Dr. Mohammed Bani Younis

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Personal Data

PLACE OF BIRTH: Dair Abi Said, Jordan
DATE OF BIRTH: 12-12-1971
NATIONALITY: German.

Summary

Strong Knowledge and experience of Re-Engineering and Reverse Engineering delegated through specifications and verification of software/hardware systems using different tools and logics. Knowledge/understanding and experience of the Distributed and Concurrent Systems approach for software modeling, design and development. Moreover, the application of these methods introduced above along with Software Engineering technologies to solve automation and control specific problems. Recently I am interested in applying of Soft Computing and optimization algorithms in Solving Engineering Problems.

Education

2002-2006 University of Kaiserslautern, Kaiserslautern, Germany. Ph.D. in Engineering (has already defended successfully at 01.092006)

2000-2002 University of Kaiserslautern, Kaiserslautern, Germany. Masters in Digital Systems with an average of 1.4 (Excellent).

1990-1995 University of Jordan, Amman, Jordan, Bachelor of Electrical engineering (Good).

1990   Jordan, General Certificate Examination (Al Tawjihi) with an average of 90.3

Major Projects

Ph.D. Thesis
Re-Engineering Approach for PLC programs based on Formal Methods.
A Project dedicated to the application of formal methods and Software Engineering technologies to re-engineer and re-implement already existing PLC programs.

Masters Project
Design and realization of the interaction services for programmed controls,
A project on the Environment RTX-communication System from "Keil" supporting the
Multitasking programming, where the Design has been implemented using this
RTX-kernel in C-language.

Final year Project (Bachelor)
Adaptive Control Systems, Design of Variable Structure Controller (VSC).
This design of VSC for the purpose to be used for variable structure systems which can be used using digital Computers.

Different Block courses
Lecture and Practical course, Object Oriented Software Development for control Engineering and Signal Processing Applications.

Lecture and Practical Course , Computer-Aided Implementation of Integrated Circuits(VHDL, and Quicksim).

Major Subjects in Ph.D.

No exams have been held for the Ph.D. program but the main subjects related to the Ph.D. were connected to Formal Methods and Software Engineering and their application in the Automation field.

Major Subjects in Masters

Architecture of Digital Systems I, Architecture of Digital Systems II, Switching Theory I, Switching Theory II, Asynchronous Sequential Circuits, Synthesis and Optimization of Microelectronic Systems, Process Counting on Microcomputers I, Process Counting on Microcomputers II, EMC, Multi Dimensional Signal Processing, Data Compression, Modelling of Programmed Systems, Bus Systems in the Automatic Control Engineering, Process Automation.

Major Subjects in Bachelor

Electromagnetic II, Electromagnetic I, Electrical Circuits I, Electrical Circuits II, Electrical Measurements and Instrumentation, Electrical Machines I, Electrical Machines II, Power Systems I, Power Systems II, Power Electronics, Control and Drive Systems, Assembly Language and Microprocessors, Artificial Intelligence, Digital Logic.

Courses Taught in BSc. And MSc.
BSc.: Reverse Engineering, Programmable Logic Controllers (PLC), Logic Design, Internet of things, Communication for Mechatronics, Software Engineering 1, Software Engineering 2, Special Topics (use of formal methods in Controller Design), Automation.
MSc.: Advanced Programming, Advanced PLC.

Interests

Modelling and Specifications, Software Engineering, Distributed and Concurrent systems, Real Time systems. Electrical Machines and Drives. Use of Soft Computing and optimization algorithms in Solving Engineering Problems.

Computer Skills

Programming Languages/Tools : C/C++, Java
AI languages   : PROLOG, LISP.
Low level languages   : Assembly language for 68000 processor, and 8085.

Seminar Presented
Checking Safety Properties using Induction and SAT-Solver.

Language Skills

German: Very Good   Arabic: native   English: Very Good   Urdu: Beginner

Experience

2008-Present: Philadelphia University, Jordan:

Associate Prof. at the Computer Engineering Department.

