Kareem Elgindy

Curriculum Vitae

"I have always had a deep passion for teaching and research throughout my whole life" - Kareem Elgindy

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▬▬▬▬ 1 Contents

2 Biographical Statement

I joined Assiut University in Egypt in 2000, where I received my bachelor's degree in mathematics (First Class Honours) in 2004. Inspired by the works of Dr. Salah El-Gendi in numerical analysis and the works of my father, Dr. Taha Elgindy, in optimal control theory, I decided in my early career to work in these research areas. I took a master's degree in scientific computations in 2008 from the Mathematics Department, Faculty of Science in Assiut University. I then gained a PhD degree in applied and computational mathematics from Monash University in Melbourne, Australia in June 2013. I was granted the title of a Visiting Scholar at California Institute of Technology (Caltech) in 2016 after I received the AY2016-2017 Fulbright Egyptian Visiting Scholar Award. Currently, I am an Assistant Professor in the Mathematics & Statistics Department, College of Sciences in King Fahd University of Petroleum & Minerals (KFUPM) in KSA. I am also an Associate Professor in the Mathematics Department, Faculty of Science in Assiut University in Egypt. My current research interests include numerical analysis, optimal control theory, and nonlinear programming.

3 Education

Higher Education

2009–2013 **Ph.D. in Applied and Computational Mathematics**, *School of Mathematical Sciences, Monash University*, Melbourne, Victoria, Australia.

Dissertation Title "Gegenbauer Collocation Integration Methods: Advances in Computational Optimal Control Theory."

Supervisors Kate A. Smith-Miles; Boris Miller.

The dissertation was nominated for the 2013 Mollie Holman Doctoral Medal, and was deemed very impressive by the Graduate Research Committee.
An e-copy of the dissertation is available from this link.

2005–2008 **M.Sc. in Scientific Computations**, *Mathematics Department, Faculty of Science, Assiut University*, Assiut, Egypt.

Dissertation Title "Chebyshev Approximation for Solving Differential Equations, Integral Equations, and Nonlinear Programming Problems."

Supervisors Salah E. El-Gendi, Hassan M. El-Hawary; Abdel Rahman H. Abdel Rahman.

Passed the courses in partial fulfillment of my M.Sc. degree with general grade "Excellent" (percentage 93%).

2000–2004 **B.Sc. in Mathematics (First Class Honours)**, *Mathematics Department, Faculty of Science, Assiut University*, Assiut, Egypt.

Passed the courses in fulfillment of my B.Sc. degree with general grade "Distinction with Honor" (percentage 93.543%).

I was the top student in the total grade among all the graduates of the Faculty of Science since its establishment in 1957, and the third among all the graduates of the University.

Secondary Education

1999–2000 **General Secondary Education**, *Al Gamaa Secondary School*, Assiut, Egypt.

Total Score 395/410 (percentage 96.34%).

4 Specialization

Applied and Computational Mathematics.

5 Academic Employment

2019–Present **Associate Professor–tenure-track**, *Assiut University*, Assiut, Egypt.

2017–Present **Assistant Professor–tenure-track**, *KFUPM*, Dhahran, KSA.

2016–2017 **Visitig Scholar**, *Caltech*, Pasadena, California, USA.
(Declined the Offer)

2013–2019 **Assistant Professor–tenure-track**, *Assiut University*, Assiut, Egypt.

2010–2013 **Teaching Associate**, *Monash University*, Melbourne, Victoria, Australia.

2008–2013 **Assistant Lecturer–tenure-track**, *Assiut University*, Assiut, Egypt.

2004–2008 **Tutor–tenure-track**, *Assiut University*, Assiut, Egypt.

6 Scholarships, Honors, Awards, and Academic Job Offers

2020 **Distinguished Reviewer**, *Deanship of Research, KFUPM*.

2017–2018 **Distinguish Performance (A+)**, *Faculty Affairs Committee, KFUPM*.

