

MD “SURUZ” MIAH

CURRICULUM VITAE

Associate Professor

Electrical and Computer Engineering, Bradley University

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(1) **DATE OF PREPARATION**

March 22, 2023

(2) **DEGREES**

| | | | | |
|---------|-------------------------------------|------------------------------|------------|--------|
| Ph.D. | Electrical and Computer Engineering | University of Ottawa | Canada | [2012] |
| M.A.Sc. | Electrical Engineering | University of Ottawa | Canada | [2007] |
| B.Sc. | Computer Science and Engineering | Khulna Univ. of Eng. & Tech. | Bangladesh | [2004] |

(3) **EMPLOYMENT HISTORY**

| | | | |
|---------------------|--|------------------------------|-------------|
| Associate Professor | Electrical & Computer Eng. Department | Bradley University, USA | [2021 –] |
| Assistant Professor | Electrical & Computer Eng. Department | Bradley University, USA | [2015 – 21] |
| Adjunct Professor | School of Electrical Eng. & Computer Sc. | University of Ottawa, Canada | [2014 –] |
| Research Fellow | Defence R & D Canada | Government of Canada | [2012 – 15] |
| Part-time Professor | Faculty of Engineering | University of Ottawa, Canada | [2012 – 13] |
| Part-time Professor | School of Advanced Technology | Algonquin College, Canada | [2012 – 13] |
| Teaching Assistant | Faculty of Engineering | University of Ottawa, Canada | [2006 – 12] |
| Lecturer | Computer Science & Eng. | Khulna Univ. of Eng. & Tech. | [2004 – 05] |

(4) **ACADEMIC HONORS AND AWARDS**

| | | |
|------------------------------|---|---------------|
| Caterpillar Fellowship Award | Bradley University, USA | [2016–18,'23] |
| Heuser Research Award | Bradley University, USA | [2018, 2016] |
| Excellence in Research | Bradley University, USA | [2016] |
| JSPS Postdoctoral Fellowship | Japan Society for the Promotion of Science, NSERC, Canada | [2013] |
| Industrial R & D Fellowship | Natural Sciences and Engineering Research Council, Canada | [2013] |
| Dean's Scholarship | FGPS, University of Ottawa, Canada | [2012] |
| Certificate of Excellence | Faculty of Engineering, University of Ottawa, Canada | [2011] |
| Alexander Graham Bell CGS | NSERC, Canada | [2009] |
| Ontario Graduate Scholarship | Ontario Graduate Scholarship Program, Canada | [2009] |
| Masters Thesis Award | School of EECS, University of Ottawa, Canada | [2007] |
| Excellence Scholarship | University of Ottawa, Canada | [2009] |
| Admission Scholarship | University of Ottawa, Canada | [2008] |
| Tuition Fee Scholarship | University of Ottawa, Canada | [2006] |
| President Gold Medal | Khulna University of Engineering & Technology, Bangladesh | [2005] |
| Merit Award | Khulna University of Engineering & Technology, Bangladesh | [2000] |

(5) **TEACHING**

- **Teaching Interest**

- Graduate courses (not limited to): Multi-robot systems and applications; mobile robotics, reinforcement learning and optimal control; nonlinear systems; topics in computational intelligence.
- Undergraduate courses (not limited to): Autonomous robotics; mechatronics; microcontroller programming and interfacing; digital systems, control systems I/II; probability theory, statistics and random processes; numerical methods.

- (6) **RESEARCH**
- **Areas of Interest:** Mechatronics, control and estimation theory (nonlinear control, optimal control and estimation, intelligent control), and reinforcement learning.
 - **Applications** include but not limited to:
 - Cyber-physical systems (mobile robot navigation and control, self-driving autonomous vehicles, multi-robot systems, sensor network),
 - Energy management systems,
 - Real-time embedded systems.
- (7) **RESEARCH GRANT**
- External research grant
 - Adam Cross (Co-PI), **S. Miah (Co-Principal Investigator)**, Connor Davey (Co-Investigator), and Reid Jockisch (Co-Investigator); *Pulmonary Acoustic Sensor Telemetry Array* [Aug. 2023 – Dec. 2024]
Funding organization: [Innovation for Health](#) (OSF HealthCare and Bradley University)
Status: Under review
 - J. Henderson (PI) and **S. Miah (Co-Principal Investigator)**; *STEM Engagement with University, School District and Community Collaboration for Underrepresented Students* [May 2022 – Apr. 2023]
Funding organization: [Illinois Space Grant Consortium](#) (NASA’s National Space Grant College and Fellowship Program)
Status: Funded
 - M. I. Hossain (PI), M. A. Alzarrad (Co-PI), K. L. Wolfe (Co-PI), and **S. Miah (Co-Principal Investigator)**; *Small Cell Installation in Transportation Infrastructure – A Literature Review* [Sep. 2019 – Jan. 2020]
Funding organization: [Illinois Center for Transportation](#)
Status: Funded
 - **S. Miah (Principal Investigator)**; *Study and Development of Area Coverage Strategies for Non-deterministic Environments* [Apr. 2018 – Apr. 2021]
Funding organization: [Illinois Space Grant Consortium](#) (NASA’s National Space Grant College and Fellowship Program)
Status: Funded
 - **S. Miah (Principal Investigator)** and A. Malinowski (Co-PI); *Area Coverage Optimization using Multiple Autonomous Agents* [Oct. 2016 – Apr. 2021]
Funding organization: [Illinois Space Grant Consortium](#) (NASA’s National Space Grant College and Fellowship Program)
Status: Funded
 - Internal research grant
 - G.G. Md. Nawaz Ali (PI), M. N. Sadat (co-PI), and **S. Miah (co-PI)**; *Enhanced Cooperative Perception for Connected and Autonomous Vehicles* [2022]
Funding organization: Faculty Scholarship Award, Office of Sponsored Program, Bradley University, USA
Status: Funded

