

# Curriculum Vita

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## **1. Address for correspondence:**

*Dr. Radhi Ali Zaboon :( Assis. Prof. of Maths.)*

*Department of Mathematics ,*

*Al-Mustansiriyah University;*

*Baghdad – Iraq.*

*E-Mail: [radhi\\_maths@yahoo.com](mailto:radhi_maths@yahoo.com)*

*E-Mail: [radhi.math@icloud.com](mailto:radhi.math@icloud.com)*

*E-mail: [Dr.Radhi@uomustansiriyah.edu.iq](mailto:Dr.Radhi@uomustansiriyah.edu.iq)*



## **2. Personal Details:**

**Name:** Radhi Ali Zaboon.

**Date of Birth:** June, 1<sup>st</sup>, 1966.

**Citizenship:** Iraqi.

**Nationality:** Arabic.

**Sex:** Male.

**Marital Status:** Married.

**Mother tongue:** Arabic.

**Proficiency in Foreign Languages:** 1. English (Fluent).  
2. Arabic (Native).

## **3. Present Status:**

- Head of Mathematics Department /college of science/ AL-Mustansiriah, since 1/2/2012 - 2016.
- I am Working as assistant professor lecturer at the Department of Mathematics in the AL \_ Mustansiriah University from 2009 till now.
- Previously, I had worked as a (assistant lecurere ) lecturer at Mathematics & and applications, AL\_Nahrian University, Baghdad University, for the period (1993-1996) ,1999-2009.

## **4. Educational Qualifications:**

**Ph.D:** In Applied Mathematics from Department of Mathematics, Indian Institute of technology, Roorkee (*IIT-Roorkee*), (Former, Roorkee University), Roorkee 247 667, India, from the period of 1996-1999.

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*Title of Ph.D Thesis: Some Optimal Control and Non-Linear Dynamical System Design Problems.*

*Under supervision of :1. Prof. Dr. C. Mohan, (Mathematics Department, IIT-Roorkee), 2. Associate Prof. Dr. Shiv Prasad Yadav,(Mathematics Department, IIT-Roorkee), 3. Associate Prof. Dr. Surendar Kumar, (Electrical Engineering Department, IIT-Roorkee)*

**M.Sc:** In Applied Mathematics, from Department of Mathematics and Computer Applications, College of Science, Al-Nahrain University, Baghdad, IRAQ, from the period of time 1991-1993, **with the first rank.**

*Title of M.sc Thesis: Non-Classical Variational Approach to Moving Boundary Problems in Heat Flow and Diffusion.*

*Under supervision of: Prof. Dr. Sadia M. Makky (Recently at U.S.A).*

**B.Sc:** In Mathematics, from Department of Mathematics, College of Science, University of Baghdad, from the period 1985-1989, with the **second rank.**

## **5. Research Interest:**

### **The main areas of research interest are:**

1. Non-Linear dynamic control (optimal) system design problem theory and applications.
2. Differential equations (DAE, ODE, PDE) in finite and infinite dimensional space (**Abstract Space**) theory and applications.
3. Semi group theory and its applications to linear evaluation problem (Cauchy Problem) linear and semi- linear Ordinary Differential Equation / or control problem in infinite dimensional space.
4. Fuzzy dynamic system and its applications to control.
5. Stochastic non-linear dynamic system (**Itô-SDE**) and its application to control and nonlinear system.
6. Application of Artificial Neural Network, Numerical analysis, Optimization to non-linear dynamic system and control (optimal)..

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## **6. Major Courses Taught:**

1. Control and optimal control problems, for graduate (postgraduate) course in Mathematics Department.
2. Fuzzy system analysis, for graduate and undergraduate course in Mathematics.
3. Calculus of variation and inverse problem of calculus of variation, for graduate course in Mathematics.
4. Non-linear differential system (**Quantitative and Qualitative**) theory for postgraduate course. Chaos and bifurcations.
5. Semi group theory of bounded linear operator and applications to infinite dimensional dynamic system, for graduate course in Mathematics (applied).
6. Numerical Analysis: for undergraduate course in Mathematics.
7. Topics in applied Mathematical.
8. Mathematical Methods of Physics, for undergraduate course in physics.
9. Artificial Neural Network and genetic Algorithms for undergraduate course in Computer science department.
10. Optimization theory and applications for linear and non-linear dynamic system.
11. Differential Algebraic (control) Equation and its analysis and applications.

