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Personal Data

Birth: March 15, 1950 in Jordan.

Citizenship: American & Jordanian.

Career Objectives:

Professor Abu-El-Haija is seeking a challenging managerial position that aims at the development of national higher education systems and/or institutions and improving their quality and relevance. The outstanding teaching and research abilities of Dr. Abu-El-Haija, together with his management experience and wide international exposure makes this possible to accomplish.

Academic Qualifications

Ph.D. Electrical Engineering **STANFORD UNIVERSITY, California, USA** **1/1978**

Ph.D. in Electrical Engineering (Communications) with Ph.D. minor in Computer Science, GPA=3.93/4.00

M.Sc. Computer Science **STANFORD UNIVERSITY, California, USA** **9/1977**

GPA = 3.97/4.00.

M.Sc. Electrical Engineering **STANFORD UNIVERSITY, California, USA** **9/1976**

M.Sc. Electrical Engineering (Communications), GPA = 3.89/4.00

B.Sc. Electrical Engineering **ALEXANDRIA UNIVERSITY, Alexandria, Egypt** **8/1972**

B.Sc. in Electrical Engineering (Computers and Automatic Control), GPA = 91%.

Profile and Skills

Extensive academic and industrial experience at the national, regional and international levels. He also worked with a number of financial institutions and United Nations organizations (such as the World Bank, International Telecommunications Union (ITU), United Nations Development Programme (UNDP), United Nations Educational, Scientific, and Cultural Organization (UNESCO), United Nations Economic and Social Commission for Western Asia (UN-ESCWA), European Commission, Arab League for Educational, Cultural and Scientific Organization (ALECSO), Islamic Development Bank, and others) in several countries in the world. He combines solid experience in three key sectors: education and higher education, telecommunications, and information technology. Dr. Abu-El-Haija can make significant contributions to higher education institutions in teaching, research, community service, and international collaboration as a continuation of his past experience. In addition, he has:

- Very sound academic education from prestigious universities. Obtained scholarships (from United Nations, Fulbright and others) all through B.Sc., M.Sc. and Ph.D. studies.
- Obtained B.Sc. with Distinction with Honors. Also, obtained a GPA of 3.93/4.00 in graduate work (M.Sc. and Ph.D.) at Stanford University, California, USA.
- Presented papers in many international and professional conferences in USA, Canada, Europe and Japan.
- Presented seminars, tutorials, and conducted workshops in various subjects in telecommunications and information technology at the international, regional and national levels. Number of participants per seminar/lecture ranged from 50 to 600 persons. He has outstanding presentation and training skills.

- Excellent skills in communications at all levels, technical & report writing, team leadership, coordination, strategic planning, project planning & management, negotiations, attracting and managing funds, strong management capabilities, and other skills. Wrote many technical/mission reports and feasibility studies.
- Capable of working accurately and under pressure, self-motivated, independent, good common sense, flexible, innovative and practical approach, highly responsible and perfectionist.
- Excellent computer knowledge and skills (languages, Internet and up-to-date technology).

Employment Record

6/2003 – present Director, National Tempus Office - Jordan, European Commission

Coordinating, facilitating and monitoring the execution of about 40 projects involving Jordanian and European institutions. I perform the following duties:

- Established the National Tempus Office in Jordan, funded by the European Commission.
- Assist the Jordanian Government in identifying national priorities for Tempus projects.
- Assist the Jordanian institutions in developing projects with their European counterparts.
- Assist the European Commission in selecting projects to be funded by the Tempus program.
- Coordinate and monitor the implementation of Tempus projects in Jordan.
- Liaise with all concerned parties (European Commission in Amman and Brussels, European Cultural Attaches in Jordan, Jordanian and European institutions, international agencies, and Government officials).
- Focus on the development/reform of higher education sector in Jordan and the region.

1/2001 – present ICDL National Program Director - Jordan, UNESCO Cairo Office

Established a Quality Assurance system to implement the International Computer Driving License (ICDL) in Jordan. Assembled and supervised a Quality Assurance team in Jordan comprising more than fifty people, and also performed the following:

- Assisted the Government (Ministry of Education and Ministry of Information and Communication Technology) in developing and implementing ICT literacy plans.
- Identified, recruited, trained, and managed the ICDL Quality Assurance team in Jordan.
- Assisted other countries (such as Iran and Iraq) in launching ICT literacy programs.
- Marketed the program within the public and private sectors in Jordan.
- Liaised regularly with UNESCO Cairo Office and Jordanian organizations and higher education institutions for developing and maintaining the standard of the training and testing facilities.

