
  - Gained practical experience about various equipment/systems utilized in combined cycle power plants
  - Developed practical experience in interpreting Piping and Instrumentation Diagrams (P&IDs)
  - Got theoretical knowledge with power plants' automation and control using PLC, instrumentation and SCADA

## Teaching Experiences

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- Teaching Assistant for Industrial Control Systems (graduate Course) 2015 - 2016
- Teaching Assistant for Optimal Control Systems (graduate Course) 2015 - 2017
- Teaching Assistant for Electricity, Magnetism and Electrical Circuits (undergraduate Course) Fall 2021-22
- Teaching Assistant for Grid-Connected Inverters for Alternative Energy Systems (graduate Course) Winter 2022
- Teaching Assistant for Control Systems I (undergraduate Course) Winter 2022

## Honors and Awards

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- Hunter Centre for Entrepreneurship Scholarship, Schulich School of Engineering, University of Calgary Sep 2022
- Finalist of Killam Scholarship Competition, Schulich School of Engineering, University of Calgary Mar 2021
- Izaak Walton Pre-Doctoral Scholarship, Schulich School of Engineering, University of Calgary Mar 2021
- International Graduate Tuition Award, Schulich School of Engineering, University of Calgary Sep 2021-Sep 2025
- Graduate Assistantship Funding, Schulich School of Engineering, University of Calgary Sep 2021-Sep 2025
- Graduate Tuition Award, Department of Electrical Engineering, Amirkabir University of Technology Sep 2013-Sep 2015
- Ranked **49<sup>th</sup>** (top 0.4%) in national wide university entrance exam for M.Sc. program Jul 2013
- Undergraduate Tuition Award, Department of Electrical Engineering, University of Tabriz Sep 2008-Sep 2012
- Ranked **1652<sup>th</sup>** (top 0.3%) in national wide university entrance exam for B.Sc. program Jul 2008
- An Honors Student Award, Pazhoohesh high school Sep 2004-Jun 2008

## Oral Presentations

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- **A. Ahmadi**, A. M. Amani, F. A. Boroujeni "A simple fractional order IMC-PID controller design based on gain and phase margins for fractional order time delay processes".
  - *28st Iranian Conference on Electrical Engineering (ICEE)*, IEEE.
  - ICEE is the best leading Iranian conference on Electrical Engineering.
    - May 26-28 2020, Tabriz, Iran
- **A. Ahmadi**, T. V. Moghaddam and S. K. Y. Nikravesh "Fractional order derivative integral controller synthesis for a class of fractional order systems".
  - *International Conference on New Research Achievements in Electrical and Computer*, IEEE.
  - August 5-6 2017, Tehran, Iran
- **A. Ahmadi**, S. K. Y. Nikravesh, "Improved double controller scheme".
  - *25st Iranian Conference on Electrical Engineering (ICEE)*, IEEE.
  - May 2-4 2017, Tehran, Iran
- **A. Ahmadi**, S. K. Y. Nikravesh, "Robust Smith predictor (RSP)".
  - *24st Iranian Conference on Electrical Engineering (ICEE)*, IEEE.
  - May 10-12 2016, Shiraz, Iran
- **A. Ahmadi**, S. K. Y. Nikravesh, "A Novel Instantaneous Exploitation Based Bat Algorithm".
  - *24st Iranian Conference on Electrical Engineering (ICEE)*, IEEE.
  - May 10-12 2016, Shiraz, Iran
- **A. Ahmadi**, "Metaheuristics: Algorithms for optimization".
  - *Department of Electrical Engineering, Amirkabir University of Technology*
  - Jan 7 2014, Tehran, Iran