2017 **Outstanding Reviewer for Journal of Computational and Applied Mathematics**.
Awarded this recognition for being within the top 10th percentile of reviewers for this Journal in terms of the number of manuscript reviews completed in 2015 and 2016.

Best Paper Award in Natural Sciences, *Assiut University*.

2016 **AY2016-2017 Fulbright Egyptian Visiting Scholar Award (9 Months Grant)**.

Visiting Scholar Job Offer, *Caltech*, Pasadena, California, USA.

Assistant Professor Job Offer, *KFUPM*, Dhahran, KSA.

2015 **Visiting Scholar Job Offer**, *University of Central Florida (UCF)*, USA.

2012 **Honorable mention for Bernard Neumann Prize**, *for the best student talk*, see The Bernhard Neumann Prize website.

2009 **Monash Graduate Scholarship (MGS)**, *Monash University*, Australia.

Monash International Postgraduate Research Scholarship (MIPRS), *Monash University*, Australia.

School of Mathematical Sciences International Postgraduate Research Stipendiary Scholarship 2009, *Monash University*, Australia.

Faculty of Science Dean's International Postgraduate Research Scholarship, *Monash University*, Australia.

Academic Place Offer, *University of Leeds*, England.

Graduate Assistantship, *Northern Illinois University*, USA.

2008 **Swinburne University Postgraduate Research Award (SUPRA)**, *Swinburne University of Technology*, Australia.

2004 **Assiut University Prize for Top Faculty Graduates**, *Assiut University*, Egypt.
I received two medal prizes in the ceremony held in the university under the patronage of Prof. Dr. Amr Ezat Salama, the Former Minister of Higher Education and the Country for Scientific Research, Prof. Dr. Mohammed Ibrahim Abdelqader, the Former President of the University, and Prof. Dr. Abdel Salam Ashour, the Former Vice President of Assiut University for Graduate Studies, and the Former Mayor's Secretary of Assiut Province on behalf of Ahmed Hammam Atia, the Former Mayor of Assiut Province.

7 Language Skills

Fluent in Arabic Language (mother tongue).

Fluent in English Language.

2017–Present Taught many lectures for students from various faculties at KFUPM– an English-medium university of science, technology, and business.

2009–2013 Tutored many classes in the Faculties of Science and Engineering at Monash University.

2012 Passed the IELTS test held at Monash University with an overall band score 7.5.

2009 Passed the TOEFL iBT test with Total Score 96.

2006 Passed the English Language test in partial fulfillment of my M.Sc. degree held in the Faculty of Science at Assiut University with general grade "Excellent."

8 Analytical Writing, Verbal Reasoning, and Quantitative Reasoning Skills

2009 Passed the GRE test.

9 Computer Skills

Programming Languages — FORTRAN, MATHEMATICA, MATLAB, and LATEX.

Online Teaching — Blackboard 9.1, Google Classroom, and Easyclass (online learning management systems).

Applications — MathType, MS Office, Adobe Photoshop, Skype, MS Teams, and Zoom.

Operating Systems — MS Windows.

10 Teaching Experience

The following graduate and undergraduate level courses are/were taught with full responsibility including determining and grading assignments, quizzes, exams, holding office hours, and assigning course grades.

Graduate Courses

2020, Term 201
I. Lectures taught at KFUPM:
- Mathematical Methods for Engineers (MATH 513).

2013-2017
II. Lectures taught at Assiut University:
- A Practical Guide to Scientific Computing Using MATLAB.
- MATLAB Software.

Undergraduate Courses

2017-2020
II. Lectures taught at KFUPM:
- Calculus I (MATH 101).
- Calculus II (MATH 102).
- Applied Calculus (MATH 106)– For Business, Economics, Life, and Social Sciences.
- Elements of Differential Equations (MATH 202).
- Introduction to Numerical Computing (MATH 371).
- Numerical Analysis II (MATH 472).

2013-2017
III. Lectures taught at Assiut University:
- Calculus.
- Introduction to Scientific Computing.
- Numerical Analysis.
- Operations Research: Modeling, Linear Programming, and Nonlinear Programming.

