# Argenis Bilbao - CV

1011 Gilbert Dr.
Lubbock, TX 79416
Ph: (806) 834-1541 / E-Mail: argenis.bilbao@ttu.edu

## Education

**Doctor of Philosophy in Electrical Engineering**, Texas Tech University, Aug. 2016
Dissertation Title: "Continuous Switching Reliability of Ultra-High Voltage SiC MOSFETs and IGBTs"

**Master of Science in Electrical Engineering**, Texas Tech University, 2015

**Bachelor of Science in Electrical Engineering**, Texas Tech University, 2011

## Work Experience

**Assistant Professor, Electrical & Computer Eng. Department, Texas Tech University,** August 2025-Present

**Adjunct Faculty, Electrical & Computer Eng. Department, Texas Tech University,** August 2023-July 2025

**GLEAMM Senior Director, Texas Tech University,** May 2021-Present

*Primary responsibilities:*

- GLEAMM staff management.
- Mentoring and management of graduate student's research projects.
- Lead research activities conceived by the TTU faculty and research staff involving the GLEAMM facility.
- Develop independent research initiatives with federal agencies, other universities and the private sector.
- Secure extramural funding for research projects in the power & energy field.

**Electronics Engineer, Army Research Laboratory (ARL),** Feb. 2018-Apr. 2021

*Primary responsibilities:*

- Technical Area lead for inductive-resonant wireless power transfer program.
- Perform fundamental research in novel uses of machine learning applied to power electronic systems.
- Develop algorithms for SMART power devices.
- Conduct research on power semiconductor devices for defense applications.

**Research Assistant Professor/Post Doc,** Texas Tech University, Jun. 2016-Feb. 2018

*Primary responsibilities:*

- Supervise graduate students performing analysis and testing of ultra-high voltage SiC power semiconductor devices.
- Supervise and direct the deployment of a grid-tied 150 kW solar panel array.
- Design and implement a research microgrid.
- Deploy and oversee students maintaining phasor measurement unit network in conjunction with industry partners, universities, and national laboratories.
- Oversee the deployment of an Opal-RT training center for simulation of power grids, microgrids, and power electronic control algorithms.
- Work with industry partners to deploy battery testing equipment for Group NIRE.
- Supervise students performing research on control mechanisms for using fuel cells as distributed energy resources in microgrids.

**Graduate Research Assistant / Teaching Assistant,** Pulsed Power and Power Electronics Lab, 2010-2016

*Primary responsibilities:*

- Analyze and characterize failure modes of ultra-high voltage silicon carbide power semiconductor devices.
- Perform semiconductor device simulation models for failure analysis.
- Design high voltage power electronics and testbeds capable of testing devices at voltages up to 45 kV.
- To develop diagnostic hardware to study the wake effects on power output of wind turbines.
- Write software for a set of custom-built phasor measurement units to serve as an educational tool for wind science students.
- To develop a new sensor platform used for remote structural health monitoring.
- Instruct courses, grade, and assign corresponding grades to students.

**Electrical Engineering Intern at the Sandia National Laboratories (SNL)**, summer 2012

*Primary responsibilities:*

- Develop signal conditioning algorithms for wind turbine applications using LabVIEW.

- To perform signal filtering and implement error correction algorithms on data obtained from sonic wind speed sensors.

**Undergraduate Research Assistant**, Pulsed Power and Power Electronics Lab, 2008-2010

*Primary responsibilities:*

- To develop firmware for a multi-stage, multi-level, three-phase inverter using the C programming language.

- Perform hardware tests to analyze and troubleshoot synchronization issues occurring in the inverter.

**Programmer**, Ofinet Dominicana, 2003-2004

*Primary responsibilities:*

- Develop web-based management systems for broadcasting companies to facilitate their interactions with customers.
- To debug and improve existing web-based advertisement submission systems.

**Programmer**, Daniel Espinal, 2002-2003

*Primary responsibilities:*

- Writing budgeting, accounting, inventory, and accounting reporting software.
- To perform computer hardware repair and troubleshooting for employees.