2007-2008: Helmut-Schmidt University, Germany:

Research assistant at the Helmut-Schmidt University in Hamburg (01.01.2007)

2002-2006: University of Kaiserslautern, Germany:

Four years as a teaching assistant within the P.hD. studies in supervising tow labs in the department of Juniorprofessorship Agentbased Automation at the same time supervising the exercises of the lecture Systems and Software Engineering for three years in the same department at the University of Kaiserslautern. Within my activity as a teaching and research assistant I have also supervised a number of Master as well as Diploma works and thesis. This period of Promotion was also for working on several industrial projects.

2000-2002: University of Kaiserslautern, Germany:

Two years as a teaching assistant within the Master studies in supervising tow labs in the department of Digital Systems at the University of Kaiserslautern

1997-1998: Jordan Telecommunication Company, Jordan:

One year to Jordan Telecommunication Company in the Switching section at an EWSD switching systems which represents the new age of digital switching systems.

1996-1997: Al-Zagha Modern Electronic Equipments, Jordan: One year as a maintenance and sales Eng. in modern electronic equipments (Communication and Security systems PBX) to Al-Zagha Modern Electronic Equipments.

Publications :
BOOKS：
Re-Engineering Approach for PLC programs based on Formal Methods.

ARTICLES:
More than 34 scientific articles about PLCs, Re-Engineering, and Formalization of PLC Programs, application of soft-computing and optimization methods in power and energy systems.

THESIS:
Adaptive Control Systems, Design of Variable Structure Controller (VSC). BSc. Final Year Project, University of Jordan, Amman, 1995.

Design and realization of the interaction services for programmed controls. MSc. Thesis, University of Kaiserslautern, Kaiserslautern, 2002.

Re-Engineering Approach for PLC programs based on Formal Methods. Ph.D. Thesis, University of Kaiserslautern, Kaiserslautern, 2006.

THESIS SUPERVISION:
10 theses submitted for Diploma and M.Sc. degrees.

Conferences, Symposiums, Seminars &Workshops:
More than 24 Conferences, Symposiums, Seminars &Workshops

Consultation, and Training Activities:

Supervision of different Projects in cooperation with industrial Partners, such as ABB, Freudenberg, etc..

A member TEMPUS committee for establishing international Master of Mechatronic Engineering.

A member of the postgraduate committee of the faculty of engineering (Master of Mechatronic Engineering).

A Member of Erasmus Plus project IREEDER "Introducing recent engineering Developments into undergraduate curriculum"

Cultural, and Academic activities

Publication Chair of IEEE ETFA 2008 (Emerging Technologies and Factory Automation)

Conference Chair of the System, Automation Conference (IEEE SSD 2014, IEEE SSD 2015).

A member of the Steering Committee of the IEEE SSD conferences since 2017.

Reviewer of Scientific articles for Different Conferences and Journals.

Awards & Merits:
Award for the Publication chair's issues of ETFA 2008.

Award as Conference Chair SSD 2014, 2015, 2016, 2017, 2018.

Professionals Affiliations:
A member of Institute of Electrical & Electronic Eng. "IEEE", (USA), Membership No: 85025728.

Jordan Engineer Association, Membership No.: 08238/04.

Member of PLCopen.

List of Publications

Mohammed Baniyounis, Omar Daoud, Emerging New Technologies in Undergraduate Engineering Curricula, accepted and presented in the 2022 19th International Multi-Conference on Systems, Signals & Devices (SSD), May, 2022.

Ibrahim I. Al-Naimi, Mohammed Baniyounis, Indoor Human Identification Using Advanced Machine-Learning-Based Strategy, accepted and presented in the 2022 19th International Multi-Conference on Systems, Signals & Devices (SSD), May, 2022.

Mohammed Baniyounis, Samer Z. Salah, Jasim A. Ghaeb," Machine Learning for Prediction Models to Mitigate the Voltage Deviation in PV-Rich Distributed Network," Accepted to be published in International Journal of Electrical and Computer Engineering (IJECE), April 2022.

Samer Z Salah , Jasim A Ghaeb, Mohammed J. Baniyounis, "A Nonparametric Approach Trained by Metaheuristic Algorithm for Voltage Regulation in the Electrical Distribution Network Equipped by PV Farm," Accepted to be published in Journal of Electrical Engineering & Technology, April 2022.