11 Tutoring Experience

The following undergraduate level courses were tutored with partial responsibility including grading assignments and quizzes, and checking exam marks.

Undergraduate Courses

2005-2013
Tutorial classes taught at Monash University & Assiut University:

- Algebra. ○ Advanced Engineering Mathematics. ○ Advanced Ordinary Differential Equations. ○ Analytical Geometry. ○ Calculus. ○ Differential Equations with Modeling. ○ Fourier Series. ○ Introduction to Computational Mathematics. ○ Newtonian Mechanics. ○ Numerical Analysis. ○ Ordinary Differential Equations. ○ Partial Differential Equations. ○ Programming Languages (FORTRAN, MATHEMATICA, MATLAB). ○ Scientific Computing. ○ Techniques for Modeling. ○ Vector Calculus.

12 Course Coordination Experience

I coordinated the following courses with full responsibility including course planning, course design and development, course delivery, selection of educational resources, assessment, students' learning outcomes, and course evaluation.

Graduate Courses

2020, Term 201	Mathematical Methods for Engineers (MATH 513), KFUPM.
2013-2017	○ A Practical Guide to Scientific Computing Using MATLAB, Assiut University. ○ MATLAB Software, Assiut University.

Undergraduate Courses

2020, Term 201	Applied Calculus (MATH 106), KFUPM.
2019-2020, Terms 183, 191, 192, 193, and 201	MATLAB, Student Success Center, KFUPM; see Course Website.
2019, Term 191	Numerical Analysis II (MATH 472), KFUPM.
2019, Term 182	Introduction to Numerical Computing (MATH 371), KFUPM.
2013-2017	○ Introduction to Scientific Computing, Assiut University. ○ Numerical Analysis, Assiut University. ○ Operations Research, Assiut University.

Short Courses

2019-2020, Terms 183, 191, 192, 193, and 201	MATLAB, Student Success Center, KFUPM; see Course Website.

13 Course Development Experience

I developed the courses below.

2019-2020, Terms 183, 191, 192, 193, and 201	MATLAB, Student Success Center, KFUPM; see Course Website.

2013-2017	○ A Practical Guide to Scientific Computing Using MATLAB, Assiut University.
	○ MATLAB Software, Assiut University.
	○ Introduction to Scientific Computing, Assiut University.
	○ Numerical Analysis, Assiut University.
	○ Operations Research, Assiut University.

14 Students Supervision

PhD Students

2020–Present	**Hareth Mohamed**, *Sohag University*, Egypt.
Dissertation Title	Direct Pseudospectral and Adaptive Spectral Element Methods for Solving Finite- and Infinite-Horizon Optimal Control Problems.
Status	Ongoing.

Master Students

2016–2019	**Sayed Abd El Mohsen**, *Assiut University*, Egypt.
Dissertation Title	Advances in the Numerical Solution of One-Dimensional Viscous Burgers' Equation Via Cole-Hopf Barycentric Gegenbauer Integral Pseudospectral Methods.
Status	Completed.

2015–2019	**Hareth Mohamed**, *Sohag University*, Egypt.
Dissertation Title	Pseudospectral Integration Methods and Adaptive Spectral Element Integration Methods for Solving Differential Equations of Lane-Emden and Singular Perturbation Types.
Status	Completed.

Undergraduate Students

| 2014-2015 | **Anod**, *Assiut University*, Egypt. |
| 2013–2014 | **Marwa**, *Assiut University*, Egypt. |

15 Research Interests

○ Nonlinear Programming.

○ Numerical Analysis.

○ Optimal Control Theory.

16 Current Research

○ Adaptive discontinuous Galerkin methods.

○ Adaptive spectral element methods.

○ Fourier-based numerical methods.

○ Mesh refinement methods for solving optimal control problems.

○ Numerical solution of nonlinear PDE-based optimal control problems.

○ Numerical solution of nonlinear PDEs.

○ Numerical solution of PDEs in complex domains.

○ Numerical solution of singularly perturbed differential equations.

