

Personal Data

Surname: Deif

Forenames: Assem Shawki

Nationality: Egyptian

High School: College de la Sainte Famille (les peres Jesuites), Le Caire

Languages spoken: Arabic, English and French

Education and Degrees

- B.Sc. Honours in Electrical Engineering, Cairo University, Egypt, 1969
- B.Sc. Honours in Mathematics, University of London, England, 1971
- Ph.D. in System Theory, University of Kent, England, 1975

Fellowships and Awards

- Cairo University Junior Scholarship, 1964-1969
- Philips International Institute Fellowship, 1971
- Egypt's State Prize in Mathematics, 1981
- Egypt's Legion d'Honneur of Arts and Science of First Degree, 1982
- Alexander von Humboldt Stiftung, 1984

Academic Posts Held

- Lecturer, Cairo University, 1975-1980
- Associate Professor, Cairo University, 1980-1985
- Visiting Associate Professor, University of California Berkeley, 1983
- Visiting Associate Professor, Technische Hochschule Darmstadt, 1984
- Professor, Cairo University, 1985-to date
- Visiting Professor, King Saud University, Saudi Arabia, 1988-1989
- Visiting Professor, Qatar University, 1991-1992
- Visiting Professor, King Fahd University of Petroleum and Minerals (UPM), March 1992
- Visiting Professor, Kuwait University, 1992-1993

Administrative Posts Held

- Head of the Mathematics Unit, Faculty of Engineering, Cairo University, 1985-1996.

- Head of the Mathematics Unit at Misr University for Science and Technology, 1996-2000.
- Head of the Mathematics Unit, Faculty of Engineering, Cairo University, 2000-2002.
- Chairman of the department of Engineering Mathematics and Physics, Faculty of Engineering, Cairo University, from March 2002-Now.

Membership-Academic and Scientific Organizations

- Society of Electrical Engineers (IEE) 1971-1975
- Society of Electrical and Electronic Engineers (IEEE) 1971-1977
- Society of Industrial and Applied Mathematics (SIAM) 1982-1991
- American Mathematical Society 1991-2001
- Egyptian Society of Operations Research 1975-1977
- Higher Council of Mathematics and Physics-Egyptian Academy of Science 1981-1983
- Higher National Council of Mathematics-Egyptian Academy of Science 1991-2000
- Centre of technology-aids and e-learning in education at the Egyptian ministry of education 2000-Now.

Courses Taught

- Calculus and Analytic Geometry
- Theory of Functions of a Real Variable
- Theory of Functions of a Complex Variable
- Numerical Analysis and Computational Mathematics
- Differential and Integral Equations
- System Theory, Synthesis and Optimization

Research Subjects

- Matrix Theory and Computational Mathematics
- Perturbation Theory in Linear Systems
- Error Analysis and Interval Mathematics
- Systems Applications to Socio-Economics
- Mathematical Modelling and Operations Research

Published Papers/Mathematics

1. **A.S.Deif:** *Sensitivity Analysis from the State Equations by Perturbation Techniques*, J. Appl. Math. Model, 5, 405-408, 1981
2. **A.S.Deif:** *The Proof of a New Matrix Theorem*, Egypt's Proc. Math. Phys. Soc., 51, 7-9, 1981

3. **A.S.Deif**: *Normal Positive Definite Matrices*, Matrix and Tensor Quarterly, 32, 109-110, 1982
4. **A.S.Deif**: *Nondiagonable Systems under Small Perturbations*, J. Appl. Math. Phys.(ZAMP), 33, 282-288, 1982
5. **A.S.Deif**: *The Generalized Inverse of a Perturbed Singular Matrix*, J. Appl. Math. Phys. (ZAMP), 34, 291-300, 1983
6. **A.S.Deif**: *Error Bounds for the Equation $AX+XB=C$* , Matrix and Tensor Quarterly, 34, 66-74, 1983
7. **A.S.Deif** and P.Hagedorn: *Matrix Polynomials Subjected to Small Perturbations*, J. Appl. Math. Mech. (ZAMM), 66, 403-412, 1986
8. **A.S.Deif**: *A Relative Backward Perturbation Theorem for the Eigenvalue Problem*, Numerische Mathematik, 56, 625-626, 1989
9. **A.S.Deif**: *Realistic a-Priori and a-Posteriori Error Bounds for Computed Eigenvalues*, IMA J. Numer. Analysis, 9, 323-329, 1990
10. **A.S.Deif**: *The Interval Eigenvalue Problem*, J. Appl. Math. Mech. (ZAMM), 71, 61-64, 1991
11. **A.S.Deif**: *Singular Values of an Interval Matrix*, Linear Algebra and its Appl., 151, 125-133, 1991
12. N.Seif, S.Hashem, **A.Deif**: *Bounding the Eigenvectors of a Symmetric Interval Matrix*, J. Appl. Math. Mech. (ZAMM), 72, 233-236, 1992
13. J.Rohn and **A.Deif**: *On the Range of Eigenvalues of an Interval Matrix*, Computing, 47, 373-377, 1992
14. **A.S.Deif** and J.Rohn: *On the Invariance of the Sign Pattern of Matrix Eigenvectors by Perturbation*, Linear Algebra and its Appl., 196, 63-70, 1994
15. N.Seif, S.Hussein, **A.Deif**: *Interval Sylvester's Equation*, Computing, 52, 233-244, 1994
16. **A.S.Deif**: *Rigorous Perturbation Bounds for Eigenvalues and Eigenvectors of a Matrix*, J. Comput. and Appl. Math., 57, 403-412, 1995
17. **A.Deif**, N.Seif, S.Hussein: *Sylvester's Equation, Accuracy and Computational Stability*, J.Comput. and Appl. Math., 61, 1-11, 1995
18. **A.S.Deif**: *A-Priori and a-Posteriori Bounds in Matrix Computations*, Invited Paper to the Encyclopaedia of Mathematics, edited by Prof. Dr. M. Hazewinkel, Supplement I, pp.1-5, Kluwer publishers, Dordrecht, The Netherlands, 1997. Available on a CD.
19. N.P.Seif, M.A.Hassanein, **A.S.Deif**: *Inverse problem of the interval linear system of equations*, Computing, 63, 185-200, 1999