9/2000 – present Professor of Electrical Engineering, Jordan University of Science and Technology

- Teaching and research at the University in information technology and telecommunications, as well as supervising students' projects. Courses taught include Data Communications, Computer Communications Networks, Microprocessors, Computer Architecture, and Switching Theory.
- Consulting with several international organizations in different countries.
- Establishing links and joint programs with industry.
- Member of the Management Board of MobileCom (mobile operator in Jordan) and Chairman of the Audit Committee.

9/1998 – 9/2000 Senior Consultant and Expert, Information Technology, Telecommunications & Higher Education (on leave from the Jordan University of Science and Technology)

- (1) **World Bank/Motorola University Fellowship:** Dr. Abu El-Haija was granted a Fellowship by the World Bank for the development of Internet Protocol-based (IP-based) and wireless communications curriculum. This was through an international competition, with the participation of more than 50 applicants from different countries. He conducted Phase I of the Fellowship in the period July – September 2000 at Motorola University, Schaumburg, Illinois, and Phase II in December 2001 at the World Bank, Washington, D.C.
- (2) Signed and executed several consulting contracts with international & national organizations, such as: International Telecommunication Union (ITU), World Bank, United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Development Programme (UNDP), Islamic Development Bank (IDB), and Jordan Telecommunications Company. More details about these assignments are provided later in this CV.

- (3) As a member and Head of the Audit Committee of the Management Board of Petra Jordanian Mobile Telecommunications Company (MobileCom, a wholly owned subsidiary of Jordan Telecom), I participate in the establishment of this company (total investment is about US \$190 million over five years).

1992-98 ***Vice-President, Jordan University of Science & Technology (JUST)***

- Established and maintained strong programs of collaboration at the international, regional and national levels. Established strong relations with Canadian International Development Agency (CIDA), Overseas Development Agency (ODA) - UK, USAID, JICA, and DAAD in Germany. Drafted several project proposals for funding, which won through international competitions.
- Managed several international projects (about US \$10 Million) for faculty and staff exchange, laboratory development, workshops and seminars for professionals in the Arabic countries, etc., with institutes in all these countries, and funded by the above-mentioned organizations.
- Negotiated and secured grants and loans from major financial institutions for more than US \$120 Million, and managed these funds for developing JUST. Established excellent relations with major financial institutions in the region.
- Interacted with a number of Ministers in Jordan on regular basis (e.g., Minister of Planning, Minister of Finance, and Minister of Higher Education) for arranging financial facilities. Also, interacted with a large number of Presidents of Universities in the Arabic countries.
- Management of the higher education institution, including infrastructure, facilities and academic development and quality control at the B.Sc. and M.Sc. levels. Providing technical leadership, and monitoring progress and designing programs to enhance performance of faculty & staff.
- In charge (academic and administrative) of Faculty of Engineering, Faculty of Science, Faculty of Agriculture, Faculty of Veterinary Medicine, Faculty of Pharmacy, Computer Center, and Dept. of Engineering Projects.
- Heavily involved in the development of higher education and the quality assessment of higher education in Jordan. Chaired many committees formed by the Council of Higher Education for the accreditation of private universities, admission criteria, etc. Founded the Parallel Program at JUST, and managed this program.
- Professor of Communications Engineering. Performed teaching and conducted state-of-the-art research in computers and communications at the postgraduate and undergraduate levels, and supervised many M.Sc. theses and B.Sc. projects in both disciplines.
- Provided consulting services for a number of international and regional organizations, such as ALECSO, ASMO, UN-ESCWA, UNESCO, Islamic Development Bank, through telecommunications projects appraisals, development of regional standards, performing studies, etc. in the areas of telecommunications and information technology.
- Member of the Telecommunications Policy Advisory Board in Jordan (chaired by the Minister of Post and Communications). Assisted in the development of the telecommunications policy and strategy in Jordan, which led to the liberalization of the telecom sector, and will increase the efficiency and quality of service at competitive prices.
- Traveled to most of the Arabic countries, the far-east, Europe, USA, and Canada, for fostering links and establishing and strengthening academic exchange programs.

