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Curriculum Vitae

Education

2014 – 2015 **Postdoctoral Fellow** in Electrical Engineering, Texas A&M University, Doha-Qatar.
under a training grant offered by QNRF (Qatar National Research Fund)
Supervisor: Prof. Haitham Abu-Rub

2009 – 2013 **Ph.D.** in Electrical Engineering, Gazi University, Ankara-Turkey.
Thesis: *Effective Controller Design for Doubly-Fed Induction Generator in Wind Turbine Application.*
Advisor: Prof. Sevki Demirbas

2006 – 2008 **M.S.** in Electrical Engineering, Gazi University, Ankara-Turkey.
Thesis: *LabVIEW Based Power Quality Measurement and Analysis.*
Advisor: Prof. Sevki Demirbas

2001 – 2006 **B.S.** in Electrical Engineering, Gazi University, Ankara-Turkey.
Advisor: Prof. Sevki Demirbas

Professional Experience

2020 – · · · · **Associate Professor** (joint appointment), Sustainable Division, College of Science and Engineering, Hamad Bin Khalifa University, Doha-Qatar.

2018 – · · · · **Senior Scientist**, Energy Center, Qatar Environment and Energy Research Institute, Hamad Bin Khalifa University, Doha-Qatar.

2019 – · · · · **Visiting Lecturer**, Electrical and Computer Engineering Department, Texas A&M University at Qatar, Doha-Qatar.

2019 – 2020 **Adjunct Professor**, Electrical and Computer Engineering Department, Kansas State University, Manhattan-US.

2017 – 2019 **Associate Professor**, Electronics and Automation Department, Gazi University, Ankara-Turkey.

2017 – 2018 **Associate Research Scientist**, Electrical and Computer Engineering Department, Texas A&M University at Qatar, Doha-Qatar.

2015 – 2017 **Assistant Research Scientist**, Electrical and Computer Engineering Department, Texas A&M University at Qatar, Doha-Qatar.

2009 – 2014 **Lecturer**, Electronics and Automation Department, Gazi University, Ankara-Turkey.

2007 – 2009 **Lecturer**, Electronics and Automation Department, Baskent University, Ankara-Turkey.

2006 – 2007 **IT Specialist**, General Directorate of Security, Ministry of Interior, Ankara-Turkey.

Teaching Experience

Hamad Bin Khalifa University

- **SENR 754** : Smart Power Grids (graduate, Fa20, Fa21)
- **SENS 706** : EV Technology and Integration (graduate, Sp21, Sp22)

Texas A&M University at Qatar

- **ECEN 325** : Analog Electronics (undergraduate, Fa19)
- **ECEN 459** : Power System Design and Protection (undergraduate, Sp20, Sp21, Sp22)

Gazi University

- **ELT 103** : Electrical Circuit Theory (undergraduate, Fa09,Fa10, Fa11, Fa12, Fa13)
- **EBE 457** : Power Electronics (undergraduate, Fa13)
- **ELK 205** : Electromechanical Energy Conversion (undergraduate, Fa09, Fa11, Fa12, Fa13)
- **ELT 203** : Analog Electronics (undergraduate, Sp09, Sp10, Sp11, Sp12)
- **ELT 106** : Digital System Design (undergraduate, Fa10, Fa12)
- **ELT 205** : Programmable Logic Controllers (undergraduate, Fa12, Fa13)

Baskent University

- **BME 211** : Electrical Circuit Theory (undergraduate, Fa07, Fa08)
- **TEK 213** : Electromechanical Energy Conversion (undergraduate, Fa07, Fa08)
- **TEK 235** : Microcontroller Based System Design (undergraduate, Sp07, Sp08)
- **TEK 102** : Analog Electronics (undergraduate, Sp07, Sp09)

Mentorship

Graduate Student Advising

- **Ph.D. Student**, Fadi AlNoami, Hamad Bin Khalifa University, Doha, Qatar (Primary Advisor).
- **Ph.D. Student**, Khalid Abedrabboh, Hamad Bin Khalifa University, Doha, Qatar (Co-Advisor).
- **Ph.D. Student**, Rafah Ahmed Al-Arrouqi, Hamad Bin Khalifa University, Doha, Qatar (Co-Advisor).
- **Ph.D. Student**, Iresha Poonahela, Texas A&M University, College Station, USA (Co-Advisor).
- **Ph.D. Student**, Nassma Mohandes, Texas A&M University, College Station, USA (Co-Advisor).

