

Yashar Sahraei-Manjili

Qualifications Summary

- Design, Manufacture, Research and Development in *Electrical/Control/Automation Systems, Data Analytics/Mining, Modeling, Optimization* and *Predictive Analysis*.
- Experienced at *Artificial Intelligence, Algorithms/Firmware Development, Machine Learning, Deep Learning, Statistical Analysis, and Digital Signal Processing*.
- Expert (>6 years) at: *MATLAB, Simulink, OrCAD* and *PSPICE*. Proficient (>2 years) at: *Python, C/C++* and *HTML*. Skilled (>1 year) at: *SAS, R, SQL, Pascal*. Familiar (1 year or less) with: *Hadoop, Verilog, and Assembly*.
- Proficient in *technical writings/presentations, patenting* and *team-work/leadership*.
- *Eligible to work in the US* as a lawful permanent resident (Green Card holder).

Education

Ph.D. of Electrical and Computer Engineering – Systems and Control

December 2014

University of Texas at San Antonio – San Antonio, TX - GPA: 3.85

Advisor: Dr. Mo Jamshidi

- Conducted *Intelligent Control, Predictive analysis, & Data Mining (PCA/ICA)* projects.
- Experienced at *Exploratory Data Analytics (EDA)* and *Machine learning: ANN, SVM*.
- Experienced at *Optimization: Genetic-Fuzzy Systems, Particle Swarm Optimization*, etc.
- Familiar with *DBMS* and data-base models: *Relational, Hierarchical, Network*, etc.
- Familiar with *business and economic analysis* in *real-time* and *day-ahead energy market*.
- Ph.D. Dissertation: *Data Analytic-based Adaptive Forecasting for Microgrid Control*.

M.Sc. of Electrical Engineering- Automation Control

July 2007

Petroleum University of Technology – Tehran, Iran - GPA: 3.50

- Exposed to *oil and gas industry terminology, processes, data sets, and regulations*.
- Experienced: *Feature-extraction: PCA & ICA, & Clustering: k-means, FKCN, SOM, etc.*
- M.Sc. Thesis: *Intelligent Feature-based Industrial Fault Detection and Diagnosis*.

B.Sc. of Biomedical Engineering - Bioelectronics

July 2004

Amirkabir University of Technology (Tehran Polytechnic) – Tehran, Iran – GPA: 3.00

- Experienced at Assembly 89C51 / Z80 Programming, Motor Control & Electronic Design.
- Team leader: *Design and manufacturing of Autonomous Robot Mine-Detector*.
- B.Sc. Thesis: *Design and Production of PWM-based Portable Ozone Generator*.

Professional Experience

Decision Science Analyst - Applied Analytics-Predictive Modeling 2015-Present
Bank Business Intelligence and Analytics – USAA – San Antonio, TX

- As part of the applied analytics team, supported the bank business intelligence leadership by providing insights, based on data analysis, for large-scale decision-making (**ROI > 5**).
- Delivered methodologies to forecast customer engagement for investment allocation conserving **\$60M+** annual contract costs for the bank leadership.
- Developed ***predictive models in SAS/R based on regression analysis and decision trees***.
- Engaged in training of two graduate students of UTSA's college of business.

Researcher/Consultant - Machine Learning/Data Analytics-based Forecasting 2012-14
Texas Sustainable Energy Research Institute – UTSA – San Antonio, TX

- Developed an ***adaptive data analytics-based forecasting framework*** in **Matlab / Python**.
- Approx. **\$1M+ annual added value** potential for the **CPS Energy of San Antonio, TX**.
- The system is filed as a **US patent** by the UTSA: **#292007-8100/2014.028.UTSA**.
- ***Delivered the solar forecasting product to the CPS Energy Company, San Antonio, TX.***

Technical Researcher - Artificial Intelligence and Intelligent Control Technologies 2010-12
Autonomous Control Engineering (ACE) Laboratory – UTSA – San Antonio, TX

- Developed a ***smart framework in MATLAB*** for ***optimal storage energy control in electrical microgrids*** using ***Genetic Algorithms, Fuzzy logic and prioritization regime***.
- ***Co-Led a software/firmware selection team-work for modeling of electrical microgrids.***
- Experienced: ***AI-based decision-making, data mining, modeling and optimization.***
- Developed ***MATLAB codes*** for ***acquisition and processing of voice/image signals.***
- Developed ***C/C++ and MATLAB codes*** for ***robotic vision and intelligent control*** using ***Arduino/Simulink/QUARC: 6-dof robotic hand, soccer player robot, inverted pendulum.***

Automation Control Engineer – Instrumentation Control and Automation Division 2008-10
National Iranian Oil Engineering and Construction Company – Tehran, Iran

- In more than two years slashed the technical project costs by **10%** for implementation of monitoring and control systems of oil refineries, pump stations and pipelines.
- ***Optimized*** the designs of ***DCS systems, SCADA solutions, P&ID designs & ESD systems.***
- Exposed to ***IT & networks***, and to standards: ***API, NFPA, IEC, NEC, ANSI, OSHA***, etc.