## **7. List of Publications:**

The following papers have been published:

1. **Radhi A. Zaboony**, "*Non-classical variational solution of a one dimensional phase change problem with non-uniform initial Temperature*". (Book), Mathematics and its applications in Engineering and Industry, Bani sing, K. Murrari, U.S. Copta and N. Sakavanam, Narosa Publishing House, (1997), India, pp. 471-479.
2. S. M. Makky, **Radhi A. Zaboony**, Jenan A., "*Non-classical variational method to integral, integro-differential equations and linear systems*", Journal of Engineering and technology, Baghdad, IRAQ, vol. 16, No. 8, (1997), pp.609-623
3. **Radhi A. Zaboony**, Shive Prasad Yadav, C. Mahon, "*Penalty method for solving an optimal control problem with equality and inequality constraints*"

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- ", Indian Journal of Pure and Applied Mathematics, vol. 3, No. 1, January, (1999), pp. 1-14.
4. S. M. Makky, **Radhi A. Zaboon**, "*Non-classical variational technique to solve oxygen diffusion in biological tissue*", Journal of Engineering and technology, Baghdad, IRAQ, vol. 18, No. 2, (1999), pp.191-199
  5. C. Mahon, Shive Prasad Yadav, **Radhi A. Zaboon**, "*Numerical solution of an optimal control problems with equality and inequality constraints via controlled random search technique*", (Book), Recent Development in operation Research, Narosa Publishing Company, India, Manju Lata, (2000), pp. 283-295.
  6. C. Mahon, Shive Prasad Yadav, Surendra Kumar, **Radhi A. Zaboon**, "*Controller Design for a non-linear servo mechanism in the presence of system uncertainties using multilayered Neural Networks* ", Indian Journal of Pure and Applied Mathematics, vol. 32, No. 11, November (2001), pp. 1729-1747.
  7. **Radhi A. Zaboon**, K. A. Abdul-Zahra, "*Global solution of non-linear programming problem with equality and inequality via differential equation approach*", Journal of college of education, Al-Mustansiryia University, No. 5, (2005), pp. 187-227.
  8. Fadhil A. Al-Baidhani, **Radhi A. Zaboon**, Al-Anisi G. S, "*Sextile method generalized Weibul distribution*", Journal of Al-Nahrain University, IRAQ, vol. 7, No. 2, December (2004), pp. 103-108.
  9. **Radhi A. Zaboon**, Meena M. Muhammed, "*Numerical solution of Sugeno fuzzy integrals*", Journal of Al-Nahrain University, vol. 8, No. 1, June (2005), pp. 68-74
  10. **Radhi A. Zaboon**, Sarmad A. Altaie, "*Non-linear dynamical fuzzy control systems design with matching conditions*", Journal of Al-Nahrain University, vol. 8, No. 2, December (2005), pp. 133-146
  11. **Radhi A. Zaboon**, "*An approximate solution for two-point boundary value problem corresponding to some optimal control problem*", Um-Salama science journal, IRAQ, vol. 3, No. 2, (2006), pp. 359-366.