- **S. Miah (Principal Investigator);** *Area Coverage Optimization using Multiple Autonomous Agents* [2016,2018]
Funding organization: Individual Research Grants, Caterpillar College of Engineering & Tech., Bradley University, USA
Status: Funded
- **S. Miah (Principal Investigator);** *Universal Controller for Mobile Robot Trajectory Tracking* [May 2016 – Apr. 2018]
Funding organization: Caterpillar College of Engineering & Tech., Bradley University, USA
Status: Funded
- **S. Miah;** *CCET Start-Up Grant* [Aug. 2015 – Jul. 2018]
Funding organization: Caterpillar College of Engineering & Tech., Bradley University, USA
Status: Funded
- **S. Miah (Principal Investigator)** and E. Guetz; *Motion Control of Indoor Mobile Robots using Customized RFID Systems* [May 2016 – Aug. 2017]
Funding organization: Office of Sponsored Program, Bradley University, USA
Status: Funded
- Teaching grant
 - **S. Miah** and J. Henderson; *Robotics and Applied Mechatronics* [2022]
Funding organization: FCB-CCET Mini Grant Program, Bradley University, USA
Status: Funded
 - G. G. Md. Nawaz Ali and **S. Miah;** *Web Technology and Embedded System (CIS 445/545 & ECE 444/544)* [2022]
Funding organization: Building Interdisciplinary Connections: Paired Courses, Center for Teaching Excellence and Learning (CTEL), Bradley University, USA
Status: Funded
 - **S. Miah;** *An Experimental Approach for Teaching Senior Undergraduate/Graduate-level Multidisciplinary Robotics Course* [2021]
Funding organization: Teaching Excellence: Innovative Teaching Grant, Center for Teaching Excellence and Learning (CTEL), Bradley University, USA
Status: Funded

(8) PUBLICATIONS.....

- Life-time summary (2007 –)

| | Published (count) |
|---|-------------------|
| Books | (1) |
| Papers in refereed journals | (28) |
| Papers in refereed conference proceedings | (59) |
| Scientific reports | (7) |

Books (B)

- [B1] **S. Miah,** *Mechatronics: An Experimental Approach*, 2nd ed. Ann Arbor, MI: XanEdu, 2022, (laboratory book).