Mohammad Baniyounis, Ayman Agha, Hudefah Al-kashashneh, Abdullah Al-Omoush, "Economic evaluation of induction motor based on motor's nameplate data and initial cost," Accepted to be published in International Journal of Power Electronics and Drive System (IJPEDS), April 2022

Qadri Hamarsheh, Marwan Al-Akaidi, Omar Daoud, Ahlam Damati, and Mohammed Baniyounis,"Robust Vehicular Communications Using the Fast-Frequency-Hopping-OFDM Technology and the MIMO Spatial Multiplexing", International Journal of Communication Networks and Information Security, vol. 14, no. 1,2022, pp. 19-25, doi: https://doi.org/10.54039/ijcnis.v14i1.5216.

Ibrahim I. Al-Naimi, Jasim A. Ghaeb, Mohammed J. Baniyounis, Mustafa Al-Khawaldeh, "Fast detection technique for voltage unbalance in three-phase power system," International Journal of Power Electronics and Drive Systems (IJPEDS), 2021, vol. 12, no. 4, 2230, doi: 10.11591/ijpeds.v12.i4.pp2230-2242.

M. T. Lazim, M. Baniyounis and S. Z. A. Salah, "Harmonics generation Due to Multi-Cycle Auto Reclosing on HV Transmission Lines," 2019 16th International Multi-Conference on Systems, Signals & Devices (SSD), 2019, pp. 309-314, doi: 10.1109/SSD.2019.8893228.

M. Baniyounis and A. Mesmar, "Combining Program Slicing and Algorithmic Debugging to Diagnose a PLC program," 2019 16th International Multi-Conference on Systems, Signals & Devices (SSD), 2019, pp. 246-249, doi: 10.1109/SSD.2019.8893276.

H. Al-Daffaie, M. Baniyounis, T. Tutunji and M. Lohöfener, "Temperature Control of a Heat Sink Based on Hardware in the Loop," 2018 15th International Multi-Conference on Systems, Signals & Devices (SSD), 2018, pp. 366-370, doi: 10.1109/SSD.2018.8570531.

Mohammed BaniYounis, Mohammed T. Lazim, and Huthaifa Alkhashashna, "Analysis and Design of an Adaptive Current Controller with DC Drives for Tracking Applications," Accepted to be published in Advances in Systems, Signals & Devices", Issues on "Power Systems & Smart Energies", 2018.

M. Baniyounis and A. Mesmar, "Diagnosability of programmable logic controllers," 2017 14th International Multi-Conference on Systems, Signals & Devices (SSD), 2017, pp. 319-327, doi: 10.1109/SSD.2017.8166936.

AlShabi, M., Araydah, W., ElShatarat, H., Othman, M., Younis, M.B. and Gadsden, S.A. (2016) Effect of Mechanical Vibrations on Human Body. World Journal of Mechanics, 6,

273 – 304 . http://dx.doi.org/10.4236/wjm.2016.69022

H. L. Elshatarat, M. Baniyounis and R. Biesenbach, "Design and implementation of a RoBO-2L MATLAB toolbox for a motion control of a robotic manipulator," 2016 13th International Multi-Conference on Systems, Signals & Devices (SSD), 2016, pp. 89-95, doi: 10.1109/SSD.2016.7473678.

M. Bani Youni, M. Alshabi, PLC Advanced Course for Postgraduate Students, in the proceedings of ISMA'15 (International Symposium on Mechatronics and its applications), Sharjah, Dec. 2015.

Younis, M. (2015) On the Analysis of PLC Programs: Software Quality and Code

Dynamics. Intelligent Control and Automation, 6, 55-63. doi: 10.4236/ica.2015.61007.

AL-Saraireh, J., Saraireh, S., Saraireh, M. and Younis, M.B. (2014) Adaptive Distributed Inter Frame Space for IEEE 802.11 MAC Protocol. Communications and Network, 6, August 2014, PP. 165-174. doi.org/10.4236/cn.2014.63018.

