Aqeel A. Syed

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PERSONAL

Full Name: Syed Aqeel Abbas Bukhari
Nationality: Pakistani
Date of Birth: April 18, 1974
Permanant Address: Kot Faqeer Ali Shah, Muzaffarabad, Multan
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EDUCATION

Ph.D. in Computer Science (April 2001-March 2005)
Graduate Schoold of Information Science and Engineering
Tokyo Institute of Technology, Japan
Advisor: Professor Hidemitsu Ogawa

M.Phil. in Electronics (Feb. 1998 - Jan. 2001)
Department of Electronics
Quaid-i-Azam University, Islamabad
Advisor: Professor Azhar A. Rizvi

M.Sc. in Electronics (Feb. 1996 - Jan. 1998)
Department of Electronics
Quaid-i-Azam University, Islamabad

WORK EXPERIENCE

Assistant Professor **Dept of Electronics**
Quaid-i-Azam University, Islamabad **May 2005 - present**
Joined as an Assistant Professor in the Department of Electronics, Quaid-i-Azam University, Islamabad. Responsibilities include teaching graduate and under-graduate courses and conducting and supervising graduate level research.

Research Assistant **COE-21LKR Project**
Tokyo Institute of Technology **Oct. 2003 - March 2005**
The COE-21LKR project 'Franework for Systewmization and Application of Large-Scale Knowledge Reseources' is a nation wide project in Japan dealing with different aspects of computer science. I worked in this project as a research assistant focussing on the study of signal resoration to be used in relic reconstruction. My job included, besides conducting and presentinig my research, participating and organizing the regularly held meeting.

Researcher **Dept. of Computer Science**
Tokyo Institute of Technology **Jan. 2000 - March 2001**
Conducting researhc in the filed of Autonomous Decentrlaized Comuting Systems.

Visiting Lecturer **Dept. of Electronics**
Quaid-i-Azam University, Islamabad **Sept. 1999 - Jan. 2000**
Taught an Electronics Lab under-graduate course.

DISSERTATIONS

- Optimal Signal Restoration in the Presence of Signal Space and Observation Space Noises, Ph.D Dissertation, Dept of Computer Science, Tokyo Institute of Technology, Japan, March 2005.
- Nonlinear Techniques for Narrowband Interference Suppression in Direct-sequence Spread Spectrum Communication Systems, M.Phil. Thesis, Dept. of Electronics,

Quaid-i-Azam University, Pakistan, Jan. 2000.

- Electromagnetic Scattering from a Multi-layered Dielectric Cylinder, M.Sc. Project, Dept. of Electronics, Quaid-i-Azam University, Pakistan, Jan. 1998.

SPECIAL SKILLS

Languages and Communication Skills:
Fluent in English, Urdu, Seraiki and Punjabi
Basic knowledge of Japanese language

Computer Skills:
Command on C, C++, Matlab and Mathematica programming
Assembly for Motorola 6800HC11, DSP TMS320, and IBM 8051,8086 processors
Familiar with Windows and Unix based platforms and networks

HONORS & AWARDS

- Won MONBUSHO Merit Scholarship for graduate studies in 2000.
- First Position in M.Phil. at Quaid-i-Azam Univerity, Islamabad, 2001.
- Quaid-i-Azam Merit Scholarship,University Grants Commision Pakistan, 1998.
- Gold Medal in M.Sc. at Quaid-i-Azam Univerity, Islamabad, 1998.
- Fourth Position in B.Sc. at Baha-ud-Din Zakariya University, Multan 1995.

ADMINISTRATIVE & EXTRA-CURRICULAR

- Member of the Board of Faculty of Natural Sceinces, QAU, 2010.
- Incharge Students Affairs, Dept of Electronics, QAU, 2009 to present.
- Member Board of Studies of Dept of Electronics, QAU, 2008-present.

COURSES TAUGHT

Undergraduate Courses

1. Netowrk Analysis
2. Electronics Lab I
3. Electronics Lab II
4. Signal Processing

Graduate Courses

1. Advanced Signal Processing
2. Stochastic Processes
3. Estimation Theory: Statistical Signal Processing

Supervision of Students

M.Phil. Produced: 9.
M.Phil. in Progress: 6.
Ph.D. in Progress: 3.

RESEARCH INTERESTS & PROJECTS

Inverse Sscattering and Optical Signal Processing **HEC 2010**

Scattering of optical signal from an unknown object and then reconstruction of the object image by scattered signals is called inverse scattering problem. This problem has vast applications in real life scenario. The geometry and composition of the scattering object play an important role in image characterization. In this regard, study of different scattering materials coated with special films is an important aspect of modern inverse scattering problem. Moreover, special scattering materials also exhibit optical activity, study of which, can lead to exciting results in the field of optical signal processing. A PhD student has been registered to undertake this field of research in the joint supervision of myself and Dr Qaisar A Naqvi and in collaboration with Professor Akhlesh Lakhtakia of Penssylvania State University.

Spread Spectrum and Wireless Communication Systems **QAU URF 2010**
Spread spectrum communication has inherent property of interfernce suppression, however, this capability can further be enhanced by pre-processing the received signal. Several linear pre-filtering techniques have been proposed to improve the interference capability of spread spectrum system. However, due to non-guassianity of the environment, these techniques become non-optimal. A nonlinear filtering technique is sought to be investigated in this project to enhance the interfernce suppression capability of the system optimally. Presently, three MPhil students are working on different aspects of this project.