Refereed Journal (J) Articles

- [J1] F. Soleymani, **S. Miah**, and D. Spinello, "Optimal non-autonomous area coverage control with adaptive reinforcement learning," *Engineering Applications of Artificial Intelligence*, vol. 1, pp. 1–13, Mar 2023, (accepted, Mar. 2023).
- [J2] M. Harib, H. Chaoui, and **S. Miah**, "Evolution of adaptive learning for nonlinear dynamic systems: a systematic survey," *Intelligence and Robotics*, vol. 1, pp. 37–71, Mar 2022. [Online]. Available: <https://intellrobot.com/article/view/4634>
- [J3] M. Nkemdirim, S. Dharan, H. Chaoui, and **S. Miah**, "Lqr control of a 3-dof helicopter system," *International Journal of Dynamics and Control*, vol. 1, pp. 1–10, Sep 2021. [Online]. Available: <https://doi.org/10.1007/s40435-021-00872-7>
- [J4] K. R. Khan and **S. Miah**, "Fault-tolerant blde motor-driven pump for fluids with unknown specific gravity: An experimental approach," *IEEE Access*, vol. 8, no. 1, pp. 30 160–30 173, Jan 2020.
- [J5] M. I. Hossain, L. S. P. Gopiseti, and **S. Miah**, "Artificial neural network modelling to predict international roughness index of rigid pavements," *International Journal of Pavement Research and Technology*, vol. 13, no. 1, pp. 0000–0000, Jan 2020, [STUDENT CO-AUTHORED PAPER].
- [J6] S. Roy, M. Assad-Uz-Zaman, M. H. Rahman, and **S. Miah**, "Coordination control and obstacle avoidance for a team of mobile robots in unknown environment," *International Journal of Modelling, Identification and Control*, vol. 34, no. 4, pp. 316–327, Dec 2020.
- [J7] **S. Miah**, M. R. Kafi, and H. Chaoui, "Generalized cascaded control technology for a twin-rotor mimo system with state estimation," *Journal of Control, Automation and Electrical Systems*, vol. 30, no. 2, pp. 170–180, Apr 2019.
- [J8] M. I. Hossain, L. S. P. Gopiseti, and **S. Miah**, "International roughness index prediction of flexible pavements using neural networks," *ASCE's Journal of Transportation Engineering, Part B: Pavements*, vol. 145, no. 1, pp. 04 018 058–1–04 018 058–10, Apr 2019, [STUDENT CO-AUTHORED PAPER].
- [J9] **S. Miah** and J. Knoll, "Area coverage optimization using heterogeneous robots: Algorithm and implementation," *IEEE Transactions on Instrumentation and Measurement*, vol. 67, no. 6, pp. 1380–1388, June 2018, [STUDENT CO-AUTHORED PAPER].
- [J10] **S. Miah**, J. Knoll, and K. Hevrdejs, "Intelligent range-only mapping and navigation for mobile robots," *IEEE Transactions on Industrial Informatics*, vol. 14, no. 3, pp. 1164–1174, March 2018, [STUDENT CO-AUTHORED PAPER].
- [J11] S. Huda, **S. Miah**, J. Yearwood, S. Alyahya, H. Al-Dossar, and R. Doss, "A malicious threat detection model for cloud assisted internet of things (cot) based industrial control system (ics) networks using deep belief network," *Journal of Parallel and Distributed Computing*, vol. 120, pp. 23–31, Oct 2018.
- [J12] **S. Miah**, P. Farkas, W. Gueaieb, and H. Chaoui, "Linear time-varying feedback law for vehicles with ackermann steering," *International Journal of Robotics and Automation*, vol. 32, no. 1, Jan 2017.
- [J13] **S. Miah**, M. M. H. Fallah, and D. Spinello, "Non-autonomous coverage control with diffusive evolving density," *IEEE Transactions on Automatic Control*, vol. 62, no. 10, pp. 5262–5268, Oct 2017, [STUDENT CO-AUTHORED PAPER].
- [J14] **S. Miah**, A. Y. Panah, M. M. H. Fallah, and D. Spinello, "Generalized non-autonomous metric optimization for area coverage problems with mobile autonomous agents," *Automatica*, vol. 80, no. 1, pp. 295–299, Jun 2017, [STUDENT CO-AUTHORED PAPER].
- [J15] S. Huda, **S. Miah**, M. M. Hassan, R. Islam, J. Yearwood, M. Alrubaian, and A. Almogren, "Defending unknown attack on cyber-physical systems by semi-supervised approach and readily available un-labeled data," *Information Sciences, Elsevier*, vol. 379, pp. 211–228, 2017.
- [J16] M. R. Kafi, H. Chaoui, **S. Miah**, and A. Debilou, "Local model networks based mixed-sensitivity h-infinity control of ce-150 helicopters," *Control Theory and Technology, Springer*, vol. 15, no. 1, pp. 34–44, Feb 2017.

- [J17] **S. Miah** and W. Gueaieb, "Rfid-based mobile robot trajectory tracking and point stabilization through on-line neighboring optimal control," *Journal of Intelligent and Robotic Systems*, vol. 78, no. 3–4, pp. 377–399, June 2015.
- [J18] **S. Miah**, B. Nguyen, A. Bourque, and D. Spinello, "Nonuniform coverage control with stochastic intermittent communication," *IEEE Transactions on Automatic Control*, vol. 60, no. 7, pp. 1981–1986, July 2015.
- [J19] **S. Miah** and W. Gueaieb, "Optimal time-varying p-controller for a class of uncertain nonlinear systems," *International Journal of Control, Automation and Systems*, vol. 12, no. 4, August 2014.
- [J20] **S. Miah** and W. Gueaieb, "Mobile robot trajectory tracking using noisy rss measurements: An rfid approach," *ISA Transactions: The Journal of Automation, Elsevier*, vol. 53, no. 2, pp. 433–443, March 2014.
- [J21] **S. Miah**, B. Nguyen, A. Bourque, and D. Spinello, "Nonuniform deployment of autonomous agents in harbor-like environments," *Unmanned Systems*, vol. 2, no. 4, pp. 377–389, October 2014.
- [J22] **S. Miah** and N. U. Ahmed, "Constant gain optimal output feedback control for a class of semi-linear dynamic systems," *Dynamics of Continuous, Discrete and Impulsive Systems, Series B: Applications and Algorithms*, vol. 19, no. 1, pp. 311–323, 2012.
- [J23] **S. Miah**, N. U. Ahmed, and M. Chowdhury, "Optimum policy for integration of renewable energy sources into the power generation system," *Energy Economics - Elsevier*, vol. 34, no. 1, pp. 558–567, 2012.
- [J24] N. U. Ahmed and **S. Miah**, "Optimal feedback control law for a class of partially observed uncertain dynamic systems: A min-max problem," *Dynamic Systems and Applications*, vol. 20, no. 1, pp. 149–167, 2011.
- [J25] **S. Miah** and W. Gueaieb, "Mobile robot navigation using direction sensitive RFID reader," *International Journal of Control and Intelligent Systems*, vol. 39, no. 3, pp. 1–11, 2011.
- [J26] W. Gueaieb and **S. Miah**, "A modular cost-effective mobile robot navigation system using RFID technology," *Journal of Communications*, vol. 4, no. 2, pp. 89–95, 2009.
- [J27] W. Gueaieb and **S. Miah**, "An intelligent mobile robot navigation technique using RFID technology," *IEEE Transactions on Instrumentation and Measurement*, vol. 57, no. 9, pp. 1908–1917, September 2008.
- [J28] M. A. Rahman, **S. Miah**, W. Gueaieb, and A. E. Saddik, "SENORA: A P2P service oriented framework for collaborative multi-robot sensor network," *IEEE Sensors Journal, Special Issue on Intelligent Sensors*, vol. 7, no. 5, pp. 658–666, May 2007.