Undergraduate Student Advising

- **Senior Design Project**, Al-Kuwari, Hayfaa, Al-Marzogi, Aisha, Badar, Dana, "Adaptive Charging Network for Electric Vehicles and its Impact on Power Systems", Texas A&M University at Qatar, 2020-2021.
- **Senior Design Project**, H. Almajed, I. Hassan, A. Al-Hothi, "A Smart Home Energy Management System," Texas A&M University at Qatar, 2017-2018.
- **Senior Design Project**, I. Poonahela, B. Metry, O. Ashour, J. Kelley, J. Vogl, "Highly Efficient Inductive Power Transfer System for Electric Vehicles," Texas A&M University at Qatar, 2016-2017.

Mentorship (continued)

- **Senior Design Project**, T.D. Chethiya, M. Sayed, M, Saade, "Inductive Power Transfer," Texas A&M University at Qatar, 2015-2016.

Current Research Fellows

- **Research Associate**, Usman Zafar, Hamad Bin Khalifa University, Doha, Qatar (Supervisor).
- **Research Associate**, Abdullah Jabbar, Hamad Bin Khalifa University, Doha, Qatar (Supervisor).

Past Research Fellows

- **Research Assistant**, Amira Muhammed, Texas A&M University at Qatar, Doha, Qatar (Supervisor).
- **Research Associate**, Muhammad Suleiman, Texas A&M University at Qatar, Doha, Qatar (Supervisor).
- **Research Associate**, Oguz Alkul, Texas A&M University at Qatar, Doha, Qatar (Supervisor).
- **Research Assistant**, Gurcan Potur, Texas A&M University at Qatar, Doha, Qatar (Supervisor).

Research Interests

- Power electronics applications, e.g., DC/DC converters, DC/AC converters, AC/DC converters, and multilevel inverters.
- Advanced control techniques e.g., model predictive control, sliding mode control, and Lyapunov function based control.
- Local area power and energy systems e.g., microgrid and its control including primary and secondary control, and seamless connection.
- Renewable energy integration, e.g., wind energy conversion systems, solar photovoltaic conversion systems.
- Embedded system design, e.g., MCU, DSP, and FPGA.

Research Grants/Funding

- **Principal Investigator & Project Lead**, Multi-Layer Cybersecurity and Situational Awareness to Enhance Resiliency in Qatar's Power Grid, (NPRP12C-0814-190012), $4,250,000, (2021 – present).
- **Lead Principal Investigator**, Electric Vehicle Charging Infrastructure in Qatar: Charging Design, Grid Integration, and Cost Quantification, Qatar National Priority Research Program (NPRP No 12S-0214-190083), $599,000, (2020 – present).
- **Lead-Principal Investigator**, Enabling Electric Vehicle Integration in Qatar, QEERI Core Project, $1,300,000, (2020 – present).
- **Lead-Principal Investigator**, Enabling Demand Side Management in Qatar Power System, QEERI Core Project, $632,000, (2019 – 2021).
- **Lead-Principal Investigator**, Microgrids Advanced Dynamic Control Architecture and Distributed Energy Optimization, Qatar National Priority Research Program (NPRP No 9-310-2-134), $699,000, (2017 – 2020).
- **Principal Investigator**, 1 MW PV Power RD&D Using SiC-based qZS Cascade Multilevel Inverter, Qatar National Priority Research Program (NPRP-EP X-0332-007), $4,599,726, (2015 – 2019).

Research Grants/Funding (continued)

- **Principal Investigator**, A Fault Tolerant Capacitor-less Power Quality Compensator for Electrical Distribution Systems, Qatar National Priority Research Program (NPRP No 9-204-2-103), $698,000, (2017 – 2018)
- **Principal Investigator**, Integration of Solar Generation and Electrical Vehicles into the Smart Grid, Qatar National Priority Research Program (NPRP No 8-241-2-095), $788,993, (2016 – 2018).
- **Mentor**, Highly Efficient Inductive Power Transfer System for Electric Vehicle, Undergraduate Research Experience Program (UREP), $15,000, (2017 – 2018).

U.S. Patents

- "Electric Vehicle Battery Charger Power Module," U.S. Patent application filed on 07-October-2021 (QF-RDI application No: D2021-0068).
- "Cloud collaborative non-intrusive load identification method," U.S. Patent application filed on 26-October-2021 (QF-RDI application No: D2021-0078).
- "Double-line frequency reduction technique for single-phase quasi-Z-source inverter," U.S. Patent application no 62/876,097 filed on 19-July-2019.

