Mian Ilyas Ahmad

Professor

School of Interdisciplinary Engineering & Sciences

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About

Dr. Mian Ilyas Ahmad is working as Professor in the School of Interdisciplinary Engineering & Sciences. Dr. Mian Ilyas Ahmad has a PhD in Control Engineering. Dr. Mian Ilyas Ahmad has published 31 research articles & conference papers having a citation count of 186, carried out 11 projects and filed 0 intellectual property.

Qualifications

PhD in Control Engineering   2007 - 2011
  Imperial College London , England

BS in Electrical Engineering   2002 - 2006
  UET Peshawar , Pakistan

Experience

Professor   2022- Present
  School of Interdisciplinary Engineering & Sciences

Professor   2022 - 2022
  School of Interdisciplinary Engineering & Sciences

Associate Professor   2020 - 2022
  Research Centre for Modelling & Simulation

Associate Professor   2019 - 2020
  Research Centre for Modelling & Simulation

Assistant Professor   2012 - 2019
  Research Centre for Modelling & Simulation

Post Doctoral fellow   2013 - 2015
  Max Planck Institute for dynamics of Complex Technical Systems Magdeburg , Santorstrase 1, 39106 Magdeburg

Awards

Imperial Volunteer Centre   2010
  Imperial Volunteer Centre Award in recognition of contributions to the local community as an Imperial College Volunteer

Certificate of Merit   2005
  Cash award for having secured third position in Third Year Electrical Engineering Annual Examination.

Professional Memberships

PEC PAKISTAN   Since 2007

Research Projects

National Projects

Design and Development of USV Swarm System for Enhanced Maritime Capabilities 2024
    Funding Agency: RIC NUST
    Amount: PKR 1,000,000.00
    Status: Approved_inprocess

NUST Digital Twin through Advanced Modeling & Simulation 2024
    Funding Agency: NUST
    Amount: PKR 50,000,000.00
    Status: Approved_inprocess

Optimal Control Design of Underwater Glider 2022
    Funding Agency: NESCOM
    Amount: PKR 100,000.00
    Status: Approved_inprocess

Design and Development of Control System for USV Phase 1 2022
    Funding Agency: NESCOM
    Amount: PKR 500,000.00
    Status: Approved_inprocess

On Accuracy of Model Reduction Techniques for a Unified Modelling and Simulation Framework of Power, Water and Gas Distribution Networks 2022
    Funding Agency: HEC
    Amount: PKR 7,174,000.00
    Status: Completed

On Development of Generalized Tracks Association (GTA) & Validation, Optimization System (VOS) by Uncertainty Measurement of Multiple Sensor Tracks Data through Modeling and Simulation 2019
    Funding Agency: PAF
    Amount: PKR 4,979,000.00
    Status: Approved_inprocess

DEVELOPMENT OF GUI INTEGRATED WITH SERVER-BASED BACKEND SATELLITE IMAGERY ANALYSIS ALGORITHMS 2019
    Funding Agency: Pakistan Air Force
    Amount: PKR 3,177,000.00
    Status: Approved_inprocess

Modeling and Simulation of Large Scale Water Distribution Network 2017
    Funding Agency: DAAD
    Amount: PKR 970,775.00
    Status: Completed

Body Area Network Channel Modeling for Communication between Implantable insulin pumps and sensors, controlled through Handheld devices 2017
    Funding Agency: HEC
    Amount: PKR 496,000.00
    Status: Completed

Identification of Losses in a Gas Distribution Network through Reduced Order Modeling and Simulation 2019
    Funding Agency: HEC
    Amount: PKR 1,506,000.00
    Status: Completed

International Projects

Industry Projects

National Projects

Implementation of an Integrated Energy Management Systems in Fazal Steel Manufacturing Plant 2021
  Client: Fazal Steels Pvt Limited
  Amount: PKR 1,373,000.00
  Status: Approved_inprocess

International Projects

Research Articles

Multivariate moment-matching for model order reduction of quadratic-bilinear systems using error bounds 2022

Muhammad Altaf Khattak Mian Ilyas Ahmad Lihong Feng Peter Benner

Advanced Modeling and Simulation in Engineering Sciences, Volume 9, Issue 1, Article Number 23

Impact Factor: N/A
DOI: 10.1186/s40323-022-00236-6

Development of Model Reduction Framework for Continuous-Time Weighted and Limited-Interval Systems 2022

Sammana Batool Muhammad Imran Muhammad Imran Mian Ilyas Ahmad

Arabian Journal for Science and Engineering, Pages 1-12

Impact Factor: 2.334 | **Quartile:** 3 | **Citations:** 1
DOI: https://doi.org/10.1007/s13369-022-06993-1

Development of Frequency Weighted Model Order Reduction Techniques for Discrete-Time One-Dimensional and Two-Dimensional Linear Systems With Error Bounds 2022

Muhammad Imran Muhammad Imran Mian Ilyas Ahmad

IEEE Access, Volume 10, Pages 15096-15117

Impact Factor: 3.367 | **Quartile:** 2 | **Citations:** 3
DOI: 10.1109/ACCESS.2022.3146394