Refereed Conference (C) Articles

- [C1] G. G. M. N. Ali, S. A. Sharief, M. N. Sadat, and **S. Miah**, "Performance analysis of 5g new radio v2x communication," in *IEEE Wireless and Microwave Technology Conference (WAMICON)*, Melbourne, Florida, USA, April 2023.
- [C2] D. Boase, W. Gueaieb, and **S. Miah**, "Underactuated mimo airship control based on online data-driven reinforcement learning," in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Detroit, Michigan, USA, October 2023.
- [C3] I. Chism, D. Plante, and **S. Miah**, "Area coverage optimization using networked mobile robots with state estimation," in *The 36th Florida AI Research Society (FLAIRS) Conference: Autonomous Robots and Agents*, Clearwater Beach, Florida, USA, May 2023.
- [C4] B. Lauer, E. Watkins, and **S. Miah**, "A framework for developing intelligent building energy management system – ibems," in *IEEE International Symposium on Industrial Electronics (ISIE)*, Anchorage, Alaska, USA, June 2022.
- [C5] H. Grady, N. Nauman, and **S. Miah**, "Data-driven hardware-in-the-loop plant modeling for self-driving vehicles," in *IEEE International Symposium on Robotic and Sensors Environments*, Hybrid | Abu Dhabi, UAE, November 2022.

- [C6] F. Soleymani, **S. Miah**, and D. Spinello, "Temporal difference learning of area coverage control with multi-agent systems," in *IEEE International Symposium on Robotic and Sensors Environments*, Hybrid | Abu Dhabi, UAE, November 2022.
- [C7] J. Braker, D. Beebe, K. Allen, P. Shastry, and **S. Miah**, "A smart robotic cart prototype using rf signal strength," in *IEEE International Symposium on Robotic and Sensors Environments*, Virtual, October 2021.
- [C8] M. Hossain, **S. Miah**, M. Alzarrad, K. Wolfe, A. Dial, C. Keys, M. Spaunhorst, and N. Merrill, "On the adoption of 5g cellular network using small cells in transportation infrastructure," in *Proceedings of International Conference on Transportation and Development 2021: Transportation Planning and Development*, Virtual, June 2021.
- [C9] A. Elhoussein and **S. Miah**, "A novel model-free actor-critic reinforcement learning approach for dynamic target tracking," in *Midwest Industry Conference*, Virtual Online Conference, August 2020, [STUDENT CO-AUTHORED PAPER].
- [C10] **S. Miah**, A. Elhoussein, F. Keshtkar, and M. Abouheaf, "Model-free reinforcement learning approach for leader-follower formation using mobile robot," in *The 33rd International FLAIRS Conference*, Florida, USA, May 2020, [STUDENT CO-AUTHORED PAPER].
- [C11] K. Vonckx, G. Janiak, and **S. Miah**, "Optimal tracking control experiments for 2-dof helicopter: An open-implementation approach," in *7th IEEE International Conference on Mechatronics Engineering - ICOM'19*, Putrajaya, Malaysia, October 2019, [STUDENT CO-AUTHORED PAPER].
- [C12] E. Jones, D. Adra, and **S. Miah**, "Mafoss: Multi-agent framework using open-source software," in *7th IEEE International Conference on Mechatronics Engineering - ICOM'19*, Putrajaya, Malaysia, October 2019, [STUDENT CO-AUTHORED PAPER].
- [C13] G. Janiak, K. Vonckx, and **S. Miah**, "Smart real-time motion control framework for 2-dof helicopters: A teleoperation approach," in *IEEE International Symposium on Industrial Electronics*, Vancouver, Canada, June 2019, [STUDENT CO-AUTHORED PAPER].
- [C14] F. Soleymani, **S. Miah**, and D. Spinello, "Non-autonomous state-feedback to stabilize the error dynamics in time-varying area coverage control problems," in *IEEE International Workshop on Robotic and Sensors Environments*, Ottawa, Ontario, Canada, June 2019, [STUDENT CO-AUTHORED PAPER].
- [C15] **S. Miah**, H. Chaoui, and F. Keshtkar, "Intelligent networked navigation of mobile robots with collision avoidance," in *44th Annual Conference of the IEEE Industrial Electronics Society*, Washington, D.C., USA, October 2018.
- [C16] **S. Miah**, "Leader-follower localization and mapping using range-only measurements," in *44th Annual Conference of the IEEE Industrial Electronics Society*, Washington, D.C., USA, October 2018.
- [C17] N. Rastogi, F. Keshtkar, and **S. Miah**, "A multi-modal human robot interaction framework based on cognitive behavioral therapy model," in *20th ACM International Conference on Multimodal Interaction*, Boulder, Colorado, USA, October 2018.
- [C18] **S. Miah**, B. Nguyen, A. Bourque, and D. Spinello, "Non-autonomous area coverage and coordination of a multi-agent system for harbor protection applications," in *8th International Conference on Simulation and Modeling Methodologies, Technologies and Applications (SIMULTECH)*, Porto, Portugal, July 2018.
- [C19] A. Fandel, A. Birge, and **S. Miah**, "Development of reinforcement learning algorithm for 2-dof helicopter model," in *IEEE International Symposium on Industrial Electronics*, Cairns, Australia, June 2018, [STUDENT CO-AUTHORED PAPER].
- [C20] L. S. P. Gopiseti, M. Hossain, **S. Miah**, and K. Schattler, "Artificial neural network models for predicting pavement roughness of flexible and rigid pavements," in *Compendium of 97th Transportation Research Board Annual Meeting*, Washington DC, USA, January 2018, [STUDENT CO-AUTHORED PAPER].
- [C21] **S. Miah**, "Value iteration based approximate dynamic programming for mobile robot trajectory tracking with persistent inputs," in *IEEE 5th International Symposium on Robotics and Intelligent Sensors*, Ottawa, Ontario, Canada, October 2017.

