2155 E. Wesley Ave. ECS 362
Denver, CO. 80208

Wei Gao

(720) 224-7322
gao18222967451@gmail.com

EDUCATION

2018-present University of Denver *Ph.D. candidate in Electrical and Computer Engineering* GPA 3.98
Courses: Electric Power Systems; Optimal Control; Renewable and Efficient Power and Energy Systems; Power system protection; AI in power system; Optimization; Networked control; Advanced Engineering Mathematics; Independent Research; Signals & Systems; Adaptive Control Systems; Electromagnetic Compatibility; Advanced Non-Linear Control System.

2013-2017 Hebei University of Technology *B.S. in Automation* GPA 3.23

TECHNICAL SKILLS & SPECIALTIES

1) Electric power economy; electric power system analysis in PowerWorld Simulator; control, design and modeling of renewable energy conversion systems.
2) AI application in power systems; data analytics and modeling and simulation in MATLAB/Simulink and PSCAD; RTDS/RSCAD; LabVIEW; Python/C programming; GAMS; PLC.
3) Research concentration: distributed micro-grid power flow studies, optimal control, stability and economics.

RELEVANT PROJECTS

11/2019-01/2021
Research and training in power market (see details in work summary document)

02/2019-06/2019
Graduate Research at SolarTAC
Develop a BMS (Battery Management System) for LG-Chem Battery in LabView to implement the data visualization of battery status and the corresponding charging control of the battery.

05/2018-12/2019
Student intern under CRADA at National Wind Technology Center and National Renewable Energy Laboratory
Cooperate with others for establishing transmission and distribution network models using Real Time Digital Simulator (RTDS) for hardware-in-the-loop testing of Wind-Turbine Control.

06/2018-present
Graduate Research Assistant, Ph.D. candidate at Renewable Energy and Power Electronics Laboratory, University of Denver
Graduate Research Assistant with research focus on the distributed micro-grid for its power flow, optimal control, stability and economics.

09/2018-03/2019; 09/2019-present
Grader for Advanced Engineering Mathematics and Introduction to Power and Energy System, Intro to Mechatronic Systems, Controls, Instrumentation & Data Acquisition.
University of Denver

INTERNSHIP & VOLUNTEER & CONTESTS & AWARDS

05/2019-present PhD scholarship in Electrical & Computer Engineering Department at University of Denver.

05/2018-12/2019 Student intern under CRADA at National Renewable Energy Laboratory.

10/2019 Nomination for Best Paper, 51th North American Power Symposium (NAPS 2019).

07/2018; 07/2019 Assist the NSF project for Research Experience for Undergraduates in Summer.

05/2015 Third prize of “Smart wall thermometer for home use” in the competition of Hetai Cup.

09/2014 Second prize in electromechanical integration innovation design projects in “the fourth

session of the Hebei University of Technology innovation and practical ability contest"

PAPERS & PUBLICATIONS

GOOGLE SCHOLAR:

https://scholar.google.com/citations?hl=en&user=NvzZQVsAAAAJ&view_op=list_works&sortby=pubdate

