

# A Minimum Operator Approach to Control Design for Dynamical Systems



Thesis submitted in partial fulfillment  
for the award of degree

Doctor of Philosophy

by

**Vinay Pandey**

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2025



To  
The  
Supreme Personality  
Lord Shiva  
and  
my beloved family



## DECLARATION

I, **Vinay Pandey**, certify that the work embodied in this thesis is my own bonafide work and carried out by me under the supervision of **Dr. Shyam Kamal** and **Dr. Sandip Ghosh** from July-2021 to June-2025, at the Department of Electrical Engineering, Indian Institute of Technology (BHU), Varanasi. The matter embodied in this thesis has not been submitted for the award of any other degree/diploma. I declare that I have faithfully acknowledged and given credits to the research workers wherever their works have been cited in my work in this thesis. I further declare that I have not willfully copied any other's work, paragraphs, text, data, results, etc., reported in journals, books, magazines, reports dissertations, theses, etc., or available at websites and have not included them in this thesis and have not cited as my own work.


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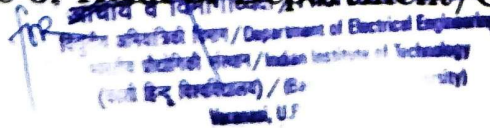
### CERTIFICATE BY THE SUPERVISOR

It is certified that the above statement made by the student is correct to the best of my/our knowledge.

  
Dr. Shyam Kamal  
IIT(BHU), Varanasi

Dr. Sandip Ghosh  
IIT(BHU), Varanasi

  
Signature of Head of Department/Coordinator of School

  
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# Acknowledgments

Though, only my name appears on the cover of this dissertation, so many great people have contributed to its production. I owe my gratitude to all those people who have made this thesis possible and because of whom my post graduate experience has been one that I will cherish forever.

I take this opportunity to express my profound gratitude and deep regards to my supervisors Dr. Shyam Kamal, Associate Professor, and Dr. Sandip Ghosh, Associate Professor, Department of Electrical Engineering, IIT (BHU), Varanasi for their exemplary guidance, monitoring and constant encouragement throughout the course of this dissertation.

Thank you, Dr. Shyam Kamal, for identifying my potential and directing me towards some key areas. Thank you so much for your valuable suggestions, encouraging words and motivations at times when I felt low. Thank you so much for your intuitions and insights through the problems which led us to some interesting findings. Thank you so much for long and effective discussions. Thank you so much for your elegant lectures which nourished and improved our understanding. At last, thank you so much for installing in me the sense of confidence and ability to take this work which sometimes appeared to be very difficult.

Thank you so much Dr. Sandip Ghosh for letting me know that Ph.D. is a matter of patience and nothing can be achieved in hurry. Thank you so much for your encouragements.

I extend my sincere gratitude to Dr. Devender Singh from the Department of Electrical Engineering and Dr. Debdas Ghosh from the Department of Mathematical Sciences, both affiliated with IIT (BHU) Varanasi, for their valuable comments and suggestions during the seminars evaluating the progress of my research. I would like to express my heartfelt appreciation to Prof. Andrzej Bartoszewicz from Lodz University of Technol-

ogy, Poland, for offering crucial insights and invaluable suggestions during the drafting of certain manuscripts associated with this thesis. I am also thankful to Prof. Bijnan Bandyopadhyay, IIT Jodhpur, for his key remarks and much-needed suggestions during the preparation of some of the related manuscripts. My sincere thanks go to Dr. Thach Ngoc Dinh, Conservatoire National des Arts et Métiers, France, for his constructive suggestions and advice, which significantly improved the quality of our collaborative work. I am grateful to Prof. Xinghuo Yu, RMIT, Australia, for pointing out critical gaps in some of our manuscripts—your support has been immensely helpful. I also acknowledge Dr. Bhawana Singh, IIT (ISM) Dhanbad, for her contributions to some of our manuscripts and discussions on future research prospects. In addition, I wish to express my sincere thanks to Ms. E. Taslima for her consistent support throughout my thesis work. I am also grateful to Dr. Vijay Singh for facilitating collaborations in some of the related research efforts.

I am obliged to staff members, in particular Mr. A. N. Singh and Mr. Anjenya of Electrical Engineering Department, IIT(BHU), Varanasi.

A very special gratitude goes out to my colleagues and friends with special mention to Dr. Parijat Prasun, Mr. Aditya Kumar, Mrs. N. Agarwal, Ms. S. Pandey, Ms. B. Diana, Mrs. S. Shiwangi, Mr. Shiv kumar, Mr. Dhawal Dwivedi and Mrs. Rangoli Singh. You all supported and encouraged me in my lows during this research journey.

Last but not least, I extend my heartfelt thanks to my parents, Mr. Ravindra Nath Pandey and Mrs. Indu Pandey, for their unwavering support and constant encouragement. I am also deeply grateful to my father-in-law, Mr. Shyam Bihari Rai, and my mother-in-law, Mrs. Shanti Rai, for their continuous support and motivation. A special note of thanks goes to my wife, Mrs. Jyotsna, and my son, Utkarsh, for their patience, love, and enduring support throughout this journey.

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