- [C22] M. R. Kafi, H. Chaoui, and **S. Miah**, “Twin-totor mimo system and its control using interval type-2 fuzzy logic,” in *IEEE 5th International Symposium on Robotics and Intelligent Sensors*, Ottawa, Ontario, Canada, October 2017.
- [C23] M. I. Hossain, L. S. P. Gopiseti, and **S. Miah**, “Prediction of international roughness index of flexible pavements from climate and traffic data using artificial neural network modeling,” in *International Conference on Highway Pavements and Airfield Technology*, Philadelphia, Pennsylvania, USA, August 2017, [STUDENT CO-AUTHORED PAPER].
- [C24] **S. Miah**, F. Shaik, and H. Chaoui, “Universal dynamic tracking control law for mobile robot trajectory tracking,” in *The 18th International Conference on Industrial Technology*, Toronto, Ontario, Canada, March 2017, [STUDENT CO-AUTHORED PAPER].
- [C25] H. Chaoui and **S. Miah**, “Universal real-time control framework and internet of things for fast-paced research and development based production environments,” in *The 18th International Conference on Industrial Technology*, Toronto, Ontario, Canada, March 2017.
- [C26] J. Knoll, K. Hevrdejs, and **S. Miah**, “Virtual robot experiments for navigation in structured environments,” in *The 26th International Symposium on Industrial Electronics*, Edinburgh, Scotland, June 2017, [STUDENT CO-AUTHORED PAPER].
- [C27] K. Hevrdejs, J. Knoll, and **S. Miah**, “A zigbee-based framework for approximating sensor range and bearing,” in *The 30th annual IEEE Canadian Conference on Electrical and Computer Engineering*, Windsor, Ontario, Canada, April 2017, [STUDENT CO-AUTHORED PAPER].
- [C28] **S. Miah**, J. Knoll, and A. Malinowski, “Heterogeneous multi-robot trajectories for area coverage optimization,” in *The 26th International Symposium on Industrial Electronics*, Edinburgh, Scotland, June 2017, [STUDENT CO-AUTHORED PAPER].
- [C29] **S. Miah**, M. M. H. Fallah, A. Y. Panah, and D. Spinello, “Non-autonomous feedback control for area coverage problems with time-varying risk,” in *The ASME 2016 Dynamic Systems and Control Conference*, Minneapolis, Minnesota, USA, October 2016, [STUDENT CO-AUTHORED PAPER].
- [C30] A. A. Adepegba, **S. Miah**, and D. Spinello, “Multi-agent area coverage control using reinforcement learning,” in *The 29th International Florida Artificial Intelligence Research Society (FLAIRS) Conference: Autonomous Robots and Agents*, Key Largo, Florida, USA, May 2016, [STUDENT CO-AUTHORED PAPER].
- [C31] **S. Miah**, M. R. Kafi, H. Chaoui, and I. S. Ahn, “Neighboring optimal control of partially-observed twin rotor multi-input multi-output system,” in *IEEE International Symposium on Industrial Electronics*, Santa Clara, CA, USA, June 2016.
- [C32] **S. Miah**, J. Knoll, and A. Malinowski, “On the implementation of area coverage optimization using mobile robots,” in *42nd Annual Conference of IEEE Industrial Electronics Society*, Piazza Adua, 1 - Firenze (Florence), Italy, October 2016, [STUDENT CO-AUTHORED PAPER].
- [C33] **S. Miah**, W. Gueaieb, and D. Spinello, “Linear time-invariant feedback operator for mobile robot trajectory tracking,” in *IEEE International Instrumentation and Measurement Technology Conference*, Pisa, Italy, May 2015.
- [C34] **S. Miah**, W. Gueaieb, D. Spinello, and K. Khan, “Neighboring optimal control for mobile robot trajectory tracking with range-limited sensors,” in *IEEE International Instrumentation and Measurement Technology Conference*, Pisa, Italy, May 2015.
- [C35] H. Chaoui, **S. Miah**, A. Oukaour, and H. Gualous, “State-of-charge and state-of-health prediction of lead-acid batteries with genetic algorithms,” in *IEEE Transportation Electrification Conference & Expo (ITEC)*, Dearborn, Michigan, USA, June 2015.
- [C36] H. Chaoui, **S. Miah**, M. Kafi, and B. Hamane, “Neural network balance control of hopping robots in flight phase under unknown dynamics,” in *IEEE International Conference on Control, Engineering & Information Technology*, Tlemcen, Algeria, June 2015.
- [C37] **S. Miah**, B. Nguyen, D. Spinello, and A. Bourque, “Area coverage with time-varying diffusive density,” in *The ASME 2014 Dynamic Systems and Control Conference*, San Antonio, Texas, USA, October 2014.