1) *Wei Gao, "PV Array Fault Detection Based on Deep Neural Network," 2021 IEEE Green Technologies (GreenTech) Conference, submitted.*
2) *Kun Yang, Wei Gao, Rui Fan, Tianzhixi Yin, Jianming Lian, "Synthetic High Impedance Fault Data through Deep Convolutional Generated Adversarial Network," 2021 IEEE Green Technologies (GreenTech) Conference, submitted.*
3) *Weihang Yan, Xiao Wang, Wei Gao and Vahan Gevorgian. Electro-mechanical Modeling of Wind Turbine and Energy Storage Systems with Enhanced Inertial Response [J]. Journal of Modern Power Systems and Clean Energy, 2020, 8(5): 820-830. DOI: 10.35833/MPCE.2019.000565*
4) *LI Yu-Shuai, LI Tian-Yi, GAO Wei, GAO Wen-Zhong, "Distributed Collaborative Optimization Operation Approach for Integrated Energy System Based on Asynchronous and Dynamic Event-Triggering Communication Strategy," ACTA AUTOMATICA SINICA, Vol. 46, No. 9, September 2020, accepted.*
5) *Li, Yushuai, Gao, Wei, Yan, Weihang, Huang, Shuo, Wang, Rui, Gevorgian, Vahan, GAO, Wenzhong, "Data-Driven Optimal Control Strategy for Virtual Synchronous Generator via Deep Reinforcement Learning Approach," Journal of Modern Power Systems and Clean Energy, 2020.*
6) *Yushuai Li, David Wenzhong Gao, Wei Gao, Huaguang Zhang, "A Distributed Double-Newton Descent Algorithmfor Cooperative Energy Management of Multiple Energy Bodies in Energy Internet," IEEE Transactions on Industrial Informatics, 2020.*
7) *Wei Gao, "Microgrid Control Strategy Based on Battery Energy Storage System-Virtual Synchronous Generator (BESS-VSG)," 2020 IEEE Kansas Power and Energy Conference (KPEC), Manhattan, KS, USA, 2020, pp. 1-6.*
8) *X. Guan et al., "Deterioration Behavior Analysis and LSTM-Based Failure Prediction of GIB Electrical Contact Inside Various Insulation Gases," in IEEE Access, vol. 8, pp. 152367-152376, 2020.*
9) *Y. Li, D. W. Gao, W. Gao, H. Zhang and J. Zhou, "Double-Mode Energy Management for Multi-Energy System via Distributed Dynamic Event-Triggered Newton-Raphson Algorithm," in IEEE Transactions on Smart Grid, doi: 10.1109/TSG.2020.3005179.*
10) *Q. Li, L. Cheng, W. Gao and D. W. Gao, "Fully Distributed State Estimation for Power System with Information Propagation Algorithm," in Journal of Modern Power Systems and Clean Energy, vol. 8, no. 4, pp. 627-635, July 2020.*
11) *Gevorgian, Vahan, Koralewicz, Przemyslaw J, Villegas Pico, Hugo Nestor, Shah, Shahil D, Wallen, Robert B, Corbus, David A, Keller, Jonathan A, Hovsapian, R., Mohanpurkar, M., Kadavi, R., Pnawar, M., Leonard, J., Richwine, M., Miller, N., Gao, D., Yan, W., and Gao, W. WGRID-49 GMLC Project Report: Understanding the Role of Short-Term Energy Storage and Large Motor Loads for Active Power Controls by Wind Power. United States: N. p., 2019.*
12) *W. Yan, W. Gao, W. Gao and V. Gevorgian, "Implementing Inertial Control for PMSG-WTG in Region 2 using Virtual Synchronous Generator with Multiple Virtual Rotating Masses," 2019 IEEE Power & Energy Society General Meeting (PESGM), Atlanta, GA, USA, 2019, pp. 1-5.*
13) *W. Yan, L. Cheng, S. Yan, W. Gao and D. W. Gao, "Enabling and Evaluation of Inertial Control for PMSG-WTG Using Synchronverter With Multiple Virtual Rotating Masses in Microgrid," in IEEE Transactions on Sustainable Energy, vol. 11, no. 2, pp. 1078-1088, April 2020.*
14) *Tianlu Gao, Wei Gao, Jun Zhang and Wenzhong Gao, "Small-Scale Microgrid Energy Market Based on PILT-DAO," October 13-15, 2019, Wichita, Kansas, 51th North American Power Symposium (NAPS 2019).*
15) *Xiao Wang, Wenzhong Gao, Jianhui Wang, Weihang Yan, Wei Gao, Eduard Muljadi, Vahan Gevorgian, "Implementations and Evaluations of Wind Turbine Inertial Controls with FAST and Digital Real-Time Simulations," IEEE Trans. Energy Conversion, 2018, 33(4): 1805-1814.*
16) *W. Yan, W. Gao, D. W. Gao and J. Momoh, "Stability-oriented Optimization and Consensus Control for Inverter-based Microgrid," 2018 North American Power Symposium (NAPS), Fargo, ND, 2018, pp. 1-6.*
17) *Weihang Yan, Wei Gao, Tianqi Gao, David Wenzhong Gao, Shijie Yan, Jianhui Wang, "Distributed cooperative control of virtual synchronous generator based microgrid," 2017 IEEE International Conference on Electro Information Technology, pp. 506-511.*
18) *Yitong Shen, Wei Gao, David Wenzhong Gao, Weihang Yan, "Inverter controller design based on model predictive control in microgrid," 2017 IEEE International Conference on Electro Information Technology, pp. 436-441.*

19) *Wei Chen, Jing Wang, Wei Gao, David Wenzhong Gao, Bo Wang, Haohuai Wang, "Power Optimization Control of Doubly Fed Induction Generator Based on Active Power Reserve," North American Power Symposium (NAPS 2016), September 18-20, 2016, Denver, USA.*