○ Pseudospectral methods for solving infinite-horizon optimal control problems.

○ Trajectory planning of unmanned aerial vehicles.

17 Current Job Duties

The main purposes of my job are to carry out research, teaching, and administration within the Mathematics Department. My administrative tasks take up a significant part of the working day; typically my work activities include:

- Assessing graders' applications.
- Assessing students' coursework.
- Assessing the Department Website for suitability of content and navigation, and suggest ways to enhance it.
- Assessing the quality of major exams, the level of difficulty of each question included, and the appropriateness of the time limit allowed in addition to reviewing the correctness of the exam questions and their solutions.
- Assisting DSR and the Data Analytics team in the Vice Rector office to build a searchable database for Subject Matter Expertise (SME) that can be used to describe the main interest/expertise of the mathematics and statistics faculty.
- Courses coordination.
- Completing continuous professional development and participating in staff training activities.
- Conducting webinars to explore new instructor resources and possible interactive learning platforms for undergraduate courses in collaboration with international publishers of textbooks and learning resources for university level students.
- Delivering lectures, seminars, and practical laboratory demonstrations at undergraduate and graduate levels.
- Designing and developing courses specifications and guides.
- Designing, preparing, and developing teaching materials.
- Determining the equivalence of courses offered by external colleges or universities with a course offered by KFUPM.
- Estimating the number of textbooks needed for students registered in undergraduate and graduate courses in the Mathematics & Statistics Department in the next few terms.
- Evaluating the applications of possible research visitors to the Department.
- Generating awareness among the Department faculty about the new trends in technology and help their professional development both in teaching and research.
- Interviewing candidates for employment and admission to the MATH Department.
- Organizing seminars.
- Participating in departmental and faculty seminars aimed at sharing research outcomes and building interdisciplinary collaboration within and outside the department.
- Participating in setting up the strategic research plan of the Mathematics Department.
- Preparing and teaching summer courses.
- Preparing course reports.
- Preparing invitation letters for conference guest speakers.

- Receive, review, and process requests of new textbooks.
- Representing the institution at professional conferences and seminars, and contributing to these as necessary.
- Reviewing the instructional materials used at all undergraduate levels, and to make sure that these materials are consistent with the stated objectives for each level.
- Setting and marking examinations.
- Supervising and participating in the selection of reference textbooks for mathematics courses.
- Supervising undergraduate and masters students' research activities.
- Supporting students through an advisory role.
- Undertaking personal research projects and actively contributing to the institution's research profile.
- Writing up research and preparing it for publication.

18 Job Duties Before Gaining Ph.D. Degree

I conducted research and prepared articles and a thesis for publication. I also prepared academic presentations to be orally presented in domestic and international conferences and proceedings. Besides my regular responsibilities in academic research as a Ph.D. student, I also engaged in the following:

- Advising students on academic and related matters.
- Conducting tutorials under the direction of other academic staff in one or more subjects within a prescribed course of study in the university.
- Marking and commenting on projects, assignments, quizzes, and exams.
- Stimulating and guiding class discussions.

19 Projects and Grants

Internally-Funded Research Grants

2018–2019	
Project Title	"Spectral and Pseudospectral Methods for Solving Linear Partial Differential Equations in Complex Domains: High-Order Hybrid Integral Fourier Pseudospectral Collocation, Fourier-Continuation-Gram, and Fourier Extensions of Arbitrary Length Methods."
Principle Investigator (PI)	**Kareem T. Elgindy**.
Consultant	**John P. Boyd**.
Grant Number	IN171046.
Fund	51,590 SAR.
Status	Completed.

Startup Research Grants

2017–2018	
Project Title	"High-Order Gegenbauer Integral Discontinuous Galerkin Methods: Advances in Computational Nonlinear PDE-Based Optimal Control Theory."
Principle Investigator (PI)	**Kareem T. Elgindy**.
Consultant	**Bülent Karasözen**.
Grant Number	SR161013.
Fund	73,201 SAR.
Status	Completed.