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12. **Radhi A. Zabooun**, Hadi Jaber Mustafa, Ghazwan M. J. Al-Hashimi, "**Stability of optimal solution to robust control problem without matching condition**", Journal of college of education, No. 1, (2006), pp. 125-162.
13. **Radhi A. Zabooun**, Manaf A. Salah, "**Local solvability and controllability of semi linear initial value control problems via semi group approach**", Journal of Al-Nahrain University, vol. 10, No. 1, June (2007), pp. 101-110.
14. **Radhi A. Zabooun**, Shatha S. Sejad," **Lyapunov function approach for stablizability of a class of nonlinear dynamical control system**" Al-Mustansiriya journal of science, No. 2, Vol.18, (2007), pp.81-94.
15. **Radhi A. Zabooun**, Hadi Jaber Mustafa, Ghaswan M. J. AL-Hashimi, "**Robust control of nonlinear dynamical control system with matching condition**" Journal of college of education No. 3, Vol. 28, (2008), pp.291-308.
16. **Radhi A. Zabooun**, Jehad Ramadhan Kider, Samir Kasim Hassan ," **Spectral conditions for stability and instability of semi linear perturbed system in infinite dimensional space**", The seventeen Scientific conference of college of education, 369, 5-6 May, 2010.
17. **Radhi A. Zabooun**, Manaf Adnan Salah," **The solvability ,controllability & Observability of infinite dimensional nonlinear system using Banach fixed point theorem**", Engg. & Tech. Journal, Vol. 29, No. 1, 2011.
18. **Radhi A. Zabooun**, Jehad Ramadhan Kider, Samir Kasim Hassan," **Solvability and admissibility of linear perturbed unbounded differential operator equations with unbounded control input via composite perturbation semi group approach**", AL\_Qadisiya Journal for computer science & mathematics, Vol. 3, No. 1, pp. 101-129, 2011.
19. **Radhi A. Zabooun**, Jehad Ramadhan Kider, Samir Kasim Hassan, "**Solvability of linear perturbed Sylvester dynamical system in infinite dimensional ", space using perturbed composite semi group approach**", AL\_Qadisiya Journal for computer science & mathematics, Vol. 3, No. 1, pp. 137-160 , 2011.
20. **Radhi A. Zabooun** , Auras K. Hameed and Jehad Ramadhan Kider, "**Output feedback stochastic nonlinear stabilization and inverse optimality**" Engg. & Tech. Journal, volume 29, issue 7, 2011.

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21. **Radhi A. Zabooun**, ayman Abdul Razaq Shyaa, "**Robust Stabilization of Non-Bilinear Dynamical Control Systems with Parametric Uncertainty**" AL\_Qadisiya Journal for computer science & mathematics, Vol. 4, No. 1, 2012.
22. **Radhi A. Zabooun**, Ahmed Ismail Mohammed, "**Approximate solution to one – phase change problem with non-uniform initial temperature via homotopy perturbation approach**", International journal of Application or Innovation in Engineering & management (IJAIEM), Volume 3, Issue 4, April 2014.
23. Salah EL\_Din Ahmed Mohammed EL\_Tahir and **Radhi A. Zabooun** " **Common Lyapunove function for quadratic stabilization of a finite collection of non-linear dynamical systems**" AARJMD, volume 1, Issue 16, December 2013.
24. Salah EL\_Din Ahmed Mohammed EL\_Tahir and **Radhi A. Zabooun** " **Common Lyapunov function for quadratic stabilization of a finite collection of uncertain non-linear dynamical systems**" AARJMD, volume 1, Issue 20, April 2014.
25. A. F. Jameel, **Radhi A. Zabooun**. " **penlty function method for solving fuzzy nonlinear programming problem**" International journal of recent Research in Mathematics Computer science and information Technology" volume 1, Issue 1, PP. (1-13), April 2014.
26. A. F. Jameel, **Radhi A. Zabooun**. "**Solution of fuzzy Redundancy Reliability optimization problem by modified plenty function method**" International journal of Modern Mathematical Science" 10(1), PP. (50-74), 2014.
27. **Radhi A. Zabooun** and Ghazwa Faisal Abd," **Approximate solution of a linear Dynamics Control system via a non-classical variational approach**" IOSR Journal of Mathematics (IOSR-JM), volume 11, Issue 1, pp. (1-11), Ver V (Jan-Feb. 2015).
28. Ghazwa Faisal Abd, and **Radhi A. Zabooun** " **Finite – Time Stabilization of Uncertain Non-Bilinear Descriptor Dynamical System**" International J. of mathematics and Computer Modelling, Vol. 20, Issue 2, 2015.