## Awards and Recognitions

- Dean's List, 2009
- Recipient of the "Sybil B Harrington Living Trust" scholarship, 2010
- Second place winner of the "Region 5 IEEE Student Paper Competition", 2011
- "ARL Customer Service Award", 2019
- IEEE Director's Award for Outstanding Service, 2022

## Teaching Experience

| Course Number | Description | Semester |
|---|---|---|
| ECE4375 | Microprocessor Architecture | Spring 2025 |
| ECE4375 | Microprocessor Architecture | Summer 2024 |
| ECE4375 | Microprocessor Architecture | Spring 2024 |
| ECE4375/5375 | Microprocessor Architecture | Spring 2023 |
| ECE4375 | Microprocessor Architecture | Summer 2022 |
| ECE3362 | Microcontrollers | Spring 2020 |
| ECE4316/5316 | Power Electronics | Fall 2019 |
| ECE3362 | Microcontrollers | Spring 2019 |
| ECE4316/5316 | Power Electronics | Spring 2018 |
| ECE3362 | Microcontrollers | Spring 2017 |
| ECE3332/ECE3334 | Project Laboratory II | Spring 2016 |
| ECE3332/ECE3334 | Project Laboratory II | Spring 2015 |
| ECE3362 | Microcontrollers | Fall 2012 |

| | | |
|---|---|---|
| ENGR1315 | Introduction to Engineering | Fall 2012 |
| ECE3362 | Microcontrollers | Spring 2012 |
| ECE3332/ECE3334 | Project Laboratory II | Fall 2011 |

## Extracurricular Activities

| | |
|---|---|
| Research for Undergraduate (REU) Mentor | Summer 2017 |
| Research & Engineering Apprenticeship Program Mentor | Summer 2015 |
| Research for Undergraduate (REU) Guide | Summer 2015 |
| Research & Engineering Apprenticeship Program Mentor | Summer 2014 |
| Research for Undergraduate (REU) Mentor | Summer 2014 |
| Cool STEAM Guide | October 2014 |
| Research & Engineering Apprenticeship Program Mentor | Summer 2013 |
| Research & Engineering Apprenticeship Program Mentor | Summer 2012 |

## Synergistic Activities

- Second place winner on the IEEE Region 5 student paper competition in 2011
- Conference publication reviewer, TPEC, Dec. 2016
- Developed a set of synchrophasor measurement units used as an educational tool for a newly developed graduate-level wind science class, 2016
- Participated as a mentor for prospective engineering students through the Research & Engineering Apprenticeship Program (REAP), 2016
- Obtained first place in the patent poster presentation for the Global Laboratory for Energy Asset Management (GLEAMM) challenge, 2017
- Journal publication reviewer, Transactions on Power Electronics, Aug. 2017
- Journal publication reviewer, Transactions on Plasma Science, Jun. 2019
- Served as the Chair for technical sessions 10.1/10.2 titled “Converters, Components, Magnetics, Switches and Capacitors” in the 2019 IEEE Pulsed Power and Plasma Science Conference
- Journal publication reviewer, Transactions on Plasma Science, Aug. 2020
- Served as the Chair for the “High Power Electronics” technical session in IEEE Pulsed Power and Plasma Science Conference, Dec. 2021
- Serving as the IEEE South Plains Section Chair 2022-Present
- Served as committee member for the 2023 Pulsed Power Conference (Webmaster/Government Liaison)

## Graduate Committees Served

| | |
|---|---|
| David Graves | Electrical Engineering, Ph.D., Spring 2025 |

| | |
|---|---|
| Chase Whitsworth | Electrical Engineering, MS, Spring 2025 |
| Sayed Erfan Arefin | Computer Science, Ph.D. Summer 2024 |
| Elham Hojati | Computer Science, Ph.D. Spring 2024 |
| Braydon Westmoreland | Computer Engineering, MS, Fall 2021 |
| Travis Huffmaster | Electrical Engineering, MS, Spring 2018 |
| Gail Alleyne-Bayne | Education, Ph.D., Summer 2017 |
| James A. Schrock | Electrical Engineering, Ph.D., Spring 2017 |
| Santiago Novoa | Electrical Engineering, MS, Spring 2017 |