Publications

Journal and Magazine Articles

1. **Bayhan**, **S.** (2021). Grid voltage sensorless model predictive control for a single-phase t-type rectifier with an active power decoupling circuit. *IEEE Access*, *9*, 19161–19174. https://doi.org/10.1109/ACCESS.2021.3054773
2. **Bayhan**, **S.**, & Komurcugil, H. (2021). Lyapunov-function-based controller for single-phase npc quasi-z-source inverter with 2ω frequency ripple suppression. *Energies*, *14*(1). https://doi.org/10.3390/en14010140
3. Guler, N., **Bayhan**, **S.**, & Komurcugil, H. (2021). Equal weighted cost function based weighting factor tuning method for model predictive control in power converters. *IET Power Electronics*, *1*(1), 1–13. https://doi.org/10.1049/pel2.12217
4. Jovanovic, R., **Bayhan**, **S.**, & Bayram, I. S. (2021). A multiobjective analysis of the potential of scheduling electrical vehicle charging for flattening the duck curve. *Journal of Computational Science*, *48*, 101262. https://doi.org/https://doi.org/10.1016/j.jocs.2020.101262
5. Jovanovic, R., Bayram, I. S., **Bayhan**, **S.**, & Voß, S. (2021). A grasp approach for solving large-scale electric bus scheduling problems. *Energies*, *14*(20). https://doi.org/10.3390/en14206610
6. Komurcugil, H., **Bayhan**, **S.**, & Malinowski, M. (2021). Passivity-based control strategy with improved robustness for single-phase three-level t-type rectifiers. *IEEE Access*, *9*, 59336–59344. https://doi.org/10.1109/ACCESS.2021.3071415
7. Komurcugil, H., **Bayhan**, **S.**, Guler, N., & Blaabjerg, F. (2021). An effective model predictive control method with self-balanced capacitor voltages for single-phase three-level shunt active filters. *IEEE Access*, *9*, 103811–103821. https://doi.org/10.1109/ACCESS.2021.3097812

8. Komurcugil, H., Biricik, S., **Bayhan**, **S.**, & Zhang, Z. (2021). Sliding mode control: Overview of its applications in power converters. *IEEE Industrial Electronics Magazine*, *15*(1), 40–49. https://doi.org/10.1109/MIE.2020.2986165

9. Ma, C., Bojoi, R., Damiano, A., **Bayhan**, **S.**, Buttichi, G., Strasser, T. I., & Keshri, R. (2021). The ieee ies technical committee cluster of energy: Promoting innovative research activities in the energy field. *IEEE Industrial Electronics Magazine*, *15*(1), 89–103. https://doi.org/10.1109/MIE.2020.3042003

10. Nun, B., Umar, M. F., Karaki, A., Shadmand, M. B., **Bayhan**, **S.**, & Abu-Rub, H. (2021b). Rank-based predictive control for community microgrids with dynamic topology and multiple points of common coupling. *IEEE Journal of Emerging and Selected Topics in Industrial Electronics*, 1–1. https://doi.org/10.1109/JESTIE.2021.3110746

11. Poonahela, I., **Bayhan**, **S.**, Abu-Rub, H., Begovic, M., & Shadmand, M. (2021a). An effective finite control set-model predictive control method for grid integrated solar pv. *IEEE Access*, *9*, 144481–144492. https://doi.org/10.1109/ACCESS.2021.3122325

12. Umar, M. F., Easley, M., Nun, B., Khan, A., Shadmand, M. B., **Bayhan**, **S.**, & Abu-Rub, H. (2021). Single-phase grid-interactive inverter with resonance suppression based on adaptive predictive control in weak grid condition. *IEEE Journal of Emerging and Selected Topics in Industrial Electronics*, 1–1. https://doi.org/10.1109/JESTIE.2021.3103675

13. Zinchenko, D., Blinov, A., Chub, A., Vinnikov, D., Verbytskyi, I., & **Bayhan**, **S.** (2021). High-efficiency single-stage onboard charger for electrical vehicles. *IEEE Transactions on Vehicular Technology*, 1–1. https://doi.org/10.1109/TVT.2021.3118392

14. Bagheri, F., Komurcugil, H., Kukrer, O., Guler, N., & **Bayhan**, **S.** (2020). Multi-input multi-output-based sliding-mode controller for single-phase quasi-z-source inverters. *IEEE Transactions on Industrial Electronics*, *67*(8), 6439–6449. https://doi.org/10.1109/tie.2019.2938494

15. Jasinski, M., Abu-Rub, H., Wytrychiewicz, K., Pankowski, D., Refaat, S. S., Li, H., Alkul, O., **Bayhan**, **S.**, & Malhotra, S. (2020). Power industrial electronics and informatics for humans. *IEEE Industrial Electronics Magazine*, *14*(2), 83–95. https://doi.org/10.1109/mie.2020.2985194