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29. **Radhi A. Zabooun** and Ghazwa Faisal Abd," **Solvability of Time-Varying Descriptor System Using Non-Classical Variational approach"** Mathematical Theory and Modeling, Vol. 5, No. 12, 2015.
30. **Radhi A. Zabooun** and Ghazwa Faisal Abd," **Stabilization of descriptor System Via Non-Classical Variational approach"** Control Theory and Informatics, Vol. 5, No. 6,2015.
31. Ghazwa Faisal Abd, and **Radhi A. Zabooun** " **Stabilization of Uncertain Descriptor Bilinear Dynamical System using Logarithmic Norm"** International J. of Engineering and Innovative Technology (IJEIT) , Vol. 5, Issue 5, November 2015.
32. **Radhi A. Zabooun** and Ghazwa Faisal Abd," **Stabilization of Uncertain Non-Bilinear descriptor Dynamical System Via logarithmic Norm Approach"** International J. of Engineering and applied Science (IJEAS), Vol. 2, Issue 10, October 2015.
33. Ghazwa Faisal Abd, and **Radhi A. Zabooun** " **Stabilization of Uncertain Time – Varying Bilinear Descriptor Dynamical Control System"** International J. of Advanced Research, Vol. 3, Issue 11, November 2015. PP. 1614-1618.
34. **Radhi A. Zabooun**, Sabeeh Lafta Jasim," **Solution of non-linear uncertain descriptor system without matching conditions via an optimal control approach"** Control Theory and Informatics, Vol. 6, No. 3, 2016.
35. **Radhi A. Zabooun**, Sabeeh Lafta Jasim," **Optimal control Equivalent Approach to non-linear uncertain descriptor system with matching condition"** Control Theory and Informatics, Vol. 6, No. 3, 2016.
36. **Radhi A. Zabooun**, Shima Mohammed Dawood, " **Finite Time Interval Stabilizability of Non-Linear Perturbed Continuous Descriptor control System"** International J. of Engineering and Innovative Technology (IJEIT), Vol. 5, Issue 9, March 2016.
37. **Radhi A. Zabooun**, Shima Mohammed Dawood, " **Finite Time Interval Stabilizability of Linear Continuous Descriptor control System"** Control Theory and Informatics , Vol. 6, No. 3, 2016.

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38. **Radhi A. Zaboony, Arwa Nazar Mustafa, and Rafah Alaa Abdalrazzaq,**” **Results on Strongly Continuous Semigroup**” *International J. of System and Applied Sciences (IJSAS)*, Vol. 3, Issue 12, December 2016.
39. **Radhi A. Zaboony, Arwa Nazar Mustafa, and Rafah Alaa Abdalrazzaq,**” **Stabilizability of Chaotic Nonlinear Perturbed Dynamic system Via Linear state Feedback Controller**” *International J. of Engineering and Innovative Technology (IJEIT)*, Vol. 6, Issue 7, January 2017.

40.

### **8. Supervisions:**

The following **Msc./Ph.D** thesis are accomplished under our supervision /or co-supervision with others:

1. **Dr. Radhi A. Zaboony, Dr. Adil Mahmood Ahmed,** "**Simultaneous Quadratic Stabilization of uncertain Non-linear Dynamical System via Common Lyapunov function**", **Msc.** Thesis in Mathematics, college of Education, (Ibn Al-Haitham university, Iraq), 2001.
2. **Dr. Radhi A. Zaboony, Dr. Adil Mahmood Ahmed,** "**Simultaneous Stabilization of Finite Collection of Non-linear Dynamical Control System**", **Msc.** Thesis in mathematics, College of Education ,( Ibn Al-Haitham university, Iraq), 2001.
3. **Dr. Radhi A. Zaboony, Dr. Alaudin N. Ahmed,** "**Non-Classical Variational Approach for solving Optimal Control Problems**", **Msc.** Thesis in Mathematics, (Al-Nahrain University, Iraq), 2002.
4. **Dr. Radhi A. Zaboony,** "**Some Numerical Fuzzy Integration**", **Msc.** thesis in Mathematics, (Al-Nahrain University, Iraq), 2004.
5. **Dr. Radhi A. Zaboony,** "**Non-linear Dynamical Fuzzy Control System Design Problems**", **Msc.** Thesis in mathematics, (Al-Nahrain University, Iraq), 2004.
6. **Dr. Radhi A. Zaboony, Dr. Fadil A. Nahar,** "**On Some Fuzzy Reliability and Optimization Problems**", **Msc.** Thesis in mathematics, college of Science, (Al-Nahrain University, Iraq), 2004.



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7. **Dr. Radhi A. Zaboony**, Dr. Hadi Jaber, "Differential Equation Approach to Solve some Non-linear Optimization Problem", Msc. Thesis in Mathematics, College of Education, (Al-Mustansiriya University, Iraq), 2005.
8. **Dr. Radhi A. Zaboony**, "Exponential Stability and Stabilizability of Non-linear Dynamic Control System", Msc. Thesis in Mathematics, College of education, (Al-Basra University, Iraq), 2005.
9. **Dr. Radhi A. Zaboony**, Dr. H.J. Mustafa, "Robust Solution of Non-linear Dynamical Control Problems via an equivalent Non-linear Optimal Control Problem Solution", M.Sc Thesis in Mathematics, College of Education, (Al-Mustansiriyah University, Iraq), 2005.
10. **Dr. Radhi A. Zaboony**, Dr. Ahlam J. Khalel, "Solvability and Controllability of Semi linear Initial Value Control Problem via Semi Group Approach", M.Sc Thesis in Mathematics, M.Sc Thesis in Mathematics, College of Science, (Al-Nahrain University, Iraq), 2005.
11. **Dr. Radhi A. Zaboony**, "Non-linear Dynamical Control System Design Problem and Applications to Chaos", Msc. Thesis in mathematics, College of Science, (Al-Nahrain University, Iraq), 2006.
12. **Dr. Radhi A. Zaboony**, "Neuro-Controller of a class of uncertain Non-linear Dynamical Control System", Msc. Thesis in mathematics, College of Science, (Al-Nahrain University, Iraq), 2006.
13. **Dr. Radhi A. Zaboony**, "On the Approximate Solution of Infinite Dimensional Linear-Quadratic Optimal Control Problem via Semi Group Approach", Msc. Thesis in mathematics, College of Science, (Al-Nahrain University, Iraq), 2006.
14. **Dr. Radhi A. Zaboony**, "System Observer Design for Non-linear Dynamic Control System and its Controller", Msc. Thesis in mathematics, College of Science, (Al-Nahrain University, Iraq), 2007.
15. Dr. Hadi Jaber, **Dr. Radhi A. Zaboony**, "Some Control Problems in Infinite Dimensional Spaces", **Ph.D** thesis in Mathematics, College of Education, (Al-Mustansiriya University, Iraq), 2007.
16. **Dr. Radhi A. Zaboony**, "Stabilization of Nonlinear Stochastic Control System via Output Feedback Control" Msc. Thesis in mathematics, College of Science, (Al-Nahrain University, Iraq), 2008.