1989 -92 ***Dean, Faculty of Engineering, Jordan University of Science & Technology (JUST)***

- Developed this faculty, which included six departments: electrical, mechanical, chemical, civil, agricultural, and architecture, and had about 2000 students.
- Established programs of international collaboration with University of Ottawa in Telecommunications (about \$1.7 million) and with Concordia University in Mechanical Engineering (about \$1.6 million).
- Recruited about 60 new prospective faculty members and sent them on scholarships to leading western universities.

- Regular assessment and development of faculty members (teaching effectiveness, review of files for faculty promotion, workshops on teaching methodologies, etc.).
- Taught and conducted research in telecommunications and computers.

1988 -89 ***Dean of Student Affairs, Jordan University of Science & Technology (JUST)***

- Responsible for extracurricular activities for all university students (about 6000 students): cultural, social, athletic, travel, arts, music, student grants and loans, etc.

1987-88 ***Professor and Chairman, Electrical Engineering Department at JUST***

- Supervising the academic program, course contents, and quality of teaching, faculty and students issues.

1986-87 ***Assistant Dean, Faculty of Engineering at JUST***

- In charge of engineering summer training, liaison with industry, students' affairs.

1985-86 ***University of Bochum, Bochum, West Germany***

- **Held an Alexander-von-Humboldt Research Fellowship.** Was on sabbatical leave from Yarmouk University. Research in telecommunications and instrumentation and measurement.

1979-85 ***Yarmouk University, Irbid, Jordan***

- Assistant/Associate Professor. Teaching and research in telecommunications and computer engineering.

1979-1981 ***Founder and Director, Computer & Information Center, Yarmouk University***

- Development of manpower, acquisition of computing facilities, establishing the computer site, and supervising the development of applications programs.

12/1977 - 9/1979 ***IBM T.J. Watson Research Center, Yorktown Heights, New York, USA***

- **Postdoctoral Fellow.** Research in Computer Networks Monitoring and Management.

1972 - 1974 ***Electricity Corporation - Maintenance Engineer***

Honors and Awards

- United Nations Scholarship throughout undergraduate study at Alexandria University (1967-1972).
- B.Sc. with Distinction with Honors (91%), and ranked first in class of about 200 students.
- Fulbright Scholarship for the M.Sc. in Electrical Engineering at Stanford University (9/1974 - 9/1976).
- Yarmouk University Scholarship for the Ph.D. in Electrical Eng. at Stanford University (9/1976 - 12/1977).
- Yarmouk University Prize for Distinguished Research, 1982.
- Senior Member, Institute of Electrical and Electronics Engineers (IEEE), USA, since 1983.
- Alexander-von-Humboldt Research Fellowship, West Germany, August 1985 - August 1986.
- Abdul-Hamid Shuman Prize for the Best Young Arab Researcher in Engineering, 1987.
- Fulbright Scholar, University Administration in the USA, 1992.
- World Bank/Motorola University Fellowship, Wireless Communications Curriculum Development, 2000.
- Abdul-Hamid Shuman Prize, Member of the Board of Directors, 2001-present.

Languages

English and Arabic: Excellent command of both (written and spoken).

German: Limited knowledge.

SUMMARY OF CONSULTING EXPERIENCE

United Nations Development Programme (UNDP)

- **Libya** (August 2002): Prepared a draft project document to assist the Libyan Government to use the ICT as a tool for development.
- **Jordan** (2000-2003): Several projects co-funded with UNESCO as detailed below.