- [C38] **S. Miah**, B. Nguyen, D. Spinello, and W. Gueaieb, "Maritime air defence firing tactics," in *Seventh IEEE Symposium on Computational Intelligence for Security and Defense Applications*, Hanoi, Vietnam, December 2014.
- [C39] B. Nguyen and **S. Miah**, "Analysis of maritime air defence scenarios," in *Seventh IEEE Symposium on Computational Intelligence for Security and Defense Applications*, Hanoi, Vietnam, December 2014.
- [C40] H. Chaoui, **S. Miah**, A. Oukaour, and H. Gualous, "Maximum power point tracking of wind turbines with neural networks and genetic algorithms," in *40th Annual Conference of IEEE Industrial Electronics Society*, Dallas, TX - USA, October 2014.
- [C41] **S. Miah**, H. Chaoui, and P. Sicard, "Linear time-varying control law for stabilization of hopping robot during flight phase," in *23rd IEEE International Symposium on Industrial Electronics*, Istanbul, Turkey, June 2014.
- [C42] H. Chaoui, P. Sicard, and **S. Miah**, "Observer-based adaptive control of pmsms with disturbance compensation and speed estimation," in *23rd IEEE International Symposium on Industrial Electronics*, Istanbul, Turkey, June 2014.
- [C43] **S. Miah**, B. Nguyen, D. Spinello, and A. Bourque, "Time delay impact of acoustic sonars on intercepting underwater targets in harbour," in *26th European Conference on Operational Research*, Rome, Italy, July 2013.
- [C44] **S. Miah** and W. Gueaieb, "A fuzzy logic approach for indoor mobile robot navigation using ukf and customized rfid communication," in *Proceedings of the International Conference on Autonomous and Intelligent Systems*, Burnaby, BC, Canada, June 2011.
- [C45] **S. Miah** and W. Gueaieb, "On the implementation of an efficient mobile robot navigation system: An RFID approach," in *International Conference on Intelligent Autonomous Systems*, Ottawa, Canada, August 2010.
- [C46] H. Chaoui, **S. Miah**, and P. Sicard, "Adaptive fuzzy logic control of a dc-dc boost converter with large parametric and load uncertainties," in *IEEE International Conference on Advanced Intelligent Mechatronics, AIM 2010*, Montreal, Quebec, Canada, July 2010.
- [C47] **S. Miah** and W. Gueaieb, "Indoor robot navigation through intelligent processing of RFID signal measurements," in *Proceedings of the International Conference on Autonomous and Intelligent Systems*, Povia de Varzim, Portugal, June 2010.
- [C48] **S. Miah** and W. Gueaieb, "A stochastic approach of mobile robot navigation using customized rfid systems," in *International Conference on Signals, Circuits and Systems*, Jerba, Tunisia, November 2009, pp. 1–6.
- [C49] **S. Miah** and W. Gueaieb, "Towards a computationally efficient relative positioning system for indoor environments: An RFID approach," in *ICINCO*, Milan, Italy, 2009.
- [C50] **S. Miah** and W. Gueaieb, "Mobile robot navigation using custom-made RFID tag system," in *Proceedings of the 5th Scientific Research Outlook*, Fes, Morocco, 2008, pp. 75–77.
- [C51] W. Gueaieb and **S. Miah**, "Mobile robot navigation using particle swarm optimization and noisy RFID communication," in *Proceedings of the IEEE International Conference on Computational Intelligence for Measurement Systems and Applications (CIMSAS)*, Istanbul, Turkey, 2008, pp. 111–116.
- [C52] M. A. Rahman, **S. Miah**, W. Gueaieb, and A. E. Saddik, "SENORA: A P2P service oriented framework for collaborative multi-robot sensor network," *IEEE Sensors Journal, Special Issue on Intelligent Sensors*, vol. 7, no. 5, pp. 658–666, May 2007.
- [C53] M. A. Rahman, **S. Miah**, W. Gueaieb, and A. E. Saddik, "A P2P sensor framework for collaborative robots manipulation," in *Proceedings of the Second International Conference on Systems (ICONS 2007)*, Martinique, French Caribbean, 2007, pp. 165–170.
- [C54] M. A. Rahman, **S. Miah**, W. Gueaieb, and A. E. Saddik, "A framework for sensory-based P2P collaborative environment," in *Proceedings of the IEEE Instrumentation and Measurement Technology Conference (IMTC2007)*, Warsaw, Poland, 2007, pp. 2053–2057.