16. Alcaide, A. M., Leon, J. I., Laguna, M., Gonzalez-Rodriguez, F., Portillo, R., Zafra-Ratia, E., Vazquez, S., Franquelo, L. G., **Bayhan**, **S.**, & Abu-Rub, H. (2020). Real-time selective harmonic mitigation technique for power converters based on the exchange market algorithm. *Energies*, *13*(7), 1659. https://doi.org/10.3390/en13071659

17. Komurcugil, H., Zhang, Z., & **Bayhan**, **S.** (2020). Guest editorial special section on recent advances on sliding mode control and its applications in modern industrial systems. *IEEE Transactions on Industrial Informatics*, *16*(2), 1149–1152. https://doi.org/10.1109/tii.2019.2952241

18. **Bayhan**, **S.**, & Komurcugil, H. (2020). Sliding-mode control strategy for three-phase three-level t-type rectifiers with DC capacitor voltage balancing. *IEEE Access*, *8*, 64555–64564. https://doi.org/10.1109/access.2020.2980814

19. D'silva, S., Shadmand, M., **Bayhan**, **S.**, & Abu-Rub, H. (2020). Towards grid of microgrids: Seamless transition between grid-connected and islanded modes of operation. *IEEE Open Journal of the Industrial Electronics Society*, *1*, 66–81. https://doi.org/10.1109/ojies.2020.2988618

20. Guler, N., Biricik, S., **Bayhan**, **S.**, & Komurcugil, H. (2020). Model predictive control of DC-DC SEPIC converters with auto-tuning weighting factor. *IEEE Transactions on Industrial Electronics*, 1–1. https://doi.org/10.1109/tie.2020.3026301

21 Khan, A., Shadmand, M. B., **Bayhan**, **S.**, & Abu-Rub, H. (2020). A power ripple compensator for dc nanogrids via a solid-state converter. *IEEE Open Journal of the Industrial Electronics Society*, *1*, 311–325. https://doi.org/10.1109/OJIES.2020.3035073

22 Khan, A., Hosseinzadehtaher, M., Shadmand, M., **Bayhan**, **S.**, & Abu-Rub, H. (2020). On the stability of the power electronics-dominated grid: A new energy paradigm. *IEEE Industrial Electronics Magazine*, *14*(4), 65–78. https://doi.org/10.1109/MIE.2020.3002523

23 Vinnikov, D., Chub, A., Zinchenko, D., Sidorov, V., Malinowski, M., & **Bayhan**, **S.** (2020). Topology-morphing photovoltaic microconverter with wide mppt voltage window and post-fault operation capability. *IEEE Access*, *8*, 153941–153955. https://doi.org/10.1109/ACCESS.2020.3017805

24 Zafar, U., **Bayhan**, **S.**, & Sanfilippo, A. (2020). Home energy management system concepts, configurations, and technologies for the smart grid. *IEEE Access*, *8*, 119271–119286. https://doi.org/10.1109/access.2020.3005244

25 Kukrer, O., **Bayhan**, **S.**, & Komurcugil, H. (2019). Model-based current control strategy with virtual time constant for improved dynamic response of three-phase grid-connected. *IEEE Transactions on Industrial Electronics*, *66*(6), 4156–4165. https://doi.org/10.1109/tie.2018.2863195

26 Mohammed, A., Refaat, S. S., **Bayhan**, **S.**, & Abu-Rub, H. (2019). AC microgrid control and management strategies: Evaluation and review. *IEEE Power Electronics Magazine*, *6*(2), 18–31. https://doi.org/10.1109/mpel.2019.2910292

27 Elrayyah, A., & **Bayhan**, **S.** (2019a). Multi-channel-based microgrid for reliable operation and load sharing. *Energies*, *12*(11), 2070. https://doi.org/10.3390/en12112070

28 **Bayhan**, **S.**, & Komurcugil, H. (2019b). A sliding-mode controlled single-phase grid-connected quasi-z-source NPC inverter with double-line frequency ripple suppression. *IEEE Access*, *7*, 160004–160016. https://doi.org/10.1109/access.2019.2949356

29 **Bayhan**, **S.**, Seyedalipour, S. S., Komurcugil, H., & Abu-Rub, H. (2019). Lyapunov energy function based control method for three-phase UPS inverters with output voltage feedback loops. *IEEE Access*, *7*, 113699–113711. https://doi.org/10.1109/access.2019.2934404

30 Komurcugil, H., **Bayhan**, **S.**, Bagheri, F., Kukrer, O., & Abu-Rub, H. (2018). Model-based current control for single-phase grid-tied quasi-z-source inverters with virtual time constant. *IEEE Transactions on Industrial Electronics*, *65*(10), 8277–8286. https://doi.org/10.1109/tie.2018.2801778