## Invited Talks

"Micro-grid and Distributed Energy Resources", National Wind Institute, Lubbock, TX, Sep. 2017

"Microgrid and Distributed Energy Resources for Defense", Operational Energy Summit, Washington, DC, Jan. 2017

"Advanced, Intelligent Control of Power Semiconductor Modules", U.S. Army Research Laboratory, (Virtual), Jun. 2020

"Introduction to Cyber-Security Research at Texas Tech University", The Capital Factory – Space Force Command, Jul, 2024

## Funded Projects

| Date | Proposal Title | Role | Credited Amount | Total Amount |
|---|---|---|---|---|
| 8/18/17 | Reliability Analysis of Wide Band Gap Power Devices | Co-PI | $59,774.70 | $199,249.00 |
| 4/28/17 | Pantex Wind Farm Usage Optimization based on Utility Market Pricing and Reliability Study of Electrical Distribution System | Co-PI | $29,700.00 | $59,400.00 |
| 7/10/17 | Supporting the Global Laboratory for Energy Asset Management & Microgrid (GLEAMM) | Co-PI | $198,000.00 | $1,800,000.00 |
| 7/11/17 | Supporting the Global Laboratory for Energy Asset Management & Microgrid (GLEAMM) | Co-PI | $143,000.00 | $1,300,000.00 |
| 7/16/18 | The REAP Program | Co-PI | $500.00 | $1,000.00 |
| 10/7/19 | The REAP Program | Co-PI | $1,500.00 | $3,000.00 |
| 10/1/21 | Critical Infrastructure Security Training Programs for Industry Professionals and University Students | Co-PI | $87,500.00 | $350,000.00 |
| 2/23/22 | The REAP Program (2022): Safe and Intelligent Wireless Power Transfer System | Co-PI | $1,000.00 | $2,000.00 |
| 11/9/22 | Critical Infrastructure Security Training Programs for Industry Professionals and University Students | Co-PI | $87,489.75 | $349,959.00 |
| 10/17/22 | GRI- Lancium_NWI Argenis Bilbao | PI | $25,000.00 | $25,000.00 |
| 8/19/22 | Semiconductor Opening Switches for Solid-State Pulsed Power | PI | $80,000.00 | $160,000.00 |
| 9/1/23 | Texas Talent Connection - Data Science Training Program for Industry, University and High School Students | Co-PI | $70,000.00 | $350,000.00 |
| 4/1/23 | Student Travel Support Proposal for the 2023 IEEE | PI | $7,500.00 | $15,000.00 |

| | | | | |
|---|---|---|---|---|
| | Pulsed Power Conference (PPC) | | | |
| 9/26/23 | Intelligent Analytics for Energy Aware Security of Advanced Manufacturing | Co-PI | $13,333.25 | $53,333.00 |
| 9/23/24 | Semiconductor Opening Switches for Solid-State Pulsed Power | PI | $105,500.00 | $211,000.00 |
| 4/1/24 | West Texas Cyber Workforce Development Consortium (WRCWDC) | Co-PI | $59,804.70 | $199,349.00 |
| 7/30/24 | REPACS: Empowering Scientific Discovery through Renewable Energy Powered Advanced Computing Systems and Services | Co-PI | $500,000.00 | $5,000,000.00 |
| 8/1/24 | REPACS: Empowering Scientific Discovery through Renewable Energy Powered Advanced Computing Systems and Services | Co-PI | $100,000.00 | $1,000,000.00 |
| 8/1/24 | Research and Workforce Development in the area of Cybersecurity | Co-PI | $425,000.00 | $2,500,000.00 |
| 9/16/24 | Workforce Development for Research in Advanced Materials and Cognitive Radar Technology | Co-PI | $455,000.00 | $6,500,000.00 |
| 11/05/24 | A Comprehensive Training and Assessment Program for Grid Interactive Buildings (GEBs) | Co-PI | $95,640.80 | $478,204.00 |
| 11/07/24 | A Clean Energy and Rural Electric Industry-focused University Cyber-Physical Security Center | Co-PI | $635,933.43 | $1,927,071.00 |
| 12/17/24 | Solar and Wind Grid Services and Reliability Demonstration | PI | $63,536.00 | $127,072.00 |
| 2/11/2025 | NWI: TTU-SWiFT Microgrid Control Algorithms | PI | $11,250.00 | $22,500.00 |
| 4/7/2025 | Category II: REPACSS: Empowering Scientific Discovery through Renewable Ene | Co-PI | $99,999.00 | $999,999.00 |
| 5/2/2025 | NWI: Data Science Training for the South Plains and Panhandle | Co-PI | $70,000.00 | $350,000.00 |
| | **Total** | | **$3,425,961.20** | **$23,983,136.00** |