International Telecommunication Union (ITU)

- **Libya** (February 2002): Improving the Internet usage in the country. Reviewed the situation including the regulatory and institutional frameworks, physical infrastructure, tariffs, and human capacity, and suggested methods to advance this sector. Also, presented a number of seminars in the country on the Internet and the telecom sector and competitiveness.
- **Palestine National Authority** (September 1999): Audited the work done at the Palestine Telecom Company for addressing the Year 2000 problem, and advised in the preparation of contingency plans. Presented seminars to senior staff about these topics.
- **Liberia** (July 1999): Assisting the country and Liberian Telecom for addressing the Year 2000 problem. Conducting one-day workshop to train management and technical staff how to accomplish this task. Working with Liberian Telecom to develop and then implement an Action Plan.
- **Yemen** (February/March and June 1999): Assisting the Telecommunications Organization to address the Year 2000 Problem. Creating awareness about Y2K, conducting inventory with the assistance of different teams, assessing the problem, and advising in the solutions. Also, assisting in the development of Y2K contingency plans.
- **Arab Region Study** (1998): Conducted a study for ITU entitled, “*Guidelines for Establishing or Strengthening Telecommunications Applied Research Centers*”.
- **Egypt** (1990): Advised the management of the project “*Modernizing Arabic Telecommunication – MODARABTEL*” on the standards and protocols needed for the transmission of Arabic language.
- **Morocco** (1982): Advised the management of the project “*Translation of Telecommunication Terminology into Arabic*” on the methodology for implementing the project using data processing equipment.

United Nations Educational, Science, and Cultural Organization (UNESCO)

- **Jordan** (1/2001 – 9/2005): National Program Coordinator, International Computer Driving License (ICDL).
- **Jordan** (1/2002 – 9/2003): National Project Coordinator for a UNESCO/UNDP-funded project entitled, “*Training Strategy for Information and Communication Technologies at the Ministry of Education in Jordan*”.
- **Jordan** (10/2000 – 3/2002): National Project Coordinator for a UNESCO/UNDP-funded project entitled, “*Information and Communication Technologies in Higher Education in Jordan*”.
- **Oman** (2/1999): Advised the Ministry of Higher Education on policies for establishing private universities and issues related to quality.
- **Iraq** (6-11/1998): Assisted the universities in northern Iraq to upgrade the higher education system through defining their needs (curricula, laboratories, books and journals, etc.), acquiring the needed resources and training faculty members. Drafted an action plan and assisted in its implementation.

Islamic Development Bank (IDB)

- **Suriname** (9-10/2004): Conducted a feasibility study concerning the country's need for "Radar for Air Traffic Services". Project cost is about USD 15 Million.

- **Bangladesh** (6-7/2004): Conducted a feasibility study for the Submarine Cable Telecommunications Project, with a funding from IDB of about USD 60 Million.
- **Turkmenistan** (9/2000 and 5/2001): Conducted preparatory and feasibility studies regarding the need of the country for an optical fiber system to connect the capital Ashgabat with Turkmenbashi (about 620 km). Project was funded by IDB and the Turkmen government (Total project cost is about \$20 million, and IDB financing is about \$16 million).
- **Libya** (5/1998): Conducted a feasibility study regarding the need of the country for a submarine optical fiber system that passes through all the country from the Egyptian border east to the Tunisian border west. Project was funded by IDB, the Arab fund for Social and Economic Development, and the Libyan government. (Total project cost is about \$76 million).

World Bank

- **USA** (7-9/2000 and 12/2001): Worked at Motorola University and the World Bank for the development of “*Wireless Communications and Internet Protocol (IP) based Networks Curriculum for Universities in Developing Countries*”. The Curriculum was posted at the web site of the World Bank for the benefit of all universities in developing countries.
- **Jordan** (10-12/1999): Assisted Jordan Telecommunications Company (JTC) in the development of Y2K contingency plans. The plans covered all sectors, functions and processes at JTC that use computers.

Economic and Social Commission for Western Asia (ESCWA)

- **Jordan** (1995): Prepared a study entitled “*Electronics and Software Industries in Jordan*”.

Arab Organization for Standardization and Metrology (ASMO)

- **Jordan and the Arab Region** (1982-1990): Participated in the development of eight documents that were approved by the Arabic countries and adopted as Arabic Standards in the usage of Arabic language in data processing equipment and data transmission. Two of these Arabic standards were adopted by the *International Organization for Standardization (ISO)* as international standards (*ISO 9036 and ISO 8859/6*).