31 Komurcugil, H., **Bayhan**, **S.**, & Abu-Rub, H. (2017b). Variable- and fixed-switching-frequency-based HCC methods for grid-connected VSI with active damping and zero steady-state error. *IEEE Transactions on Industrial Electronics*, *64*(9), 7009–7018. https://doi.org/10.1109/tie.2017.2686331

32 Liu, Y., Wang, W., Liu, Y., & **Bayhan**, **S.** (2017). Real-time implementation of finite control set model predictive control for matrix converter based solid state transformer. *International Journal of Hydrogen Energy*, *42*(28), 17976–17983. https://doi.org/10.1016/j.ijhydene.2017.04.293

33 Trabelsi, M., **Bayhan**, **S.**, Abu-Rub, H., & Ben-Brahim, L. (2017). Performance enhancement of cascaded qZS-HB based renewable energy system using model predictive control. *International Journal of Hydrogen Energy*, *42*(28), 17917–17927. https://doi.org/10.1016/j.ijhydene.2017.04.200

34 Trabelsi, M., Ghanes, M., Mansouri, M., **Bayhan**, **S.**, & Abu-Rub, H. (2017). An original observer design for reduced sensor control of packed u cells based renewable energy system. *International Journal of Hydrogen Energy*, *42*(28), 17910–17916. https://doi.org/10.1016/j.ijhydene.2017.02.020

35 **Bayhan**, **S.**, Trabelsi, M., Abu-Rub, H., & Malinowski, M. (2017). Finite-control-set model-predictive control for a quasi-z-source four-leg inverter under unbalanced load condition. *IEEE Transactions on Industrial Electronics*, *64*(4), 2560–2569. https://doi.org/10.1109/tie.2016.2632062

36 Ellabban, O., Abu-Rub, H., & **Bayhan**, **S.** (2016). Z-source matrix converter: An overview. *IEEE Transactions on Power Electronics*, *31*(11), 7436–7450. https://doi.org/10.1109/tpel.2015.2471799

37 Trabelsi, M., **Bayhan**, **S.**, Ghazi, K. A., Abu-Rub, H., & Ben-Brahim, L. (2016). Finite-control-set model predictive control for grid-connected packed-u-cells multilevel inverter. *IEEE Transactions on Industrial Electronics*, *63*(11), 7286–7295. https://doi.org/10.1109/tie.2016.2558142

38 **Bayhan**, **S.**, Demirbas, S., & Abu-Rub, H. (2016). Fuzzy-PI-based sensorless frequency and voltage controller for doubly fed induction generator connected to a DC microgrid. *IET Renewable Power Generation*, *10*(8), 1069–1077. https://doi.org/10.1049/iet-rpg.2015.0504

39 **Bayhan**, **S.**, Abu-Rub, H., & Balog, R. S. (2016). Model predictive control of quasi-z-source four-leg inverter. *IEEE Transactions on Industrial Electronics*, *63*(7), 4506–4516. https://doi.org/10.1109/tie.2016.2535981

40 Abu-Rub, H., **Bayhan**, **S.**, Moinoddin, S., Malinowski, M., & Guzinski, J. (2016). Medium-voltage drives: Challenges and existing technology. *IEEE Power Electronics Magazine*, *3*(2), 29–41. https://doi.org/10.1109/mpel.2016.2551802

41 **Bayhan**, **S.**, Ellabban, O., & Abu-Rub, H. (2016). Sensorless model predictive control scheme of wind-driven doubly fed induction generator in dc microgrid. *IET Renewable Power Generation*, *10*(4), 514–521. https://doi.org/10.1049/iet-rpg.2015.0347

42 Colak, I., Fulli, G., **Bayhan**, **S.**, Chondrogiannis, S., & Demirbas, S. (2015). Critical aspects of wind energy systems in smart grid applications. *Renewable and Sustainable Energy Reviews*, *52*, 155–171. https://doi.org/10.1016/j.rser.2015.07.062

43 **Bayhan**, **S.** (2014). Labview-based remote laboratory experiments for a multi-mode single-leg converter. *Journal of Power Electronics*, *14*(5), 1069–1078. https://doi.org/10.6113/JPE.2014.14.5.1069

44 Demirbas, S., & **Bayhan**, **S.** (2011b). Dsp based three-phase grid interactive inverter for renewable energy sources. *Journal of Engineering Science of Firat University*, *4*(2), 45–56.

45 Garip, I., **Bayhan**, **S.**, & Colak, I. (2010). Design and implementation of microcontroller based synchronoscope. *e-Journal of New World Sciences Academy - Engineering Sciences*, *5*(1), 55–63.