# Presentations

1. "PSPICE modeling of silicon carbide MOSFETs and device parameter extraction," in IEEE Power Modulator and High Voltage Conference, San Diego, CA, 2012
2. "Pulsed power switching of 4H-SiC vertical D-MOSFET and device characterization," in IEEE Pulsed Power Conference, San Francisco, CA, 2013
3. "Digital control of a rapid capacitor charger with sensor-less voltage feedback," in IEEE International Power Modulator and High Voltage Conference, Santa Fe, NM, 2014
4. "Analysis of advanced 20 kV/20 A silicon carbide power insulated gate bipolar transistor in resistive and inductive switching tests," in IEEE Pulsed Power Conference, Austin, TX, 2015
5. “Continuous switching of ultra-high voltage silicon carbide MOSFETs,” in IEEE International Power Modulator and High Voltage Conference, San Francisco, CA, 2016
6. “Compact Rapid Capacitor Charger for Mobile Marx Generator Applications,” in IEEE Pulsed Power Conference, Orlando, FL, 2019
7. “GLEAMM Introduction”, in Renewable Energy Summit, Houston, TX, 2023
8. “GLEAMM Introduction and Research Overview”, Capital Factory, Austin, TX, 2024
9. “Introduction to Cyber-Security Research at Texas Tech University”, Texas Aerospace Research and Space Economy Consortium (TARSEC), Albuquerque, NM, 2024
10. “Compact Inverters for Capacitor Chargers”, 2025 Pulsed Power and Plasma Science Conference (PPPS), Berlin, Germany, Jun. 2025

11. “Introducción a GLEAMM Microrredes y Energía Renovable”, Fundación Parque Científico Tecnológico, Antofagasta, Chile, Jun. 2025

## Patents

S Lacouture, A Bilbao, S Bayne, “Magnetic field vector imaging array”, US Patent 10,393,827, Aug. 27th, 2019.

A Bilbao, R Matovu, A Serwadda, I Griswold-Steiner, “Apparatus and method for protecting against side-channel attacks during device charging”, US Patent 12,374,905, Jul. 29th, 2025.