Accuracy Enhancing Model Reduction Technique for Weighted and Limited Interval Systems with Error Bound 2022

Sammana Batool Muhammad Imran Muhammad Imran Mian Ilyas Ahmad

Journal of Control, Automation and Electrical Systems, Pages 1-13

Impact Factor: N/A | **Citations:** 6
DOI: https://doi.org/10.1007/s40313-021-00885-9

Computational techniques for H2 optimal frequency-limited model order reduction of large-scale sparse linear systems 2021

Xin Du Kife I. Bin Iqbal M. Monir Uddin A. Mostakin Fony Md. Tanzim Hossain Mian Ilyas Ahmad Mohammad Sahadet Hossain

Journal of Computational Science, Volume 55, Article Number 101473

Impact Factor: 3.976 | **Quartile:** 1 | **Citations:** 5
DOI: https://doi.org/10.1016/j.jocs.2021.101473

Development of model reduction technique for weighted and limited-intervals gramians for discrete-time systems via balanced structure with error bound 2021

Sammana Batool Muhammad Imran Muhammad Imran Mian Ilyas Ahmed

International Journal of Dynamics and Control, Pages 1-10

Impact Factor: - | **Citations:** 3
DOI: https://doi.org/10.1007/s40435-021-00867-4

Frequency-weighted $\mathcal{H}$2-optimal model order reduction via oblique projection 2021
Umair Zulfiqar Victor Sreeram Mian Ilyas Ahmad Xin Du
International Journal of Systems Science, Pages 1-17

Impact Factor: 2.648 | **Quartile:** 2 | **Citations:** 5
DOI: https://doi.org/10.1080/00207721.2021.1943561

Frequency weighted H2-pseudo-optimal model order reduction 2021
Umair Zulfiqar Victor Sreeram Mian Ilyas Ahmad Xin Du
IMA Journal of Mathematical Control and Information, Volume 38, Issue 2, Pages 622–653

Impact Factor: 1.540 | **Quartile:** 2 | **Citations:** 9

Implicit Higher-Order Moment Matching Technique for Model Reduction of Quadratic-bilinear Systems 2021

Mian Muhammad Arsalan Asif Mian Ilyas Ahmad Peter Benner Lihong Feng Tatjana Stykel

Journal of the Franklin Institute, Volume 358, Issue 3, Pages 2015-2038

Impact Factor: 4.246 | **Quartile:** 2 | **Citations:** 9
DOI: https://doi.org/10.1016/j.jfranklin.2020.11.012

Time- and frequency-limited H2-optimal model order reduction of bilinear control systems 2021

Umair Zulfiqar Victor Sreeram Mian Ilyas Ahmad Xin Du

International Journal of Systems Science, Pages 1-21

Impact Factor: 2.648 | **Quartile:** 2 | **Citations:** 5
DOI: https://doi.org/10.1080/00207721.2021.1873452

Frequency Limited & Weighted Model Reduction Algorithm With Error Bound: Application to Discrete-Time Doubly Fed Induction Generator Based Wind Turbines for Power System 2021

Sajid Bashir Muhammad Imran Sammana Batool Muhammad Imran Mian Ilyas Ahmed Fahad Mumtaz Malik Muhammad Salman Abdul Wakeel Usman Ali

IEEE Access, Volume 9, Pages 9505-9534

Impact Factor: 3.476 | **Quartile:** 2 | **Citations:** 13
DOI: 10.1109/ACCESS.2021.3049575

Development of Frequency Weighted Model Reduction Algorithm with Error Bound: Application to Doubly Fed Induction Generator Based Wind Turbines for Power System 2020

Sajid Bashir Sammana Batool Muhammad Imran Muhammad Imran Mian Ilyas Ahmed Fahad Mimtaz Malik Usman Ali

Electronics, Volume 10(1), Article Number 44

Impact Factor: 2.397 | **Quartile:** 3 | **Citations:** 14
DOI: https://doi.org/10.3390/electronics10010044

Cost-effective telemetry for energy network of an electricity distribution company: part I 2019

Asim Zaheer-ud-Din Yasar Ayaz Mian Ilyas Ahmad Momena Hasan Salman Masud Naveed Muhammad

Turkish Journal of Electrical Engineering and Computer Sciences, Volume 27, Issue 2, Pages 889-902

Impact Factor: 0.682 | **Quartile:** 4 | **Citations:** 1
DOI: 10.3906/elk-1804-8

Interpolatory model reduction for quadratic-bilinear systems using error estimators 2019

Mian Ilyas Ahmad Peter Benner Lihong Feng

Engineering Computations, Volume 36, No. 1, Pages 25-44

Impact Factor: 1.322 | **Quartile:** 3 | **Citations:** 8
DOI: 10.1108/EC-04-2018-0162

A new two-sided projection technique for model reduction of quadratic-bilinear descriptor systems 2018

Mian Ilyas Ahmad Peter Benner Lihong Feng

International Journal of Computer Mathematics, NULL

Impact Factor: 1.196 | **Quartile:** 2 | **Citations:** 3
DOI: 10.1080/00207160.2018.1542134