Published Papers/Engineering Applications

20. M.I.Sobhy and **A.S.Deif**: *The State-Space Approach to First Order Perturbations in Electrical Networks*, Trans. IEEE Circuits and Systems, 22,776-780, 1975
21. M.I.Sobhy and **A.S.Deif**: *Applications of the Perturbation Matrix in Network Design Problems*, Electronics Letters, 11, 294-296, 1975
22. M.I.Sobhy and **A.S.Deif**: *The Perturbation Matrix and its Applications in Network Design*, International J. Electronics, 40, 257-266, 1976

23. M.I.Sobhy and **A.S.Deif**: *The State Matrix of Networks Containing Lossy Reactances*, International J. Electronics, 47, 603-608, 1979
24. **A.S.Deif**: *A Linear Programming Model for an Optimum Admission Policy in Education*, J. Appl. Math. Model., 4, 39-44, 1980
25. **A.S.Deif** and S.Hussein: *Network Design from the Characteristic Polynomial*, J. Appl. Math. Model., 8, 351-354, 1984

Papers in Conference Proceedings and invited talks

26. **A.S.Deif**: *Optimal Planning in Education to Meet Social Demand and Manpower Requirements*, Proc. Intern. Conf. Autom. Control IFAC) Ed:A.Ghoneim, Amer. University, Cairo, 1977
27. **A.S.Deif**: *Non-Conservative Mechanical Systems Subjected to Small Variations in their Parameters*, Proc. First Conf. on Mech. Design and Production, Ed:G.Shawki, Cairo University, 1979
28. H.Al-Gindi and **A.Deif**: *An Algorithm for Analysing Lumped and Distributed Systems*, IMACS Europ. Simul. Meeting on DPS-LSS, Ed:S.Tzafestas, Patras, Greece, 1979
29. **A.S.Deif** and F.Selim: *The State-Space Approach to First Order Perturbations in Distributed Systems*, Proc. Europ. Conf. Circuit Theory and Design Ed:P.Dewilde and R.Boite, The Hague, Netherlands, 1981
30. L.Zereick, R.Amer, **A.Deif**: *Network Tuning via Mixed Integer Programming*, IEEE International Symp. Systems (ISCAS) Ed:S.Mitra, NewPort Beach CA, USA, May, 1983
31. **A.S.Deif** and A.Hussein: *Interval Analysis, a Tool for Controlling Accuracy* invited lecture to the dept. of mathematics conf., the school of science of Cairo univ. for the Commemoration of Prof. A.Ashour Birthday, 1984
32. **A.S.Deif** : *Three chronic problems in numerical analysis*, invited paper to the first. intern. Conf. in engineering mathematics and physics held at Cairo university in Dec.1990
33. **A.S.Deif** : *Interval analysis, a tool in numerical computations*, an invited lecture in the department of mathematics, the university of Petroleum and Minerals, Dhahran, Saudi Arabia, March 1992
34. **A.S.Deif** : *Accuracy and computational stability by interval analysis*, paper invited to the second intern. Conf. in engineering mathematics and physics held at Cairo university in Dec.1994
35. **A.S.Deif** : *Misconceptions in teaching calculus*, paper invited to the second internal symposium in mathematics education organized by the ministry of education at Ibrahymia school, Cairo, Febr.2000

Refereed Technical Reports

36. **A.S.Deif**: *The State Equations of Electrical Networks from a Lagrangian Formulation*, Bulletin of the Faculty of Engineering, Cairo University, 4, 285-293, 1979

37. **A.S.Deif**: *Perturbation of the Eigenvalues of Non-Diagonalizable Matrices*, Bulletin of the Faculty of Engineering, Cairo University, 2,133-142,1980
38. **A.S.Deif** and A.Hussein: *A-Posteriori Analysis for Iterative Systems*, Bulletin of the Faculty of Engineering, Cairo University, 4, 13-16, 1987
39. **A.S.Deif** and A.Hussein: *Perturbation of the Eigenvalues of a Defective Matrix*, Bulletin of the Faculty of Engineering, Cairo University, 2, 1-7, 1987

Books

1. **A.S.Deif**: *Advanced Matrix Theory for Scientists and Engineers*, Abacus Press London and Halsted Press division of John-Wiley and Sons, New York, 1982. A second edition appeared in 1991 by Gordon and Breach Science Publishers, London
2. **A.S.Deif**: *Sensitivity Analysis in Linear Systems*, Springer-Verlag, Berlin and Heidelberg, 1986
3. **A.S.Deif**: *Differential and Integral Calculus*, Dar Al-Maaref, Cairo, 1996 in Arabic in its first edition. A third edition appeared lately and a CD-Rom is about to be produced.

Conference Active Participation

- Member of the organizing Committee for the AMS Conference which was held in Lyon-France in September 1981
- Chairman of the Session on Computer-Aided Design in the IEEE International Symposium on Systems which took place in New-Port Beach California in May 1983

Citation

- the *International Biographical Center*
- the *Marquis Who's Who in the World*
- the *Egyptian National Biographers*.
- *Who's Who in distance learning*