## Journal Publications

1. D. P. Hoover, A. Bilbao, and J. A. Rice, "WiSeMote: a novel high fidelity wireless sensor network for structural health monitoring," Smart Structures and Systems, vol. 10, no. 3, pp. 271-298, 2012
2. A. V. Bilbao, J. A. Schrock, W. B. Ray, M. D. Kelley, S. L. Holt, M. G. Giesselmann, and S. B. Bayne, "Development and testing of an active high voltage saturation probe for characterization of ultra-high voltage silicon carbide semiconductor devices," Review of Scientific Instruments, vol. 86, pp. 85-104, 2015
3. M. G. Giesselmann and A. Bilbao, "Digital control of a rapid capacitor charger with sensor-less voltage feedback," IEEE Transactions on Dielectrics and Electrical Insulation, vol. 22, no. 4, pp. 1930-1936, Aug. 2015
4. J. A. Schrock, W. B. Ray, K. Lawson, A. Bilbao, S. B. Bayne, S. L. Holt, L. Cheng; J. W. Palmour, and C. Scozzie, "High-mobility stable 1200-V, 150-A 4H-SiC DMOSFET long-term reliability analysis under high current density transient conditions," IEEE Transactions on Power Electronics, vol. 30, no. 6, pp. 2891-2895, Jun. 2015
5. J. A. Schrock et al., "Failure modes of 15-kV SiC SGTO thyristors during repetitive extreme pulsed overcurrent conditions," IEEE Transactions on Power Electronics, vol. 31, no. 12, pp. 8058-8062, Dec. 2016
6. J. A. Schrock, B. N. Pushpakaran, A. V. Bilbao, W. B. Ray, E. A. Hirsch, M. D. Kelley, S. L. Holt, and S. B. Bayne, "Failure Analysis of 1200-V/150-A SiC MOSFET Under Repetitive Pulsed Overcurrent Conditions," IEEE Transactions on Power Electronics, vol. 31, no. 3, pp. 1816-1821, Mar. 2016
7. N. Shamim, S. S. Noureen, A. Bilbao, A. S. Subburaj, and S. Bayne. "A Comparative Study of Vector Control and Model Predictive Control Technique for Grid Connected Battery System" International Journal of Research and Engineering, vol. 5.1, pp. 287-295, Feb. 2018
8. M. D. Kelley, B. N. Pushpakaran, A. V. Bilbao, J. A. Schrock, S. B. Bayne, “Single-pulse avalanche mode operation of 10-kV/10-A SiC MOSFET”, Microelectronics Reliability, vol. 81, pp. 174-180, 2018
9. M. Kim et al., "Evaluation of Long-Term Reliability and Overcurrent Capabilities of 15-kV SiC MOSFETs and 20-kV SiC IGBTs During Narrow Current Pulsed Conditions," in IEEE Transactions on Plasma Science, vol. 48, no. 11, pp. 3962-3967, Nov. 2020, doi: 10.1109/TPS.2020.3030295.
10. Sedai, A.; Dhakal, R.; Gautam, S.; Dhamala, A.; Bilbao, A.; Wang, Q.; Wigington, A.; Pol, S. Performance Analysis of Statistical, Machine Learning and Deep Learning Models in Long-Term

Forecasting of Solar Power Production. Forecasting 2023, 5, 256-284. https://doi.org/10.3390/forecast5010014
11. David Z. Graves, Argenis V. Bilbao, Stephen B. Bayne, Machine Learning Based Foreign Object Detection in Wireless Power Transfer Systems, e-Prime - Advances in Electrical Engineering, Electronics and Energy, Volume 7, 2024, 100384, ISSN 2772-6711, https://doi.org/10.1016/j.prime.2023.100384.
12. E. Hojati, A. Sill, S. Mengel, S. M. B. Sayedi, A. Bilbao and K. Schmitt, "A Comprehensive Monitoring, Visualization, and Management System for Green Data Centers," in IEEE Systems Journal, Jan. 2025, doi: 10.1109/JSYST.2025.3528748.
13. Alao, A.B.; Adeyanju, O.M.; Chamana, M.; Bayne, S.; Bilbao, A. Optimized Universal Droop Control Framework for Enhancing Stability and Resilience in Renewable-Dense Power Grids. Electronics 2025.
14. Alao, A.B.; Adeyanju, O.M.; Chamana, M.; Bayne, S.; Bilbao, A. Photovoltaic Farm Power Generation Forecast Using Photovoltaic Battery Model with Machine Learning Capabilities. Solar 2025.