Arab League Educational, Cultural, and Scientific Organization (ALECSO)

- Prepared a draft standard on the “*Use of the Arabic language on the Internet*”, based upon the Unicode standard and the International Standard ISO/IEC 10646, (1/2001 – 3/2002).
- Prepared a study entitled “*Modern telecommunications in the Arab countries*”, 1995.
- Prepared a study entitled “*Standards and Specifications for Arabizing Informatics*”, 1993.

Sultanate of Oman

- Conducted a feasibility Study to upgrade the National College of Science and Technology to become a university college, March – September 2002.
- Developed the Laws and Regulations for the private higher education institutions, January – September 2003.

Short Courses and Workshops

- Prepared and offered several intensive workshops (from one day to one week) to practicing engineers and other professionals in industry and other sectors. Areas covered telecommunications (e.g., Digital Signal Processing) and Information Technology (e.g., Microprocessors and the Year 2000 Problem).

Teaching Experience

- Taught following courses since 1979, where most of them were taught more than once: Digital Filters, Digital Signal Processing, Computer Architecture, Data Communications, Computer Communications

Networks, Operating Systems, Advanced Computer Organization, Microprocessor Systems (Using MC68000 microprocessor), Switching Theory, Basic Computer Organization, Digital Logic Laboratory, Assembly Language and Data Structures, Advanced Data Structures, Introduction to Computer Science, BASIC Programming, FORTRAN Programming with Engineering Applications, and Special Topics in Electrical Engineering.

Research Interests

- **Digital Filters:** Structures and error analysis.
- **Computer Networks:** Testing, measurement, and monitoring.
- **Instrumentation and Measurement:** Detection of sinusoidal waveform parameters, digital oscillators.
- **Computer Arabization:** Standards on Arabic and Arabic/Latin code tables, Arabic keyboard layout, Repertoire of displayable Arabic characters, etc.

Graduate Students Thesis Supervised

- Supervised many theses for the Master's degrees and graduation projects for the B.Sc. degree in Electrical Engineering, both at Yarmouk University and the Jordan University of Science and Technology.

Key Qualifications in Higher Education

- Over twenty years of progressive and responsible experience in management of higher education institutions (Vice President, Dean, Chairman, Director), including infrastructure, facilities and academic development and quality control at the B.Sc. and M.Sc. levels, and at the national, regional and international levels.
- Managed large university development projects, the largest was King Abdullah Teaching Hospital Project (800 beds, construction cost was about US \$90 million).
- Chaired the curriculum committee at the university level for six years and supervised the development of more than twenty new programs of study in engineering, sciences, agriculture, veterinary medicine, etc. both at the B.Sc. and M.Sc. levels.
- Member of the national task force, which prepared "A comprehensive study for the development of higher education in Jordan". Also, member of the national team that prepared projects needed for the development of Jordanian universities (This was the counterpart team for the World Bank commission on higher education study and reform in Jordan).
- Chaired about 15 committees for the accreditation of private universities in Jordan.
- Participated in the program "University Administration in the USA" (arranged and sponsored by USAID).
- Chairman or member of committees that developed criteria for admission into public universities, new rules for accreditation of private universities, and criteria for granting private universities the permission to start graduate studies.
- Member of the Board of Trustees of Princess Sumaya University College (publicly owned), since its foundation in 1991 until 1999, and of Amman Polytechnic University (public institute) from 1989 to 1992.
- Member of the Council for Accreditation of Higher Education Institutes (This is the highest council in Jordan that is responsible for the quality of higher education).
- Founded and managed the "Parallel Program", where students pay tuition and fees that is comparable to actual cost at public universities, and study with other regular students.
- Conducted several missions to Iraq and Oman as a UNESCO Expert, and assisted in the development of three universities and five higher education institutes in Iraq, and the private higher education system in Oman. Evaluated the needs of Iraqi universities and institutes in terms of laboratory equipment, scientific textbooks and journals, and training; and prioritized the lists of equipment to fit within allocated budget (about 13 million U.S. Dollars).
- Negotiated and obtained a contract (from UNESCO) for preparing the specifications for the equipment of the laboratories for universities and institutes in northern Iraq, and formed and chaired a task force of about 30 experts to accomplish this study (Cost of study: US \$100,000).