- [C55] W. Gueaieb and **S. Miah**, “Experiments on a novel modular cost-effective RFID-based mobile robot navigation system,” in *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, Montreal, Canada, 2007, pp. 1658–1663.
- [C56] **S. Miah** and W. Gueaieb, “An RFID-based robot navigation system with a customized RFID tag architecture,” in *IEEE International Conference on Microelectronics*, Cairo, Egypt, 2007.
- [C57] **S. Miah** and W. Gueaieb, “Intelligent parallel parking of a car-like mobile robot using RFID technology,” in *IEEE International Workshop on RObotic and Sensors Environments*, Ottawa, Ontario, Canada, 2007, pp. 1–6.
- [C58] **S. Miah**, W. Gueaieb, M. A. Rahman, and A. E. Saddik, “Autonomous dead-reckoning mobile robot navigation system with intelligent precision calibration,” in *IEEE Instrumentation and Measurement Technology Conference (IMTC2007)*, Warsaw, Poland, 2007, pp. 2179–2183.
- [C59] M. S. Huda, **S. Miah**, K. M. R. Alam, and C. M. Rahman, “A weighted distance metric based bayesian classifier,” in *IEEE International Conference on Electrical & Computer Engineering*, Dhaka, Bangladesh, 2004, pp. 422–425.

Technical Reports (TR)

- [TR1] M. I. Hossain, M. A. Alzarrad, K. Wolfe, and **S. Miah**, “Small-cell installation in transportation infrastructure – a literature review,” Illinois Center for Transportation, Illinois Center for Transportation Series No. 20-004, Scientific Report, January 2020.
- [TR2] B. Nguyen and **S. Miah**, “Comparison of metrics for missile defence between perfect coordination and no coordination,” Defence Research and Development Canada, DRDC - Center for Operational Research and Analysis, Ottawa, Scientific Report, October 2015.
- [TR3] B. Nguyen, R. Mirshak, and **S. Miah**, “Ssks and ambition levels,” Defence Research and Development Canada, DRDC - Center for Operational Research and Analysis, Ottawa, Scientific Report, August 2015.
- [TR4] **S. Miah** and B. Nguyen, “Shoot–look–shoot firing doctrines,” Defence Research and Development Canada, DRDC - Center for Operational Research and Analysis, Ottawa, Scientific Report, October 2014.
- [TR5] B. Nguyen and **S. Miah**, “Investigating measures of effectiveness in maritime air defence for neutralizing heterogeneous targets,” Defence Research and Development Canada, DRDC - Center for Operational Research and Analysis, Ottawa, Scientific Report, October 2014.
- [TR6] **S. Miah**, B. Nguyen, A. Bourque, and D. Spinello, “Harbour protection study: Unmanned vehicles against underwater attacks,” Defence Research and Development Canada, DRDC - Center for Operational Research and Analysis, Ottawa, Scientific Report, June 2013.
- [TR7] B. Nguyen and **S. Miah**, “Measures of effectiveness for maritime air defence,” Defence Research and Development Canada, DRDC - Center for Operational Research and Analysis, Ottawa, Scientific Report, October 2013.

Posters (P)

- [P1] R. Bachman, R. O’Malley, J. Ingram, and **S. Miah**, “Bemoss: Building energy management open source software,” April 2019, STUDENT Poster: The Bradley University’s Student Scholarship Expo, Peoria, Illinois, USA.
- [P2] D. Adra, E. Jones, and **S. Miah**, “Area coverage optimization,” April 2019, STUDENT Poster: The Bradley University’s Student Scholarship Expo, Peoria, Illinois, USA.
- [P3] G. Janiak, K. Vonckx, and **S. Miah**, “Smart control of 2 degree of freedom helicopters,” April 2019, STUDENT Poster: The Bradley University’s Student Scholarship Expo, Peoria, Illinois, USA.

- [P4] N. Auth, G. Hovey, and **S. Miah**, “Mobile target tracking using a radio sensor network,” April 2018, STUDENT Poster: The Bradley University’s Student Scholarship Expo, Peoria, Illinois, USA.
- [P5] A. Birge, A. Fandel, and **S. Miah**, “Experiments on 2-dof helicopter using approximate dynamic programming,” April 2018, STUDENT Poster: The Bradley University’s Student Scholarship Expo, Peoria, Illinois, USA.
- [P6] F. Keshtkar, S. Neerudu, and **S. Miah**, “Data mining approach to estimate field popularity from the us college scorecard data,” May 2018, STUDENT Poster: The 31st International Florida Artificial Intelligence Research Society (FLAIRS) Conference: Autonomous Robots and Agents, Marco Island, Florida, USA.
- [P7] **S. Miah** and F. Keshtkar, “Multi-robot navigation with limited communication,” May 2017, poster: The 30th International Florida Artificial Intelligence Research Society (FLAIRS) Conference: Autonomous Robots and Agents, Marco Island, Florida, USA.
- [P8] L. S. P. Gopiseti, M. Hossain, and **S. Miah**, “Pavement roughness prediction using neural network modeling,” April 2017, STUDENT Poster: The Bradley University’s Student Scholarship Expo, Peoria, Illinois, USA.
- [P9] K. Hevrdejs, J. Knoll, and **S. Miah**, “Mobile robot simultaneous navigation and mapping using a customized radio transceiver,” April 2017, STUDENT Poster: The Bradley University’s Student Scholarship Expo, Peoria, Illinois, USA.
- [P10] E. Guetz, J. Jellison, M. Fields, J. Phillips, and **S. Miah**, “Open hardware/software architecture for mobile robot navigation,” April 2017, STUDENT Poster: The Bradley University’s Student Scholarship Expo, Peoria, Illinois, USA.
- [P11] E. Guetz, J. Jellison, M. Fields, A. Dial, J. Phillips, and **S. Miah**, “Navigation and mapping of indoor autonomous robots using customized rfid trilateration,” April 2016, STUDENT Poster: The Bradley University’s Student Scholarship Expo, Peoria, Illinois, USA.