## Volunteerism/Community Outreach

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- **VP-External at Electrical and Software Engineering Graduate society** Nov 2022 - Present, Calgary, CA
  - I am elected as the Vice President associate, External Relations who is an executive member of the board of directors of the Electrical and Software Engineering Graduate society (ESEGs). As a member of the leadership team, I am responsible for the strategic direction and implementation of all funding activities to increase external support for the association's mission and programs. I am also responsible for building strong relationships across all levels of the university and awareness and a positive reputation through storytelling, advocacy, community connections, special events, and creative initiatives. My role is to help connect graduate students with resources and opportunities outside of the department, whether it be about industry events, conferences, or social events. I also attend meetings and work closely with colleagues in other faculties and administrative units as well as serving as an ambassador to key stakeholder groups such as graduate students, alumni, deans, faculty, and staff across the department.
- **Launchpad Peer Helper at Hunter Hub center** Sep 2022 - Present, Calgary, CA
  - This is a competitive student leadership volunteering opportunity at Hunter Hub for Entrepreneurial Thinking. Launchpad is a co-curricular program, aiming to build entrepreneurial thinking skills in students across the university for creating startups. Through a series of events, workshops, seminars, coaching sessions, and a final pitch competition, participants hone their entrepreneurial skills in a real-world project designed to make an impact in their respective industries. As the ambassador, I coordinated these weekly activities with the Hunter Hub staff. I supported the Launchpad Live events; responsibilities included overall event support, participant coordination, community-facing communications, and answering participant questions/concerns. In addition, I organized and liaised on aspects of on-site events according to the requirements set by the Hunter Hub team including setup and teardown, catering, AV, and IT requirements.
- **Social Media Officer at Electric Energy Systems Research group** Sep 2021 - Present, Calgary, CA
  - I am responsible for ensuring the profile page of the Electric Energy Systems Research group on a variety of social media platforms like LinkedIn and ResearchGate is kept up to date, including news, contact, details, descriptions, logo, etc. Also, I manage the group email account, answer queries, and use the page service to regularly update the community with what's going on.
- **GSA Award Committee Member** Sep 2022 - Present, Calgary, CA
  - As an awards committee member, I evaluated several GSA Citizenship Award, GSA Bursary, GSA/FGS Graduate Student Inclusion Scholarship, and Professional Development Grant applications to select and fund the recipients among graduate students. I also actively participated in the adjudication meetings discussing applications for funding, specifically those with large discrepancies in reviewer scores and those close to the funding cut-off line.
- **Sustainability Peer Helper** Sep 2022 - Present, Calgary, CA
  - This is a competitive student leadership volunteering opportunity at the Office of Sustainability. My role is developing and implementing sustainability projects, such as the Speaker Series, Awards, and Fair Trade Week, or outreach initiatives across campus to support the achievement of the University's Institutional Sustainability Strategy. I am also responsible for introducing students and community members to the concept of sustainability and the ways in which they can get involved as advocates, innovators, and changemakers.
- Reviewer of IEEE Transactions on Power Systems, IEEE Transactions on Industrial Informatics and IEEE Access
- Reviewer of IEEE Transactions on Industry Applications, IEEE Internet of Things Journal and ISA Transactions
- Reviewer of IET Generation, Transmission and Distribution, IET Power Electronics and IEEE Systems Journal
- Reviewer of International Journal of Electrical Power & Energy Systems

## Language Proficiency

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- Azeri Mother tongue
- Turkish Competent
- Persian Native
- German Basic
- English Fluent
  - TOEFL Score: 97
    - Reading: 28, Listening: 24
    - Speaking: 22, Writing: 23

## Book Chapter

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- **A. Ahmadi** and S. K. Y. Nikraves "An Introduction to Nature-inspired Optimization Algorithms", Optimal Control Theory, Publisher: Amirkabir University Press, 2017, pp. 490-554. Published