A New Multilevel Inverter Topology for Grid-Connected Photovoltaic Systems 2018

Muhammad Bilal Satti Ammar Hasan Mian Ilyas Ahmad

International Journal of Photoenergy, Volume 2018, Article ID 9704346, 9 pages

Impact Factor: 2.026 | **Quartile:** 2 | **Citations:** 13
DOI: https://doi.org/10.1155/2018/9704346

Efficient motion estimation using two?bit transform and modified multilevel successive elimination 2018

Farhan Hussain Mian Ilyas Ahmad Sajid Anwar Aimal Khan Pyoung Won Kim

Journal of Ambient Intelligence and Humanized Computing, pp 1–7

Impact Factor: 1.910 | **Quartile:** 3 | **Citations:** 1
DOI: 10.1007/s12652-018-0996-8

Exponential utility function based criteria for network selection in heterogeneous wireless networks 2018

Mian Ilyas Ahmad Shoaib Khan Farhan Hussain

Electronics Letters, NULL

Impact Factor: 1.343 | **Quartile:** 3 | **Citations:** 6
DOI: 10.1049/el.2017.2673

Moment-matching based model reduction for Navier-Stokes type quadratic-bilinear descriptor systems 2017

Mian Ilyas Ahmad Peter Benner Pawan Goyal Jan Heiland

Implicit Volterra series interpolation for model reduction of bilinear systems　　　　　　　2017

Mian Ilyas Ahmad Ulrike Baur Peter Benner

Krylov subspace-based model reduction for a class of bilinear descriptor systemsl　　　　　2017

Mian Ilyas Ahmad Peter Benner Pawan Goyal

PRECONDITIONED MULTISHIFT BiCG FOR H2-OPTIMAL MODEL REDUCTION　　　　　　　2017

Mian Ilyas Ahmad Daniel B. Szyld Martin Van Gijzen

Krylov subspace methods for model reduction of quadratic-bilinear systems　　　　　　　2016

Dr. Mian Ilyas Ahmad Peter Benner Imad Jaimoukha

Conference Proceedings

Projection-Based Model Order Reduction for Biochemical Systems   2019

Anum Javeed Mian Ilyas Ahmad

2019 International Conference on Applied and Engineering Mathematics (ICAEM), res.country(177,)

Citations: N/A
DOI: 10.1109/ICAEM.2019.8853743

A Markov-based Framework For Handover Process in Heteroegenous Cellular Networks   2019

Saba Farooq Baluch Mian Ilyas Ahmad

2nd International Conference on Computing, Mathematics and Engineering Technologies (iCoMET), res.country(177,)

Citations: N/A
DOI: 10.1109/ICOMET.2019.8673501

Model reduction of quadratic-bilinear descriptor systems via Carleman bilinearization   2015

Pawan Goyal Mian Ilyas Ahmad Peter Benner

2015 European Control Conference (ECC), res.country(12,)

Citations: N/A
DOI: 10.1109/ECC.2015.7330699

Interpolatory Model Reduction Techniques for Linear Second-Order Descriptor Systems   2014

Mian Ilyas Ahmad Peter Benner

2014 European Control Conference (ECC), res.country(75,)

Citations: N/A
DOI: 10.1109/ECC.2014.6862210

Second order H2 optimal approximation of linear dynamical systems   2011

Mian Ilyas Ahmad Michalis Frangos Imad Jaimoukha

Proceedings of the 18th World Congress The International Federation of Automatic Control (IFAC), res.country(109,)

Citations: N/A
DOI: 10.3182/20110828-6-IT-1002.03571

H2 Optimal model reduction of linear dynamical systems   2010

Mian Ilyas Ahmad Imad Jaimoukha Michalis Frangos

49th IEEE Conference on Decision and Control (CDC), res.country(233,)

Citations: N/A
DOI: 10.1109/CDC.2010.5717292

Krylov subspace restart scheme for solving large-scale Sylvester equations   2010

Mian Ilyas Ahmad Imad Jaimoukha Michalis Frangos

2010 American Control Conference, res.country(233,)

Citations: N/A
DOI: 10.1109/ACC.2010.5531144

Backstepping based PID Control Strategy for an Underactuated Aerial Robot   2008

Ashfaq Ahmad Mian Mian Ilyas Ahmad Daobo Wang

Proceedings of the 17th World Congress The International Federation of Automatic Control (IFAC), res.country(121,)

Citations: N/A
DOI: 10.3182/20080706-5-KR-1001.02644

Editorial Activities

Franklin Open   2025
  Reviewed Papers for Journals
  Impact Factor: 1.4

Advances in Computational Mathematics   2023
  Reviewed Papers for Journals
  Impact Factor: 1.7

Journal of the Franklin Institute   2023
  Reviewed Papers for Journals
  Impact Factor: 4.246

The Journal of the Franklin Institute   2022
  Reviewed Papers for Journals
  Impact Factor: 4.246

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  Reviewed Papers for Journals
  Impact Factor: 1.49

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  Reviewed Papers for Journals

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