## Conference Publications

1. A. Bilbao, D. Hoover, J. Rice, and J. Chapman, "Ultra-low power wireless sensing for long-term structural health monitoring," in SPIE 7981 Proceedings, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2011, San Diego, CA, 2011
2. D. Hoover, A. Bilbao, and J. A. Rice, “A low power, low noise wireless sensor platform for structural health monitoring,” in 6th EWSHM Proceedings, Dresden, Germany, 2012, pp. 936-1691
3. A. Bilbao and S. Bayne, "PSPICE modeling of silicon carbide MOSFETS and device parameter extraction," in 2012 IEEE Power Modulator and High Voltage Conference (IPMHVC), San Diego, CA, 2012, pp. 776-779
4. L. Cheng, A. K. Agarwal, M. Schupbach, D. A. Gajewski, D. J. Lichtenwalner, V. Pala, R. Sei-Hyung, J. Richmond, J. W. Palmour, W. Ray, J. Schrock, A. Bilbao, S. Bayne, A. Lelis, and C. Scozzie, "High performance, large-area, 1600 V / 150 A, 4H-SiC DMOSFET for robust high-power and high-temperature applications," in 2013 International Symposium on Power Semiconductor Devices and ICs (ISPSD), Kanazawa, 2013, pp. 47-50
5. A. Bilbao, W. B. Ray, J. A. Schrock, K. Lawson, S. B. Bayne, L. Cheng; A. K. Agarwal, and C. Scozzie, "Pulsed power switching of 4H-SiC vertical D-MOSFET and device characterization," in 2013 IEEE Pulsed Power Conference (PPC), San Francisco, CA, 2013, pp. 1-4
6. S. Pol, A. Taylor, A. Bilbao, A. Doostalab, S. Novoa, C. Westergaard, F. Hussain, J. Sheng, B. Ren, M. Giesselmann, M. Glauser, and L. Castillo, "Field measurements in the wake of a model wind turbine," in Journal of Physics: Conference Series, vol. 524, 2014, pp. 12-175
7. M. G. Giesselmann and A. Bilbao, "Digital control of a rapid capacitor charger with sensor-less voltage feedback," in 2014 IEEE International Power Modulator and High Voltage Conference (IPMHVC), Santa Fe, NM, 2014, pp. 640-643
8. A. Taylor, S. Pol, A. Doosttalab, S. Novoa, L. Castillo, J. Sheng, A. Bilbao, M. Giesselmann, C. Westergaard, and F. Hussain, "Summary of Smart Wind Farm Array Activities for Summer Research