- Established and directed projects of international collaboration (total value about \$10 million) with universities in Canada (Ottawa, Concordia, Guelph and Windsor), USA (Purdue and Iowa) and UK (UMIST and Salford). Projects included faculty and staff training and exchange, and continuing education.
- Established strong international relations with institutes in different countries.
- Participated in faculty research exchange programs in Germany through postdoctoral fellowships (Alexander-von-Humboldt and German Academic Exchange Service - DAAD) and Canada (funded by the Canadian International Development Agency).

Key Qualifications in Telecommunications

- Vice Chairman of the Management Board, Petra Jordanian Mobile Telecommunications Company (a wholly-owned subsidiary of the Jordan Telecommunications Company, the only operator for fixed telephone lines in Jordan).
- Member of the national committee for the policy of telecommunications in Jordan (Chaired by the Minister of Telecommunications and Post).
- Conducted several missions (as an International Telecommunication Union - ITU - Senior Expert) to assist countries in facing the Year 2000 problem, and in the development of business continuity and contingency plans. Countries included Liberia, Libya, Palestine, and Yemen.
- Worked as an ITU Consultant to develop a study on establishing or strengthening a telecommunications applied research center, and models for university-industry cooperation.
- Worked as Consultant and Project Manager for the Year 2000 Project at Jordan Telecom. Managed and closely supervised the whole program that led to fixing non-compliant systems, and developed about 170 business continuity and contingency plans to face the Year 2000 problem. Project was very successful, and Jordan Telecom passed over the Century Date Change without any problem, and with minimum cost.
- Taught different courses (such as, Digital Signal Processing, Digital Filters, and Computer Communications Networks) at the B.Sc. and M.Sc. levels.

Key Qualifications in Information Technology (IT)

- Sound academic education at leading universities and graduated with excellent grades, followed by practical experience at the world-renowned IBM Research Center in New York, USA.
- Founded the first computer center at Yarmouk University.
- Has gained international recognition through the development of standards for using the Arabic language in computers. Some of the contributions were adopted as international standards by ISO.
- Developed the first B.Sc. and M.Sc. programs in Computer Engineering in Jordan, and taught most of the courses in the B.Sc. curriculum, and few M.Sc. courses, and conducted research in this subject.
- Closely supervised the development of the IT infrastructure at JUST in the period 1992-1998.
- Played a leading role at the international, regional and national levels for addressing the Year 2000 problem in the period 1998 - 2000. I was recognized by the World Bank and the International Telecommunication Union as an Expert in this subject, and was awarded contracts to assist several countries in solving this problem.
- Gained hands-on experience in building hardware (using LSI, MSI and SSI chips, microprocessors, and interfacing devices) and in writing software in several high level and assembly languages.

Experience in International Cooperation

- Project Director in Jordan, "Training in Research and Development for JUST in Support of Telecommunication Needs in Jordan". Cooperation project between JUST and University of Ottawa and funded by the Canadian International Development Agency (CIDA). Project Value: \$1,712,500. Duration: 1990 – 1995.
- Project Director in Jordan, "Training in Manufacturing Technologies". Cooperation project between JUST and Concordia University and funded by CIDA. Project Value: \$1,600,000. Duration: 1993-1998.

- Director of Twinning Program between JUST and Pahang Institute for Professional Development, Malaysia, 1994-1998.
- Responsible for the development of several other programs of international cooperation, such as the Project on “Environmental Studies and Research”, between JUST, Purdue University, and the American University of Beirut, and funded by USAID.
- Had extensive experience with senior officials in other countries in the fields of higher education, telecommunications and information technology.

References

- Professor Khaled Toukan, Ex-Minister of Education and Minister of Higher Education and Scientific Research in Jordan, Tel: (962-6) 534 5151.
- Professor Isam Zabalawi, President, International University for Science and Technology, Ex-Minister of Higher Education and Scientific Research in Jordan, Email: isamz@just.edu.sy, Tel: (963-11) 611 5246, Fax: (963-11) 612 1936.
- Professor Nicolas D. Georganas, Distinguished University Professor, Canada Research Chair in Information Technology, Ex-Dean of Engineering, University of Ottawa, 161 Louis Pasteur Drive, Room A-613, Ottawa, Ontario, Canada K1N-6N5. Email: georganas@discover.uottawa.ca, Tel: +1-613-562-5800 Ext 6225, Fax: +1-613-562 5175.
- Professor Kamel Ajlouni, President, Center for Diabetes, Ex-Senator, Ex-Minister of Health, and Ex-President, Jordan University of Science and Technology. Email: ajlouni@ju.edu.jo, Tel: (962-6) 535 3374, Fax: (962-6) 535 3376.