20 ISI Journal Publications

Journal Publications Extracted from the M.Sc. Thesis

2008 [J1] **Kareem T. Elgindy** and Abdel-Rahman Hedar. A new robust line search technique based on Chebyshev polynomials. Applied Mathematics and Computation, Elsevier, 206(2), pp. 853–866. DOI: 10.1016/j.amc.2008.08.013. An e-copy is available from this link.

2009 [J2] **Kareem T. Elgindy**. Generation of higher order pseudospectral integration matrices. Applied Mathematics and Computation, Elsevier, 209(2), pp. 153–161. DOI: 10.1016/j.amc.2008.08.056. An e-copy is available from this link.

Journal Publications Extracted from the Ph.D. Thesis

2013 [J3] **Kareem T. Elgindy** and Kate A. Smith-Miles. Solving boundary value problems, integral, and integro-differential equations using Gegenbauer integration matrices. Journal of Computational and Applied Mathematics, Elsevier, 237(1), pp. 307–325. DOI: 10.1016/j.cam.2012.05.024. An e-copy is available from this link.

[J4] **Kareem T. Elgindy** and Kate A. Smith-Miles. Optimal Gegenbauer quadrature over arbitrary integration nodes. Journal of Computational and Applied Mathematics, Elsevier, 242, pp. 82–106. DOI: 10.1016/j.cam.2012.10.020. An e-copy is available from this link.

[J5] **Kareem T. Elgindy** and Kate A. Smith-Miles. Fast, accurate, and small-scale direct trajectory optimization using a Gegenbauer transcription method. Journal of Computational and Applied Mathematics, Elsevier, 251, pp. 93–116. DOI: 10.1016/j.cam.2013.03.032. An e-copy is available from this link.

[J6] **Kareem T. Elgindy** and Kate A. Smith-Miles. On the optimization of Gegenbauer operational matrix of integration. Advances in Computational Mathematics, Springer US, 39, pp. 511–524. An e-copy is available from this link.

Journal Publications Extracted after Gaining the Ph.D.

2016   [J7] **Kareem T. Elgindy**. High-order numerical solution of second-order one-dimensional hyperbolic telegraph equation using a shifted Gegenbauer pseudospectral method. Numerical Methods for Partial Differential Equations, John Wiley & Sons, 32(1), pp. 307–349. DOI: 10.1002/num.21996. An e-copy is available from this link. A preprint copy is also available from this link.

2017   [J8] **Kareem T. Elgindy**. High-order, stable, and efficient pseudospectral method using barycentric Gegenbauer quadratures. Applied Numerical Mathematics, Elsevier, 113, pp. 1–25. DOI: 10.1016/j.apnum.2016.10.014. An e-copy is available from this link. A preprint copy is also available from this link.

   [J9] **Kareem T. Elgindy**. High-order adaptive Gegenbauer integral spectral element method for solving non-linear optimal control problems. Optimization, Taylor & Francis, 66(5), pp. 811–836. DOI: 10.1080/02331934.2017.1298597. An e-copy is available from this link. A preprint copy is also available from this link.

2018   [J10] **Kareem T. Elgindy**. Optimization via Chebyshev Polynomials. Journal of Applied Mathematics and Computing, Springer, 56(1–2), pp. 317–349. DOI: 10.1007/s12190-016-1076-x. An e-copy is available from this link. A preprint copy is also An e-copy is available from this link and this link.

   [J11] **Kareem T. Elgindy**. Optimal control of a parabolic distributed parameter system using a fully exponentially convergent barycentric shifted Gegenbauer integral pseudospectral method. Journal of Industrial and Management Optimization, American Institute of Mathematical Sciences (AIMS), 14(2), pp. 473–496. DOI: 10.3934/jimo.2017056. An e-copy is available from this link. A preprint copy is also available from this link.