Statistical Signal Processing and Estimation Theory **QAU URF 2009**
Nonlinear Kalman filter and gradient adaptive filters are being investigated in this project to render near optimal results for filtering in non-Guassian signal environment. Linear techniques utilize the statistical information upto order two in the solution. However, non-Guassian signals require higher order statistical information for characterization. A dual space achieved by a nonlinear transformation of the original signal is being investigated for incorporating the higher order statistics of the signal. This approach promises improved performance in signal filtering. Two MPhil students of the Dept of Electronics are engaged in investigating these problems.

Supervised and Unsupervised Machine Learning **HEC PhD Scholarship 2008**
Higher Education Commission of Pakistan is funding a PhD student to undertake the research in the area of Independent Component Analysis (ICA), a related field of unsipervised machine learning. The inherent order and scaling ambiguities of ICA are being investigated in this project. Resolution of these two issues of the ICA technique will help to apply this powerfull source sepration technique in a variety of practical situations.

PUBLICATIONS

JOURNAL ARTICLES

1. A. Syed and H. Ogawa, 'Partial projection fitler for signal restoration in the presence of signal space noise,' IEICE Trans. Inf & Syst., vol.E87-D, no.12, Dec. 2004.
2. A. Syed and H. Ogawa, 'Characterization and implementation of partial projection filter in the presence of signal space nosie,' IEICE Trans. Inf & Syst., vol.E87-D, no.12, Dec. 2004.
3. A. Syed and H. Ogawa, 'Optimal sampling operator for signal restoration in the presence of signal space and onbservation space noises,' IEICE Trans. Inf & Syst., vol.E88-D, no.12, Dec., 2005.
4. M. Taj, A. Naqvi, A. A. Syed, and Q. A. Naqvi, 'Study of Focusing of a Cylindrical Interface of Chiral Nihility-Chiral Nihility Media Using Maslov's Method'Progress In Electromagnetics Research Letters, Vol. 22, 181-190, 2011.
5. M. A. Baqir, A. A. Syed, and Q. A. Naqvi, Electromagnetic Fields in a Circular Waveguide Containing Chiral Nihility Metameterial, Progress In Electromagnetic Research M, VOL. 16, 85-93, 2011.
6. S. R. Qamar, A. Naqvi, A. A. Syed, and Q. A. Naqvi, Radiation characteristics of elementary sources located in unbounded chiral nihility metamaterial, Journal of Electromagnetic Waves and Applications, JEMWA, vol. 25, vol. 713-722, 2011.
7. Shakeel Ahmed, Abdul Ghaffar, Naveed Muhammad, Qaisar Abbas Naqvi and Aqeel A. Syed, 'Electromagnetic Scattering from Parallel Nihility Cylinders Coated by Dissipative and Dispersive DNG Materials', Mathematical Problems in Engineering, accepted for publication.

CONFERENCE PRESENTATIONS

8. A. Syed and H. Ogawa, 'Signal restoration in the presence of signal space nosie,' Symposium on Large Scale Knowledge Resources, pp.171-174, Tokyo, Japan, March 2005.
9. A. Syed and H. Ogawa, 'Degraded image acquisition and restoration by the partial projection filter,' Proceedings of the 4 th IASTED Conference on VIsualization, Imaging, and Image Processing, pp.523-528, Marbella, Spain, Sept. 2004.
10. A. Syed and H. Ogawa, 'Image restoration in the presence of signal space and observation space noises,' SIAM Conference on Imaging Science, Salt Lake City, Utah, USA, May 2004.
11. C. Leguizamo, A. Syed, and K. Mori, 'Assurance system architecture for distributed database system,' Proceedings of the 7 th International High Assurance Systems Engineering Symposium, pp.43-50, Tokyo, Japan, Oct. 2002.
12. A. Syed, S. Kato, and K. Mori, 'Autonomous reconstruction for real-time distributed database system through Mobile Agent coordination,' Proceedings of the International Conference on Parallel and Distribited Processing Techniques and Application, pp.963-969, Las Vegas, Nevada, USA, June 2002.
13. A. Syed, S. kato, C. Leguizamo, and K. Mori, 'Fault detection and reconvery technique by an autonomous Mobile Agent in autonomous decentralized database system,' High Assurance Systems Group Technical Report, pp. 33-40, Tokyo, Japan, March 2002.
14. A. Syed and A. Rizvi, 'Narrowband interfernece suppression in direct sequence spread spectrum communication systems,' Proceedings of IEEE International Multi-topic Confernece, pp.178-184, Lahore, Pakistan, Dec. 2001.
15. A. Syed and K. Mori, 'Integration of Mobile Agent based autonomous decenrtlized database systems,' IEICE Technical Report, pp.1-8, Tokyo, Japan, June 2001.

REFERENNCES

Professor Hidemitsu Ogawa (Ph.D. Titech, 1977)
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Department of Computer Science
Tokyo Institute of Technology
2-12-1 Oookayama, Meguro-ku, Tokyo 152-8552, Japan
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Professor Azhar A. Rizvi (Ph.D. CalTech, 1988)
Department of Electronics
Quaid-i-Azam University, Islamabad, Pakistan
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