Publications

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2. **A. I. Abu-El-Haija**, K. Shenoi, and A. M. Peterson, "A Structure Suitable for Implementing Digital Filters with Poles near $z=+1$," **Proc. National Telecom. Conf.**, pp. 29:4:1-7, Dec. 1977.
3. **A. I. Abu-El-Haija**, Implementation and Error Analysis of Digital Filters Based on Digital Incremental Computers, **Tech. Rep. No. 3208-8**, SU-SEL-77-047, **Stanford Electronic Labs**, Stanford, CA 94305, Dec. 1977.
4. **A. I. Abu-El-Haija** and A. M. Peterson, "A Simple Hardware Implementation of Digital Notch Filters," **Proc. IEEE Int. Conf. Acoustics, Speech, and Signal Processing**, pp. 788-791, Apr. 1978.
5. **A. I. Abu-El-Haija**, K. Shenoi, and A. M. Peterson, "Digital Filter Structures Having Low Errors and Simple Hardware Implementation," **IEEE Trans. Circuits and Systems**, Vol. CAS-25, pp. 593-599, Aug. 1978.
6. **A. I. Abu-El-Haija** and M. Choquet, "Some Algorithms for Measuring Frequency Shift and Phase Jitter on a Telephone Channel," **IBM Res. Rep.**, RC 7302, Sept. 1978.
7. **A. I. Abu-El-Haija** and M. Choquet, "Simulation Results on Measuring Attenuation and Envelope Delay Distortions on a Telephone Channel," **IBM Res. Rep.**, RC 7360, Oct. 1978.
8. **A. I. Abu-El-Haija** and A. M. Peterson, "Limit Cycle Oscillations in Digital Incremental Computers," **IEEE Trans. Circuits and Systems**, Vol. CAS-25, pp. 902-908, Nov. 1978.
9. **A. I. Abu-El-Haija** and A. M. Peterson, "An Approach to Eliminate Round-off Errors in Digital Filters," **IEEE Trans. Acoustics, Speech, Signal Processing**, Vol. ASSP-27, pp. 195-198, Apr. 1979.
10. **A. I. Abu-El-Haija** and A. M. Peterson, "A Structure for Digital Notch Filters," **IEEE Trans. Acoustics, Speech, Signal Processing**, Vol. ASSP-27, pp. 193-195, April 1979.
11. **A. I. Abu-El-Haija**, "Upper Bounds on Limit Cycles for a General Second-Order Digital Filter Structure," **IBM Res. Rep.**, RC 7694, June 1979.
12. **A. I. Abu-El-Haija**, "Notes on the Passive Measurement of Impulse Noise," **IBM Res. Rep.**, RC 7889, Oct. 1979.
13. **A. I. Abu-El-Haija**, "Remote Measurement of Some Telephone Channel Impairments Using Microprocessors," **IEEE Trans. Instrumentation and Measurement**, Vol. IM-28, pp. 244-249, December 1979.
14. **A. I. Abu-El-Haija**, "Author's Reply to 'Comments on An Approach to Eliminate Round-off Errors in Digital Filters'," **IEEE Trans. Acoustics, Speech, Signal Processing**, Vol. ASSP-28, pp. 244-245, Apr. 1980.
15. **A. I. Abu-El-Haija**, "On Limit Cycle Amplitudes in Error-Feedback Digital Filters," **Proc. IEEE Int. Conf. Acoustics, Speech, Digital Processing**, pp. 1227-1230, Apr. 1981.
16. **A. I. Abu-El-Haija**, "A Tight Upper Bound on $\sum |h(n)|$ for a General Second-Order $H(z)$," **IEEE Trans. Circuits and Systems**, Vol. CAS-29, pp. 492-497, July 1982.
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