   [J12] **Kareem T. Elgindy** and Hareth M. Refat. High-order shifted Gegenbauer integral pseudo-spectral method for solving differential equations of Lane-Emden type. Applied Numerical Mathematics, Elsevier, 128, pp. 98–124. DOI: 10.1016/j.apnum.2018.01.018. An e-copy is available from this link. A preprint copy is also available from this link.

   [J13] **Kareem T. Elgindy** and Sayed A. Dahy. High-order numerical solution of viscous Burgers' equation using a Cole-Hopf barycentric Gegenbauer integral pseudospectral method. Mathematical Methods in the Applied Sciences, John Wiley & Sons, 41(16), pp. 6226–6251. DOI: 10.1002/mma.5135. An e-copy is available from this link.

2019   [J14] **Kareem T. Elgindy** and Bülent Karasözen. High-order integral nodal discontinuous Gegenbauer-Galerkin method for solving viscous Burgers' equation. International Journal of Computer Mathematics. Taylor & Francis, 96(10), pp. 2039–2078. DOI: 10.1080/00207160.2018.1554860. An e-copy is available from this link.

[J15] **Kareem T. Elgindy**. A high-order embedded domain method combining a Predictor–Corrector-Fourier-Continuation-Gram method with an integral Fourier pseudospectral collocation method for solving linear partial differential equations in complex domains. Journal of Computational and Applied Mathematics, Elsevier, 361, pp. 372–395. DOI: 10.1016/j.cam.2019.03.032. An e-copy is available from this link.

2020 [J16] **Kareem T. Elgindy** and Bülent Karasözen. Distributed optimal control of viscous Burgers' equation via a high-order, linearization, integral, nodal discontinuous Gegenbauer-Galerkin method. Optimal Control, Applications and Methods, John Wiley & Sons, 41(1), pp. 253–277. DOI: 10.1002/oca.2541. An e-copy is available from this link.

[J17] **Kareem T. Elgindy** and Hareth M. Refat. High-order Gegenbauer integral spectral element method integrated with an adaptive Chebyshev optimization strategy for solving linear singularly perturbed differential equations. Journal of Computational and Applied Mathematics, Elsevier, 372, pp. 112722. DOI: 10.1016/j.cam.2020.112722. An e-copy is available from this link.

21 Manuscripts Submitted for Publication in ISI Journals

2019 [J18] Sayed A. Dahy and **Kareem T. Elgindy**. High-order numerical solution of viscous Burgers' equation using an extended Cole-Hopf barycentric Gegenbauer integral pseudospectral method.

22 Published Thesis

2013 [T1] **Kareem T. Elgindy**. Gegenbauer Collocation Integration Methods: Advances in Computational Optimal Control Theory. Ph.D. thesis, Monash University, Australia– Melbourne. An e-copy is available from this link.

23 Published Abstracts in ISI Journals

2014 [A1] **Kareem T. Elgindy**. Gegenbauer Collocation Integration Methods: Advances in Computational Optimal Control Theory. Bulletin of the Australian Mathematical Society, Cambridge University Press, 89, pp. 168–170. An e-copy is available from this link.

24 Refereed Conference Publications

Refereed Conference Publications Extracted from the Ph.D. Thesis

2012 [C1] **Kareem T. Elgindy**, Kate A. Smith-Miles, and Boris Miller. Solving optimal control problems using a Gegenbauer transcription method. Proceedings of 2012 Australian Control Conference, AUCC 2012, IEEE & Engineers Australia (pp. 417–424). University of New South Wales, Sydney, Australia. An e-copy is available from this link.

25 Citations

Scopus

Documents by author — 19 documents.

Total citations — 152 by 60 documents.

h-index — 7.

Google Scholar

Total citations — 205.

h-index — 8.

i10-index — 7.

26 Community Services

University Services

2020 — **Member of the Ad-Hoc Committee to work out a proposal to infuse modeling, simulation, and computation into math courses**, KFUPM.

2018 — **Member of the Evaluation Panel of the 9th Annual KFUPM Students Scientific Forum**, KFUPM.

Departmental Services

Sept. 2020–Present — **Member of the Recruitment Committee**, *Mathematics & Statistics Department*, KFUPM.