46 Sefa, I., Bayindir, R., Garip, I., **Bayhan**, **S.**, & Colak, I. (2010). Providing equality of frequencies and phase angles based on microcontroller for parallel connection of generators. *Journal of the Faculty of Eng. and Arc. of Gazi University*, *25*(1), 39–48.

47 **Bayhan**, **S.**, & Demirbas, S. (2009b). Web-based virtual laboratory application with labview. *e-Journal of New World Sciences Academy Engineering Sciences*, *2*(4), 176–185.

48 **Bayhan**, **S.**, & Demirbas, S. (2009d). Real time detection of power quality disturbances in power systems. *e-Journal of New World Sciences Academy -Technological Applied Sciences*, *4*(2), 120–135.

49 **Bayhan**, **S.**, & Yilmaz, D. (2009). Detection of the waveform disturbances in power systems by using wavelet transform. *e-Journal of New World Sciences Academy-Technological Applied Sciences*, *2*(4), 151–162.

50 Bayindir, R., Colak, I., Garip, I., & **Bayhan**, **S.** (2009). Microcontroller based warning system for right phase order and phase collapse for alternators. *Journal of the Faculty of Eng. and Arc. of Gazi University*, *24*(1), 105–118.

51 Demirbas, S., & **Bayhan**, **S.** (2009a). Real–time measurement and analysis of harmonics in power systems. *Journal of the Faculty of Eng. and Arc. of Gazi University*, *24*(3), 461–468.

52 Demirbas, S., & **Bayhan**, **S.** (2009b). Implemantation of a monitoring system for remote monitoring of power system harmonics based on labview. *e-Journal of New World Sciences Academy, Technological Applied Sciences*, *2*(2), 55–66.

53 Garip, I., **Bayhan**, **S.**, & Colak, I. (2009). Providing equality of voltages based on microcontroller for parallel connection of alternators. *e-Journal of New World Sciences Academy - Technological Applied Sciences*, *4*(4), 348–359.

54 Demirbas, S., Irmak, E., **Bayhan**, **S.**, & Colak, I. (2008). Microcontroller based torque and speed control of wound rotor induction motor. *Journal of the Faculty of Eng. and Arc. of Gazi University*, *23*(4), 801–809.

Conference Proceedings

1 Bagheri, F., **Bayhan**, **S.**, & Komurcugil, H. (2021). Sliding mode control of an isolated inverter based on active clamped flyback-forward converter, In *2021 IEEE 30th international symposium on industrial electronics (ISIE)*, Kyoto-Japan. https://doi.org/10.1109/ISIE45552.2021.9576252

2 Bagheri, F., Komurcugil, H., & **Bayhan**, **S.** (2021). Super twisting sliding-mode control of grid-tied quasi-z-source inverters under distorted grid voltage, In *2021 IEEE 30th international symposium on industrial electronics (ISIE)*, Kyoto-Japan. https://doi.org/10.1109/ISIE45552.2021.9576453

3 **Bayhan**, **S.**, Komurcugil, H., & Bayram, I. S. (2021). Deadbeat control of a three-phase t-type inverter with output lc filter for ups applications, In *2021 IEEE 30th international symposium on industrial electronics (ISIE)*, Kyoto-Japan. https://doi.org/10.1109/ISIE45552.2021.9576216

4 Karaki, A., Shadmand, M. B., Abu-Rub, H., & **Bayhan**, **S.** (2021). Virtual inertia emulation inspired predictive control to improve frequency stability in power electronics dominated grid, In *2021 ieee 12th international symposium on power electronics for distributed generation systems (pedg)*, Chicago-USA. https://doi.org/10.1109/PEDG51384.2021.9494245

5 Komurcugil, H., **Bayhan**, **S.**, Guler, N., & Biricik, S. (2021). Super twisting sliding-mode control strategy for three-level dynamic voltage restorers, In *2021 IEEE 30th international symposium on industrial electronics (ISIE)*, Kyoto-Japan. https://doi.org/10.1109/ISIE45552.2021.9576474

6 Nun, B., Umar, M. F., Karaki, A., Shadmand, M. B., **Bayhan**, **S.**, & Abu-Rub, H. (2021a). Model predictive control for black start of connected communities via autonomous indexing, In *2021 ieee 12th international symposium on power electronics for distributed generation systems (pedg)*, Chicago-USA. https://doi.org/10.1109/PEDG51384.2021.9494198

7 Rayane, K., Abu-Rub, H., Shadmand, M., **Bayhan**, **S.**, & Benalia, A. (2021). Grid interactive smart inverter with intrusion detection capability, In *2021 ieee 12th international symposium on power electronics for distributed generation systems (pedg)*, Chicago-USA. https://doi.org/10.1109/PEDG51384.2021.9494265