Institute, 2013," in NWRC Summer Research Institute Proceedings in Renewable Energy, Turbulence & Medicine, National Wind Resource Center, Issue 1, 2014, pp. 1-5
9. M. D. Kelley, A. V. Bilbao, W. B. Ray, J. A. Schrock, and S. B. Bayne, "Evaluation and comparison of 1200-V/285-A silicon carbide half-bridge MOSFET modules," in 2015 IEEE Pulsed Power Conference (PPC), Austin, TX, 2015, pp. 1-4
10. W. B. Ray, J. A. Schrock, A. V. Bilbao, M. Kelley, S. Lacouture, E. Hirsch, and S. B. Bayne, "Analysis of GaN power MOSFET exporsure to pulsed overcurrents," in 2015 IEEE Pulsed Power Conference (PPC), Austin, TX, 2015, pp. 1-5
11. J. A. Schrock, W. B. Ray, A. V. Bilbao, M. D. Kelley, W. A. Hirsch, S. L. Holt, and S. B. Bayne, "Development of secondary breakdown circuit for dv/dt analysis of SiC devices," in 2015 IEEE Pulsed Power Conference (PPC), Austin, TX, 2015, pp. 1-5
12. M. G. Giesselmann, A. Bilbao, "Protective networks for high voltage power supplies for pulsed power loads," in 2015 IEEE Pulsed Power Conference (PPC), Austin, TX, 2015, pp. 1-6
13. A. V. Bilbao, J. A. Schrock, W. B. Ray, M. D. Kelley, S. B. Bayne, "Analysis of advanced 20 KV/20 A silicon carbide power insulated gate bipolar transistor in resistive and inductive switching tests," in 2015 IEEE Pulsed Power Conference (PPC), Austin, TX, 2015, pp. 1-3
14. E. Hirsch, J. A. Schrock, S. Lacouture, A. Bilbao, S. Bayne, M. Giesselmann, H. O'Brien, and A. Ogunniyi, “Evaluation of long term reliability and safe operating area of 15 kV SiC PiN diodes during ultra-high current pulsed conditions,” in 2016 IEEE International Power Modulator and High Voltage Conference (IPMHVC), San Francisco, CA, 2016
15. J. A. Schrock, E. Hirsch, A. Bilbao, S. Lacouture, W. Ray, S. Bayne, M. Giesselmann, H. O'Brien, and A. Ogunniyi, “Simulation and design trade-off analysis of 15 kV SiC SGTO thyristor during extreme pulsed overcurrent conditions,” in 2016 IEEE International Power Modulator and High Voltage Conference (IPMHVC), San Francisco, CA, 2016
16. A. V. Bilbao, J. A. Schrock, M. D. Kelley, E. Hirsch, W. B. Ray, S. B. Bayne, and M. G. Giesselmann, “Continuous switching of ultra-high voltage silicon carbide MOSFETs,” in 2016 IEEE International Power Modulator and High Voltage Conference (IPMHVC), San Francisco, CA, 2016
17. W. B. Ray, M. Kim, A. Bilbao, J. A. Schrock and S. B. Bayne, "Analysis on repetitive pulsed overcurrent operation of GaN power transistors," 2016 IEEE 4th Workshop on Wide Bandgap Power Devices and Applications (WiPDA), Fayetteville, AR, 2016, pp. 353-356.
18. A. V. Bilbao, M. G. Giesselmann and S. B. Bayne, "Charge transfer-based sensorless voltage feedback in HV capacitor chargers," 2016 IEEE International Power Modulator and High Voltage Conference (IPMHVC), San Francisco, CA, 2016, pp. 397-399
19. M. Kim et al., "Analysis on repetitive pulsed overcurrent operation of GaN power transistors," 2017 IEEE 21st International Conference on Pulsed Power (PPC), Brighton, 2017, pp. 1-4
20. M. Kim, J. J. Forbes, A. V. Bilbao, J. A. Schrock and S. B. Bayne, "Reconfigurable High Voltage Load for Pulsed Power Applications," 2017 IEEE 21st International Conference on Pulsed Power (PPC), Brighton, 2017, pp. 1-3
21. Shamim, Nimat & Noureen, Subrina & Bilbao, Argenis & Subburaj, Anitha & Bayne, Stephen. (2018). A Comparative Study of Vector Control and Model Predictive Control
22. Technique for Grid Connected Battery System. International Journal of Research and Engineering. 4. 287-295. 10.21276/ijre.2018.5.1.1.