2019–Present — **Chairman of the Textbook Committee**, *Mathematics & Statistics Department*, KFUPM.

2018–Mar. 2019 — **Member of the Academic Panel Interviews Committee**, *Mathematics & Statistics Department*, KFUPM.

Member of The Research Committee, *Mathematics & Statistics Department*, KFUPM.

2017–2018 — **Member of The Technology Enhancement Committee**, *Mathematics & Statistics Department*, KFUPM.

2017–Present — **Member of the Exam Committee**, *Mathematics & Statistics Department*, KFUPM.

Ad-Hoc Committees

2020 — **Member of the Ad-Hoc Committee on Innovative Teaching Techniques**, *Mathematics & Statistics Department*, KFUPM.

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✉ *kareem.elgindy@(kfupm.edu.sa; aun.edu.eg; gmail.com)*
✇ *My Institutional Web Page* • *Skype Name: Kareem.T.Elgindy*   *14/18*

Member of the Ad-Hoc Committee to thoroughly study all undergraduate and graduate courses, identify any potential overlap between similar courses within the department and other departments, and carry out a cross-listing of all courses that have an overlap of at least 70%, *Mathematics & Statistics Department*, KFUPM.

Member of the Ad-Hoc Committee to formulate the required set of documents and processes to master a professional program for Computational Science and Engineering in the Mathematics & Statistics Department, *Mathematics & Statistics Department*, KFUPM.

2018–2019   Member of the Ad-Hoc Committee to respond to the recommendations of the National Commission for Academic Accreditation & Assessment (NCAAA), *Mathematics & Statistics Department*, KFUPM.

Chairman of the Ad-Hoc Committee to find a new textbook for MATH 371 course, *Mathematics & Statistics Department*, KFUPM.

27 Professional Activities & Memberships

2013–Present   **Member of The Egyptian Mathematical Society**.

2012–2013   **Member of The Australian Mathematical Society (AustMS)**.

28 Seminar Presentations

2019, 08 June   [SP1] "**Review of Postdoctoral Works**," The Supreme Council of Universities, Egypt.

29 Seminars Organized

I organized the following seminars:

2018   [SO1] "**Adaptive Discontinuous Galerkin Method for Tsunami Modeling and Prediction on a Global Scale**." (Invited Speaker: Professor Jan S. Hesthaven[1]), Department of Mathematics & Statistics, the College of Sciences, KFUPM.

[SO2] "**New Directions in Reduced Order Modeling**." (Invited Speaker: Professor Jan S. Hesthaven), Department of Mathematics & Statistics, the College of Sciences, KFUPM.

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[1]Professor Jan S. Hesthaven is a Full Professor of Mathematics, Chair of Computational Mathematics and Simulation Science (MCSS), and the Dean of Basic Sciences at Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland.

30 Oral Conference Presentations

Oral Presentations Extracted from the Ph.D. Thesis

2012 [O1] "**A practical Gegenbauer collocation method for solving optimal control problems**." Australian Mathematical Society 56th Annual Meeting. Mt Helen Campus, University of Ballarat, Ballarat, Australia. The conference was hosted by the School of Science, Information Technology and Engineering (SITE), University of Ballarat. An e-copy of the presentation abstract is available from this link.

Oral Presentations Extracted from the M.Sc. Thesis

2008 [O2] "**A new robust line search technique based on Chebyshev polynomials**." The Second Conference for Young Scientists, Basic Science & Technology. Faculty of Science, Assiut University, Assiut, Egypt.

31 Poster Conference Presentations

Poster Presentations Extracted from the Ph.D. Thesis

2012 [P1] "**Solving optimal control problems using a Gegenbauer transcription method**." Proceedings of 2012 Australian Control Conference, AUCC 2012. Scientia Centre, John Niland Scientia Building (G19), Kensington Campus, UNSW, Sydney, Australia. The conference is sponsored by Engineers Australia, IEEE Control Systems Society, NICTA, UNSW, and University of Technology Sydney.