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17. **Dr. Radhi A. Zaboony,** **Stochastic Nonlinear Control Stabilization Based on Inverse Optimality**” Msc. Thesis in mathematics, College of Science, (Al-Nahrain University, Iraq), 2008.
18. **Dr. Radhi A. Zaboony,** **On Optimality of Stochastic Nonlinear Tracking Control System**” Msc. Thesis in mathematics, College of Science, (Al-Nahrain University, Iraq), 2008.
19. **Dr. Radhi A. Zaboony,** **On Controllability Probabilities of Stochastic Nonlinear Control System**” Msc. Thesis in mathematics, College of Science, (Al-Nahrain University, Iraq), 2008.
20. **Dr. Radhi A. Zaboony,** **"On Numerical Solution of Stochastic Ordinary Differential Equations"** Msc. Thesis in mathematics, College of Science, (Al-Nahrain University, Iraq), 2009.
21. **Dr. Radhi A. Zaboony,** Dr. Jehad Romadhan Kider, **“Solvability of Non-Linear Unbounded Optimal Control Operator Equations in Hilbert Space via One Parameter Semi Group Approach”** ,**Ph.D** thesis in applied science (mathematics), in the school of applied science of the university of Technology, Iraq, 2009.
22. **Dr. Radhi A. Zaboony,** Dr. Jehad Romadhan Kider, **" Solvability and Stabilizability of Non-Linear Stochastic Dynamic Control System"**, **PhD** thesis in applied science (mathematics), in the school of applied science of the university of Technology, Iraq, 2010.
23. **Dr. Radhi A. Zaboony,** **“Robust Stabilization of Singular Non-Bilinear Dynamical Control Systems with Parametric Uncertainty”** Msc. Thesis in mathematics, college of science, (Al-Mustansiriyah University, Iraq), 2012.
24. **Dr. Radhi A. Zaboony,** **" On Solvability of Some Class of Semilinear Operator Equations”** Msc. Thesis in mathematics, college of education , Al-Mustansiriyah University, Iraq, , 2012.
25. **Dr. Radhi A. Zaboony,** **" Bifurcation of Nonlinear Continuous Dynamical System and its Controller"** Msc. Thesis in mathematics, (Al-Mustansiriyah University, Iraq), college of science, 2013.
26. **Dr. Radhi A. Zaboony,** **" Solvability and Qualitative Properties of Non-linear descriptor Systems"** **Ph.D Thesis in Mathematics,** college of Science, Al-Mustansiriyah University, Iraq, 2015.

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27. **Dr. Radhi A. Zaboony," Robust and Optimal Control of Non-Linear descriptor dynamic System" Ph.D Thesis in Mathematics, college of Science, Al-Mustansiriyah University, Iraq, 2016.**
28. **Dr. Radhi A. Zaboony," Some Results On Finite Time Stabilizability and Observability of Non-Linear Desriptor Systms" Msc. Thesis in Mathematics, (Al-Mustansiriyah University, Iraq), college of science, 2016.**
29. **Dr. Radhi A. Zaboony," On Chaos of Nonlinear Dynamical System in Banach Spaces" Msc. Thesis in Mathematics, (Al-Mustansiriyah University, Iraq), college of science, 2017.**

### **9. Conference Presentations:**

The following conferences have been attended

1. Mathematics and its Applications in Engineering and Industry, 1997, IIT-Roorkee, **INDIA**.
2. International conference on Recent Developments in Mathematical Analysis with Applications to industrial problems, from 2<sup>nd</sup> to 5<sup>th</sup> March, 1998, at Banaras Hindu University, Varanasi, **INDIA**.
3. The Eight Annual conference of Vijnana Paristiad Of **INDIA** with special theme on computer applications in Mathematics, Science and Engineering, from December 15-17, 1998, organized by Institute of Engineering and Technology, Luck Now, **INDIA**.
4. International Conference on Operation Research for a better tomorrow, IGORBT'98, **Delhi Chapter, operation research society of India**, Held on December 24-26, 1998.
5. International conference on Mathematics Modeling of Non-linear System, December 9-11, 1999, at Department of Mathematics, IIT kharagpure, **INDIA**.
6. 7-th International Conference on Advanced Computing and Communications, during December 20-22, 1999, held on University of **Roorkee, India**.
7. The Third Scientific Conference of the College of Computer Science & Mathematics, Qadissiah University, 22-24 March, 2011.
8. The seventeen scientific conference of college of education, Al\_Mustansiriah University, 369, 5-6 May, 2010.

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9. Some National and International conferences in **IRAQ**.