8 Zafar, U., Bayram, I. S., & **Bayhan**, **S.** (2021). A gis-based optimal facility location framework for fast electric vehicle charging stations, In *2021 IEEE 30th international symposium on industrial electronics (ISIE)*, Kyoto-Japan. https://doi.org/10.1109/ISIE45552.2021.9576448

9 Guler, N., Komurcugil, H., **Bayhan**, **S.**, & Biricik, S. (2021). Current sensorless control strategy for nine-level packed-e-cell rectifier, In *Iecon 2021 – 47th annual conference of the ieee industrial electronics society*. https://doi.org/10.1109/IECON48115.2021.9589732

10 Poonahela, I., **Bayhan**, **S.**, Abu-Rub, H., Begovic, M., & Shadmand, M. (2021b). On droop-based voltage and frequency restoration techniques for islanded microgrids, In *Iecon 2021 – 47th annual conference of the ieee industrial electronics society*. https://doi.org/10.1109/IECON48115.2021.9589772

11. Komurcugil, H., Guler, N., & **Bayhan**, **S.** (2020). Weighting factor free lyapunov-function-based model predictive control strategy for single-phase t-type rectifiers, In *Iecon 2020 the 46th annual conference of the ieee industrial electronics society*, Singapore, IEEE. https://doi.org/10.1109/IECON43393.2020.9255154

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Awards (select)

September 2021	**Best Paper Award**, 10th International Conference on Renewable Energy Research and Applications, September 26-29, 2021, Istanbul/Turkey .
April 2018	**Research Fellow Excellence Award**, Texas A&M University at Qatar.
March 2018	**Best Research Award**, Texas A&M University at Qatar.
August 2017	**Paper Support Award**, The Scientific and Technological Research Council of Turkey.
March 2017	**Best Research Excellence Award**, Texas A&M University at Qatar.
October 2016	**Best Presentation Award**, IEEE-IECON'16, Florence, Italy.
March 2016	**Research Excellence Award**, Texas A&M University at Qatar.
October 2015	**Best Presentation Award**, IEEE-IECON'15, Yokohama, Japan.
April 2015	**Paper Support Award**, The Scientific and Technological Research Council of Turkey.
May 2015	**Research Excellence Travel Award**, Texas A&M University at Qatar.
June 2014	**Paper Support Award**, The Scientific and Technological Research Council of Turkey.
July 2009	**Paper Support Award**, The Scientific and Technological Research Council of Turkey.
June 2006	**Honor of Summa Cum Laude**, Gazi University.

Instructor, Technical Tutorial

- "Z-Source Converter:Current State and Future Perspectives", 42nd Annual Conference of the IEEE Industrial Electronics Society, 23-27 October 2016, Florence, Italy.

Invited Talks / Webinars

- **Invited Speaker**, "The Role of Plug-In Electric Vehicles in Renewable Energy Integration", Batman Energy Summit 2021, Batman University, Batman/Turkey, 20-21 May 2021.
- **Invited Speaker**, "Next-Generation Smart Grids: Power Electronics Dominated Power Systems", 9th European Conference on Renewable Energy Systems, Istanbul-Turkey, 21-23 April 2021.
- **Invited Speaker**, "Advanced Control Techniques in Impedance Source Inverters", Workshop on Impedance Source Converters: Topologies and Applications, Tallinn University of Technology (TALTECH), 25 February, 2021.

Invited Talks / Webinars (continued)

- **Invited Speaker**, "Electric Vehicle Integration in Qatar: QEERI Research Activities", Qatar Transportation Electrification Stakeholders Gathering and Workshop, Qatar University, 15 December, 2020.
- **Webinar**, "Electric Vehicle Integration in Hot Climates – Power System Perspective", 46th Annual Conference of the IEEE Industrial Electronics Society (IECON 2020), 19 Oct. 2020, Singapore.
- **Webinar**, "Microgrids:The pathway to smart and cleaner energy future", IEEE Region 8 Connecting Expert Program, 28 June, 2020.
- **Webinar**, "Integration of electric vehicles in areas of extreme heat", International Energy Agency Webinar series, 27 April, 2020.
- **Invited Speaker**, "Electric vehicle integration in hot climates", 19th International Symposium "Topical problems in the field of electrical and power engineering" and "Doctoral School of Energy and Geotechnology III", January 15-20, 2020, Tartu, Estonia.
- **Invited Speaker**, "Microgrids:The pathway to smart and cleaner energy future", Kansas State University Lecture Series, 21 March, 2019.
- **Invited Speaker**, "Model Predictive Control for Power Electronics", 17th International Symposium "Topical Problems in the Field of Electrical and Power Engineering" and "Doctoral School of Energy and Geo-technology III", January 15-20,2018, Kuressaare, Estonia.