(9) **SYNERGISTIC ACTIVITIES.....**

• **Community Service**

- Judge – Central Illinois Regional FIRST Robotics Competition (FRC) [2016 – 17]
- Instructor – Bradley University / Detroit Pre College Engineering Program (BU/DAPCEP) STEM Program [2018 –]

• **University Service**

- Subcommittee member, curriculum and regulation, Bradley University [2022 – 25]
- Undergraduate (ECE) student academic advisor, Bradley University [2022 –]
- Senator, Bradley University [2016 – 21]
- College Marshall, Commencement Committee, Bradley University [2019 –]
- Member, Committee on Academic Technology Excellence (CATE), Bradley University [2018 – 19]
- Member, BECC moving committee, CCET, Bradley University [2018 – 19]
- Faculty Advisor, Academic Success Center, Bradley University (advising prospective EE/EEC majors) [2019]
- Faculty mentor, Office of Sponsored Program (OSP), Bradley University [2015 – 19]
- Member, robotics and mechatronics laboratory, Business and Engineering Convergence Center (BECC), Bradley University [2015 –]
- Member, New Building Committee, CCET, Bradley University [2015 – 16]

• **Professional Volunteering**

- Associate Editor (Appointed), IEEE Transactions on Industrial Informatics [2017 –]
- Advisor, *BU Robotics Club*, student organization, Bradley University [2020 –]
- Member, Technical Programming Committee, IEEE Midwest Industry Conference [2020 –]
- Regular Session & Program Chair, IEEE IRIS, Ottawa, Canada [2017]

- Program committee member, International Florida Artificial Intelligent Research Society (FLAIRS) Conference: Autonomous Robots and Agents, Key Largo, Florida, USA [2016 –]
- Conference session chair:
 - * International Florida Artificial Intelligent Research Society (FLAIRS) Conference: Autonomous Robots and Agents, Key Largo, Florida, USA [2016 –]
 - * International Conference on Autonomous and Intelligent Systems, Burnaby, BC, Canada 2011
- Reviewer: Journal of Intelligent and Robotic Systems; IEEE Transactions on Control System Technology; IEEE Transactions on Mechatronics; IEEE Transactions on Industrial Electronics/Informatics; IEEE Transactions on Instrumentation and Measurement; IEEE Systems Journal; Automatica; ASME Journal of Dynamic Systems, Measurement, and Control; IEEE Transactions on Vehicular Technology; Internet of Things Journal

• **Professional Memberships**

- Senior Member, Institute of Electrical and Electronics Engineers [2017 –]
- Member, Institute of Electrical and Electronics Engineers [2007 – 17]

• **Research Partners**

- *Illinois Department of Transportation*
- *Illinois Space Grant Consortium*
- *Caterpillar Inc.*
- *Defence Research and Development Canada*

(10) **MENTORING (Thesis/Project Adviser)**

• **Selected List of graduate students advised**

- Derek Boase; *Model-Free Autonomous Control of Nonlinear Lighter-than Air Vehicle*; University of Ottawa, 2022 (in progress, co-supervisor)
- Amr Elhussein; *Simultaneous Coverage and Mapping*; Bradley University, 2020
- Leela Sai Praveen Gopiseti, *International Roughness Index Prediction of Flexible and Rigid Pavements using Climate and Traffic Data* (Co-Advised with Dr. Hossain, CEC Department); Bradley University, 2017
- Reshma vali Shaik and Farhana Shaik; *Mobile Robot Navigation using Fuzzy Logic Controller*, Bradley University, 2016
- Sandeep Tatikonda, Varundeep Korrapati; *Mobile Robot Navigation using Fuzzy Logic Controller*, Bradley University, 2015
- Farzan Solemani; *Model-Free Machine Learning Techniques for Area Coverage Problems*; University of Ottawa, 2022
- Adekunle Akinpelu Adepegba; *Multi-Agent Area Coverage Control using Reinforcement Learning Techniques*; University of Ottawa, 2016
- Arian Yazdan Panah; *Nonuniform Coverage with Time-Varying Risk Density Function*; University of Ottawa, 2015
- Mostafa M.H.Fallah; *Coordinated Deployment of Multiple Autonomous Agents in Area Coverage Problems with Evolving Risk*; University of Ottawa, 2015

(11) **ADMINISTRATIVE EXPERIENCE**

- | | | |
|-----------|---|-------------|
| Treasurer | Electrical Engineering Graduate Student Association, University of Ottawa, Canada | [2009 – 12] |
| Treasurer | Department of Computer Science and Engineering, KUET, Bangladesh | [2005 – 06] |

SIGNATURE.....



DATE: March 22, 2023