32 Conferences Attended

2006 **The International Conference on Mathematical analysis and Its Applications (ICMAA06)**. Assiut University, Assiut, Egypt. The conference was sponsored by the International Mathematical Union (IMU), ICTP, the Egyptian Mathematical Society, and Assiut University.

33 Webinars

Chairman

2020 [Wb1] "**The Instructor Resources & Interactive Platforms of Sapling Learning for Calculus & Statistics Courses**," Online Webinar presented by Macmillan International Higher Education and attended by a group of staff members of the Department of Mathematics & Statistics, the College of Sciences, KFUPM.

34 Workshops & Orientations Talks

Invited Speaker

2018 [W1] "**Advanced Numerical Methods**," Junior Faculty Workshop, Department of Mathematics & Statistics, the College of Sciences, KFUPM.

35 Workshops & Orientations Attended

2019 **New Textbooks Distribution Model and Ordering Process**, *KFUPM*, KSA.

Joint Workshop with the Math Department at Imam Abdulrahman Bin Faisal University, *KFUPM*, KSA.

2018 **Fractional Models in Science & Engineering (FMSE18): Theory and Computation**, *KFUPM*, KSA.

2017 **Role and Responsibilities; Good Teaching Practices; Blackboard 9.1 LMS: The Online System for Teaching & Learning at KFUPM; Academic Requirements**, *KFUPM*, KSA.

2016 **How to Compete for a Research Fund**, *Assiut University*, Egypt.

How to Design the E-Course, *Assiut University*, Egypt.

E-Learning, *Assiut University*, Egypt.

2015 **University Management**, *Assiut University*, Egypt.

Design and Conduct Scientific Research, *Assiut University*, Egypt.

Use of Technology in Teaching, *Assiut University*, Egypt.

2013 **Management of the Research Team**, *Assiut University*, Egypt.

Strategic Planning, *Assiut University*, Egypt.

Organizing Conferences, *Assiut University*, Egypt.

Research Ethics, *Assiut University*, Egypt.

Examination Systems and Student Assessment, *Assiut University*, Egypt.

Time and Conference Management, *Assiut University*, Egypt.

2012 **Early Career Workshop of the Australian Mathematical Society**, *Novotel Forest Resort*, Creswick.
The workshop was sponsored by University of Ballarat, Australia; the AustMS; the Australian Mathematical Sciences Institute (AMSI).

2009 **Scientific Publications**, *Assiut University*, Egypt.

2008 **Communication Skills in the Various Types of Education**, *Assiut University*, Egypt.

Effective Presentation, *Assiut University*, Egypt.

Credit System, *Assiut University*, Egypt.

Occupation Behaviors, *Assiut University*, Egypt.

Standards of Quality in the Teaching Process, *Assiut University*, Egypt.

Financial and Legal Aspects in University Business, *Assiut University*, Egypt.

36 Reviewing

Mathematical Reviews/MathSciNet.

37 Refereeing

I provided peer-review for the following journals:

[R1] Acta Astronautica.

[R2] Ain Shams Engineering Journal (ASEJ).

[R3] Applied Mathematics and Computation.

[R4] Applied Mathematics E-Notes.

[R5] Applied Numerical Mathematics.

[R6] Automatica.

[R7] Cogent Mathematics & Statistics.

[R8] Computers and Mathematics with Applications.

[R9] Engineering Science and Technology, an International Journal (JESTCH).

[R10] International Journal of Robust and Nonlinear Control.

[R11] International Journal of Systems Science.

[R12] Journal of Computational and Applied Mathematics (CAM).

[R13] Journal of Industrial and Management Optimization (JIMO).

[R14] Journal of Inequalities and Applications.

[R15] Journal of Mathematical Analysis and Applications (JMAA).

[R16] Journal of Optimization Theory and Applications (JOTA).

[R17] Optimal Control, Applications and Methods.

[R18] TWMS Journal of Applied and Engineering Mathematics (TWMS J. App. Eng. Math.).

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