Professional Service

- **Delegate** of Energy Cluster Technical Committee, IEEE Industrial Electronics Society (2022-present).
- **Chair** of IEEE Industrial Electronics Society Qatar Section Chapter, (2020-present).
- **Chair** of Power Electronics Technical Committee, IEEE Industrial Electronics Society (2018-2022).
- **Co-Chair** of Student Branch and Technical Chapters Committee, IEEE Industrial Electronic Society, (2018-present).
- **Chair** of Electric Machines and Drives Subcommittee in Power Electronics Technical Committee, IEEE Industrial Electronics Society, (2016-2018).

Editor / Editorial Board member

- **Associate Editor** for the Transactions on Industrial Electronics, 2018 – present.
- **Associate Editor** for the IEEE Journal of Emerging and Selected Topics in Industrial Electronics, 2019 – present.
- **Associate Editor** for the IEEE Industrial Electronics Technology News, 2020 – present.
- **Associate Editor** for the IEEE Open Journal of the Industrial Electronics Society, 2020 - present.
- **Guest Editor** for the Special Issue on "Sliding Mode Control and Its Applications in Modern Industrial Systems" of the IEEE Transactions on Industrial Informatics, 2019-2020.

Member, Executive Committees (select)

- **General Co-Chair** for the 3rd International Conference on Smart Grid and Renewable Energy, 20-22 March 2022, Doha, Qatar.
- **General Co-Chair** for the 2nd International Conference on Smart Grid and Renewable Energy, 19-21 November 2019, Doha, Qatar.
- **General Co-Chair** for the 12th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG), 10-12 April 2018, Doha, Qatar.

Professional Service (continued)

- **Tutorial and Special Session Chair** for the 8th International Conference on Renewable Energy Research and Applications, 14-17 October 2018, Paris, France.
- **Tutorial and Special Session Chair** for the 5th International Conference on Renewable Energy Research and Applications, 20-23 November 2016, Birmingham, UK.
- **Special Session Chair** for the 4th European Conference on Renewable Energy Systems, Istanbul, Turkey, 28-31 August 2016.

Member, Technical Program Committee (select)

- **Track Chair** for the 46th Annual Conference of the IEEE Industrial Electronics Society (IECON 2019), October 18-21, Singapore.
- **Track Chair** for the IEEE 29th International Symposium on Industrial Electronics (ISIE), 17-19 June 2020, Delft, Netherlands.
- **Track Chair** for the 14th International Conference on Compatibility, Power Electronics and Power Engineering, 8-10 July 2020, Setubal, Portugal.
- **Track Chair** for the 45th Annual Conference of the IEEE Industrial Electronics Society (IECON 2019), October 14-17, Lisbon, Portugal.
- **Track Chair** for the 28th IEEE International on Industrial Electronics (ISIE 2019), 12-14 June 2019, Vancouver, Canada.
- **Track Chair** for the 13th International Conference on Compatibility, Power Electronics and Power Engineering. Sønderborg – Denmark. 23-25 April 2019.
- **Track Chair** for the 2nd IEEE Annual Southern Power Electronics Conference, Auckland, New Zealand, 5-8 December 2016.
- **Track Chair** for the 11th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG), 4-6 April 2017, Cadiz, Spain.
- **Organizing Committee Member** for the International Conference on Energy and Smart Grid Conference, Nevsehir, Turkey, 5-7 October 2016.
- **Organizing Committee Member** for the 1st Workshop on Smart Grid and Renewable Energy, Doha, Qatar, 22-23 March, 2015.

Reviewer (select)

- IEEE Transactions on Industrial Electronics
- IEEE Transitions on Power Electronics
- IEEE Transitions on Energy Conversion
- IEEE Transactions on Industrial Informatics
- IEEE Open Journal of the Industrial Electronics Society
- IEEE Transitions on Industry Applications
- IEEE International on Industrial Electronics (ISIE)
- Annual Conference of the IEEE Industrial Electronics Society (IECON)
- IEEE Energy Conversion Congress and Exposition (ECCE)
- IEEE Applied Power Electronics Conference (APEC)

Scientific and Professional Societies Membership

- Institute of Electrical and Electronics Engineers (IEEE)

Professional Service (continued)

- IEEE Industrial Electronics Society (IES)
- Texas A&M University at Qatar Smart Grid Center (SGC-Q)
- Turkish Science-Research Foundation (TUBAV)

References

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