Alawneh A. A. and Bani Younis M. Drivers of E-Business Value Creation in Banking Sector in Jordan: A Structural Equation Modeling Application, International Journal of Managing Information Technology (IJMIT) Vol.6, No.2, May 2014, DOI : 10.5121/ijmit.2014.6201

Bani Younis, M., Alshaer, S., Al-Shabi, M. Applying Reverse Engineering and its techniques on a remote controlled toy helicopter, Proceedings of the 11th International Multi-Conference on Systems, Signals & Devices (SSD), Febraury, 2014.

Al-Shaer, S. , Al-Shabi, M. , Younis, M.B. Applying image processing techniques on a ball collecting robot, Proceedings of the Fourth International Conference on Digital Information and Communication Technology and it's Applications (DICTAP 2014), 6-8 May, 2014, PP.

321 – 326.

Bani Younis, M.; Tutunji, T.: Reverse Engineering Course at Philadelphia University in

Jordan, accepted for publication by CEEE European Journal of Engineering Education,

2012.

Bani Younis, M.; Tutunji, T.: Reverse Engineering in Mechatronic Education, IEEE ISMA

2010 in sharajah, April 19-22, 2010.

Bani Younis, M.; Frey, G., Fay, A: Automatic Re-Implementation of PLC Programs. Atp

International.

Bani Younis, M.; Frey, G.: Software Quality Metrics to Determine the Diagnosability of PLC Applications, Accepted for Presentation Proceedings of the 10th IEEE International Conference on Emerging Technologies and Factory Automation (ETFA 2007), Prague, pp. 1340–1347, Sep. 2007.

Bani Younis, M.; Frey, G.: UML-based Approach for the Re-Engineering of PLC Programs. Proceedings of the 32nd Annual Conference of the IEEE Industrial Electronics Society (IECON'06), Paris, France, November 7-10, pp. 3691-3696, Nov. 2006.

Bani Younis M.; Frey G.: A Formal Method Based Re-Implementation Concept for PLC Programs and Its Application. Proceedings of the 10th IEEE International Conference on Emerging Technologies and Factory Automation (ETFA 2006), Prague, pp. 1340–1347, Sep. 2006.

Bani Younis M.; Frey, G.: Formalization and Visualization of Non-binary PLC Programs. Proceedings of the 44th IEEE Conference on Decision and Control (CDC 2005) and European Control Conference (ECC 2005) Seville, Spain, pp. 8367-8372, Dec. 2005.

Frey, G.; Bani Younis M.: Systematisches Re-Engineering bestehender Steuerungs-programme auf der Basis formaler Beschreibungen. Proceedings of the SPS/IPC/DRIVES, Nürnberg, Germany, pp. 301-309, Nov. 2005.

Loeis, K.; Bani Younis, M.; Frey, G.: Application of Symbolic and Bounded Model Checking to the Verification of Logic Control Systems. Proceedings of the 10th IEEE International Conference on Emerging Technologies and Factory Automation, ETFA 2005, Catania, Italy, Vol. 1, pp. 247-250, Sept. 2005.

Frey, G.; Bani Younis, M.: A Re-Engineering Approach for PLC Programs using Finite Automata and UML. 2004 IEEE International Conference on Information Reuse and Integration, IRI-2004, Las Vegas, USA, pp. 24-29, Nov. 2004.

Bani Younis, M.; Frey, G.: Formalization of PLC Programs to Sustain Reliability. Pro-ceeding of the 2004 IEEE Conference on Robotics, Automation and Mechatronics, RAM-

2004, Singapore, pp. 613-618, Dec. 2004.

Gabel, O.; Bani Younis, M. Internet based Remote Control and Remote Maintenance with AConML. Proceedings of the System, Man and Cybernetics (SMC2004), The Hague, NL, pp. 490-495, Oct. 10-13, 2004.

Bani Younis, M.; Frey, G.: Visualization of PLC Programs Using XML. Proceedings of the American Control Conference (ACC2004), Boston, USA, pp. 3082-3087, June 30 - July 2, 2004.

Bani Younis, M.; Frey, G.: Formalization of Exisitng PLC programs: Survey. Proceedings of CESA 2003, Lille (France), CD-Rom paper S2-R-00-0239, July 2003.