23. N. Shamim, A. Bilbao, D. Reale and S. Bayne, "Analysis of Grid Connected Fuel Cell Power System Integrated with Supercapacitor," 2018 IEEE Green Technologies Conference (GreenTech), Austin, TX, 2018, pp. 61-64
24. V. Roy, S. S. Noureen, S. Bayne, A. Bilbao and M. Giesselmann, "A Renewable Solution Approach for Center Pivot Irrigation System," 2018 IEEE Rural Electric Power Conference (REPC), Memphis, TN, 2018, pp. 61-66
25. G. M. Quintero, Y. Reddy Challapuram, A. Bilbao, S. B. Bayne, A. S. Subburaj and M. A. Harral, "Micro-grid System Modeling Efforts using PQ-Control for Single-phase and Three-phase Inverter," 2018 IEEE International Telecommunications Energy Conference (INTELEC), Turin, 2018, pp. 1-5
26. V. Roy, S. S. Noureen, S. B. Bayne, A. Bilbao and M. Giesselmann, "Event Detection From PMU Generated Big Data using R Programming," 2018 IEEE Conference on Technologies for Sustainability (SusTech), Long Beach, CA, USA, 2018, pp. 1-6
27. M. Kim et al., "Analysis of a New 15-kV SiC n-GTO under Pulsed Power Applications," 2019 IEEE Pulsed Power & Plasma Science (PPPS), Orlando, FL, USA, 2019, pp. 1-4
28. A. V. Bilbao and S. B. Bayne, "Compact Rapid Capacitor Charger for Mobile Marx Generator Applications," 2019 IEEE Pulsed Power & Plasma Science (PPPS), Orlando, FL, USA, 2019, pp. 1-4
29. Richard Matovu, Abdul Serwadda, Argenis V. Bilbao, and Isaac Griswold-Steiner. 2020. Defensive Charging: Mitigating Power Side-Channel Attacks on Charging Smartphones. In Proceedings of the Tenth ACM Conference on Data and Application Security and Privacy (CODASPY '20). Association for Computing Machinery, New York, NY, USA, 179–190
30. S. Acharya, A. Serwadda and A. V. Bilbao, "That phone charging hub knows your video playlist!," 2021 IEEE SmartWorld, Ubiquitous Intelligence & Computing, Advanced & Trusted Computing, Scalable Computing & Communications, Internet of People and Smart City Innovation (SmartWorld/SCALCOM/UIC/ATC/IOP/SCI), 2021, pp. 160-169.
31. A. V. Bilbao and S. B. Bayne, "Maximum Power Point Tracking of Inductive Resonant Wireless Power Transfer Systems Using a Buck Converter on the Receiving Side to Mitigate the Effects of Coil Misalignment," 2021 IEEE Pulsed Power Conference (PPC), 2021, pp. 1-4.
32. B. Westmoreland, A. V. Bilbao and S. B. Bayne, "Semiconductor Power Module Current Balancing Using Reinforcement Machine Learning," 2021 IEEE Pulsed Power Conference (PPC), 2021, pp. 1-5.
33. D. Z. Graves, A. V. Bilbao and S. B. Bayne, "Safe and Intelligent Wireless Power Transfer System," 2021 IEEE Pulsed Power Conference (PPC), 2021, pp. 1-5.
34. A. Demir, L. F. Gutiérrez, S. Bayne and A. Bilbao, "Temperature Prediction in Microgrids Using LSTMs: A Case Study," 2022 IEEE 46th Annual Computers, Software, and Applications Conference (COMPSAC), 2022, pp. 1237-1242
35. D. Z. Graves, A. V. Bilbao, S. B. Bayne, E. A. Schrock, S. Miller and J. Phillips, "Modeling of a SiC Drift Step Recovery Diode Stack in Silvaco Atlas," 2023 IEEE Pulsed Power Conference (PPC), San Antonio, TX, USA, 2023, pp. 1-5
36. Alao, A., Stephen Bayne and Argenis Bilbao. 2024 "PV Farm Power Generation Forecast using PV-Battery Model with Machine Learning Capabilities" Preprints.
37. A. B. Alao, O. M. Adeyanju, M. Chamana, S. Bayne and A. Bilbao, "Investigating the Effects of Improved Structural Design on Energy Yield in a Real Solar Farm," 2024 56th North American Power Symposium (NAPS), El Paso, TX, USA, 2024, pp. 1-6

38. R. Shrestha et al., "Optimal Phasor Measurement Unit Placement Using Machine Learning Technique," 2024 16th Seminar on Power Electronics and Control (SEPOC), Santa Maria, Brazil, 2024, pp. 1-6
39. D. Z. Graves, M. Lehmann, A. V. Bilbao, S. B. Bayne and E. A. Schrock, "Transient Simulations in Silvaco Victory Device for a N-Type SiC Drift Step Recovery Diode," 2024 IEEE International Power Modulator and High Voltage Conference (IPMHVC), Indianapolis, IN, USA, 2024, pp. 1-4
40. L. S. Del Rio et al., "Development and Implementation of an Electric Vehicle Emulator for Enhanced Microgrid Management Studies," 2025 IEEE Texas Power and Energy Conference (TPEC), College Station, TX, USA, 2025, pp. 1-6

## References

Dr. Stephen B. Bayne Ph. (806) 834-0526
Dr. James A. Schrock Ph. (979) 665-2292
Dr. Brian Nutter Ph. (806) 834-6410