## Publications

1. **A. Ahmadi**, S. Taheri, R. Ghorbani, V. Vahidinasab, B. Mohammadi-ivatloo "Decomposition-based stacked bagging boosting ensemble for DLR forecasting", *IEEE Transactions on Power Delivery*, 2023. Revised
2. **A. Ahmadi**, M. Talaei, M. Sadipour, A. M. Amani, M. Jalili "Deep Federated Learning based Privacy-Preserving Wind Power Forecasting". *IEEE Access*, DOI: 10.1109/ACCESS.2022.3232475, 2023.
3. A. Morteza, M. Sadipour, R. Saadati Fard, S. Taheri, **A. Ahmadi** "A Dagging-Based Deep Learning Framework for Transmission Line Flexibility", *IET Renewable Power Generation*, DOI: 10.1049/rpg2.12663, 2023.
4. **A. Ahmadi**, M. Nabipour, S. Taheri, B. Mohammadi-ivatloo, V. Vahidinasab "A new false data injection attack resilient model for energy forecasting", *IEEE Transactions on Industrial Informatics*, 19(1), pp. 371-381, 2023.
5. A. Arjmandinezhad, **A. Ahmadi**, S. Taheri, M. Moeini-Aghaie, M. Fotuhi Firuzabad, M. Lehtonen "Pandemic-Aware Day-Ahead Demand Forecasting using Ensemble Learning", *IEEE Access*, 10, pp. 7098-7106, 2022.
6. S. Taheri, **A. Ahmadi**, B. Mohammadi-ivatloo, Somayeh Asadi "Fault detection diagnostic for HVAC systems using deep learning algorithms", *Energy and Buildings*, 250, 2021.
7. **A. Ahmadi**, M. Nabipour, B. Mohammadi-ivatloo, V. Vahidinasab "Ensemble learning-based dynamic line rating forecasting under cyberattacks", *IEEE Transactions on Power Delivery*, 37(1), pp. 230-238, 2021.
8. **A. Ahmadi**, M. Nabipour, B. Mohammadi-ivatloo, A. M. Amani, S. Rho, MD. Jalil Piran "Long-term wind power forecasting using tree-based learning algorithms", *IEEE Access*, 8, pp. 151511-151522, 2020.
9. **A. Ahmadi**, Y. Asadi, A. M. Amani, M. Jalili, Xinghuo Yu "Resilient Model Predictive Adaptive Control of Networked Z-source Inverters using GMDH", *IEEE Transactions on Smart Grids*, 13(5), pp. 3723 - 3734, 2022.
10. Y. Asadi, **A. Ahmadi**, S. Mohammadi, A. M. Amani, M. Marzband, B. Mohammadi-ivatloo "Data-driven model-free adaptive control of Z-source inverters", *Sensors*, 21(22), 2021, 7438.
11. **A. Ahmadi**, P. Mohammadi, B. Mohammadi-ivatloo, Ali M. Amani "LMI based robust controller design and implementation for Z-source inverters", *IET Power Electronics*, 13(17), pp. 4058-4067, 2020.
12. **A. Ahmadi**, B. Mohammadi-ivatloo, A. Anvari Moghaddam, M. Marzband "Robust optimal LQI controller design for Z-source inverters", *Applied Sciences*, 10(20), 7260, 2020.
13. **A. Ahmadi**, S. K. Y. Nikravesh, A. M. Amani "A unified IMC based PI/PID controller tuning approach for time delay processes", *AUT Journal of Electrical Engineering*, 52(1), pp. 31-52, 2020.
14. **A. Ahmadi**, A. M. Amani, F. A. Boroujeni "A simple fractional order IMC-PID controller design based on gain and phase margins for fractional order time delay processes", *28st Iranian Conference on Electrical Engineering (ICEE)*, IEEE, May 26-28 2020, Tabriz, Iran.
15. **A. Ahmadi**, T. V. Moghaddam and S. K. Y. Nikravesh "Fractional order derivative integral controller synthesis for a class of fractional order systems", *Int. Conference on New Research Achievements in ECE*, 2017.
16. **A. Ahmadi**, S. K. Y. Nikravesh, "Improved double controller scheme", *25st Iranian Conference on Electrical Engineering (ICEE)*, IEEE, May 2-4 2017, Tehran, Iran, pp. 703-708.
17. **A. Ahmadi**, S. K. Y. Nikravesh, "Robust Smith predictor (RSP)", *24st Iranian Conference on Electrical Engineering (ICEE)*, IEEE, May 10-12 2016, Shiraz, Iran, pp. 1510-1515.
18. **A. Ahmadi**, S. K. Y. Nikravesh, "A Novel Instantaneous Exploitation Based Bat Algorithm", *24st Iranian Conference on Electrical Engineering (ICEE)*, IEEE, May 10-12 2016, Shiraz, Iran, pp. 1751-1756.

## Certificates

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| ○ PLC - Simatic Manager  | Technical & Vocational Training Organization, 2013      |
| ○ L <sup>A</sup> T <sub>E</sub> X                                    | AUT, IEEE Student Branch, 2014                          |
| ○ Mechatronics   | Festo & Instructor Training Center, Apr 2018 - Sep 2018 |
| - SCADA (WinCC)  | - Proportional hydraulic                                |
| - Instrumentation  | - Electric motors and drives                            |
| - PLC - TIA Portal   | - Stepper motor & Servo drive                           |
| - Industrial networks  | - Hydraulic & Electro-hydraulic                         |
| - HMI (WinCC flexible)   | - Pneumatic & Electro-pneumatic                         |
| ○ Machine Learning with Python                                       | Iran Machine Learning, 2020                             |
| ○ Programing with Python   | W3School, 2021  |
| ○ Deep Learning Specialization                                       | Coursera, 2022  |
| ○ Google Data Analytics  | Coursera, ongoing                                       |
| ○ Generative Adversarial Networks (GANs) Specialization              | Coursera, ongoing                                       |
| ○ Machine Learning Engineering for Production (MLOps) Specialization | Coursera, ongoing                                       |

## Hobbies and Interests

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- Football/Futsal **Gold medal in annual football competition 2013-2014**
  - AUT football & futsal team player 2013-2015
  - UT football & futsal team player 2010-2012
- Kick Boxing **Green belt from Federation of Martial Arts of Iran**
- Hiking, skiing and ice skating
- Reading success, motivation, management & leadership, personal finance/business books
- Watching movies, animated movies and Japanese manga series and listening to music

## References

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- Professor Hamidreza Zareipour  
University of Calgary h.zareipour@ucalgary.ca
- Professor Behnam Mohammadi-ivatloo  
University of Tabriz, Aalborg University bmohammadi@tabrizu.ac.ir
- Dr. Ali Moradi Amani  
Royal Melbourne Institute of Technology ali.moradiamani@rmit.edu.au
- Professor Vahid Vahidinasab  
Nottingham Trent University vahid.vahidinasab@ntu.ac.uk

**Further information, references and proofs are available upon request**