Lecturer - Department of Electrical and Computer Engineering 2007-08
University of Hashtgerd – Tehran, Iran

- Elevated the average final grades of BSc degree-seeking students by **11%** during two semesters using novel interactive teaching and evaluation techniques in ***Control Systems, Logic Circuits and Discrete Mathematics.***

Achievement Highlights

- **Valero Energy Foundation Multidisciplinary Award:** \$25,000 award in recognition of outstanding academic achievement and professional excellence 2013-14.
- Lead SA Endowed Scholarship Award, College of Engineering, UTSA, 2013-14.
- **CPS Energy Scholarship:** Data analytic-based machine learning framework for solar energy forecasting, TSERI-UTSA, San Antonio, TX, 2012-14.
- **Lutcher Brown Endowed Chair Scholarship:** Intelligent evolutionary decision-making algorithms for optimal battery energy control in electrical microgrids, ACE Laboratory at the UTSA, San Antonio, TX, 2010-12
- **SECO Scholarship:** Microgrid modeling and solar photovoltaic (PV) systems development, ACE Laboratory at the UTSA, San Antonio, TX, 2010-12.
- **Best paper award:** “Fuzzy modeling of an ROF communication system for CATV channels over DWDM network”, ABES-UTSA, San Antonio, TX, 2012.
- **Best poster award:** “Fuzzy Control of Storage Unit for Energy Management in Micro-Grids”, COS conference, UTSA, San Antonio, TX, 2011.
- **Two intellectual properties and over 15 publications in books / journals / conferences.**

Special Training

- **Computing on the Cloud: Python Software and Cloud-Computing Principles** 2013
- Paladin Design-Base 4.0: Electric Power Systems Modeling/Analysis 2011
- **Storage Level Control: PID Control in Petrochemical Processes/Refineries** 2010
- Switching and Signaling Principles: Digital Networks, PCM, VoIP, TDM 2009
- **SCADA and Leak-Detection: Refinery/Pipeline Monitoring and Control** 2008
- Bioelectronics: Electro-Medical Technologies and Appliances 2007

Affiliations

- Institute of Electrical and Electronics Engineers (IEEE), 2011-Present
- Iranian Inventors Association (IIA), Iran, 2004
- National Organization for Development of Exceptional Talents (NODET), Iran, 1990-95

Publications and Patents

Patents

- **Y.S. Manjili**, R. Vega, and M. Jamshidi, “*Method and System for Hours-ahead and Day-ahead forecasting of Solar Energy*”, US Patent application by the UTSA, San Antonio, TX, 2014, Serial No: 292007-8100/2014.028.UTSA.
- **Y.S. Manjili**, and M. Zandinejad, “Design and Manufacturing of Portable Ozone (O₃) Generator System using Pulse Width Modulation (PWM) with Adjustable Output Rate”, *State Organization for Registering Deeds and Real Estate, Intellectual Property Registration Department*, Tehran, Iran, 2005, Serial No: A/82-001058.

Books/Chapters

- **Y. S. Manjili**, and M. Niknamfar, “*Big Data Analytic: Cases for Communications Systems Modeling and Renewable Energy Forecast*”, Control and Systems Engineering, A report on four decades of contribution, Volume 27 of the series Studies in Systems, Decision and Control, pp 109-134, ISBN 978-3-319-14636-2, Springer, 2015.

Journals

- **Y.S. Manjili**, R. Vega, and M. Jamshidi, “*Data Analytic-Based Adaptive Solar Energy Forecasting Framework*”, *IEEE Systems Journal*, Oct. 2014, ISJ-RE-14-03213.
- **Y.S. Manjili**, R. Vega, and M. Jamshidi, “*Cost-Efficient Environmentally-Friendly Control of Micro-Grids Using Intelligent Decision-Making for Storage Energy Management*”, *Journal of Intelligent Automation and Soft Computing*, Taylor & Francis Publication, Vol. 19, Iss. 4, 2013, pp. 649-670, DOI: 10.1080/10798587.2013.842346.
- E. Jahanshahi, K. Salahshoor, and **Y. Sahraie**, “*Fuzzy Estimation and Stabilization in Gas Lift Wells Based on a New Stability Map*”, *Journal of Advances in Sustainable Petroleum Engineering Science*, Nova Science Publishers, Vol. 1, Iss. 2, 2008, pp. 201-220.

Conferences

- **Y. S. Manjili**, M. Niknamfar, M. Jamshidi, and R. Vega, “*Real-time Monitoring of Multi-mode Industrial Processes using Feature-extraction Tools*”, Proceedings to World Automation Congress (WAC), August 3-5, 2014, Kona, Hawaii, USA.
- L. Roine, K. Tehrani, **Y. S. Manjili**, and M. Jamshidi, “*Microgrid Energy Management System Using Fuzzy Logic Control*”, Proceedings to World Automation Congress (WAC), August 3-5, 2014, Kona, Hawaii, USA.
- J. Nummikoski, **Y. S. Manjili**, R. Vega, and H. Krishnaswami, “*Adaptive Rule Generation for Solar Forecasting: Interfacing With A Knowledge-Base Library*”, 39th IEEE Photovoltaic Specialists Conference (PVSC), 2013, Tampa Bay, FL.

- M. Niknamfar, **Y. S. Manjili**, M. Shadaram, and M. Jamshidi, “Cost Effective ROF Communication System for CATV Channels over WDM Network and Fuzzy Modeling of the System”, International Conference on Computing, Networking and Communications (ICNC), 2013, San Diego, CA, USA.
- M. Niknamfar, **Y.S. Manjili**, M. Shadaram, and M. Jamshidi, “Fuzzy modeling of an ROF communication system for CATV channels over DWDM network”, UTSA-ABES student conference, 2012, San Antonio, TX, USA.
- **Y. S. Manjili**, A. Rajaei, M. Jamshidi, and B. Kelley, “*Intelligent Decision Making for Energy Management in Microgrid with Air Pollution Reduction Policy*”, 7th International Conference on System of Systems Engineering (SoSE), 2012, Genoa, Italy.
- **Y. S. Manjili**, A. Rajaei, M. Jamshidi, and B. Kelley, “*Fuzzy Control of Electricity Storage Unit for Energy Management of Micro-Grids*”, World Automation Congress (WAC), 2012, Puerto Vallarta, Mexico, ISBN: 2154-4824.
- **Y. S. Manjili**, A. Rajaei, B. Kelley, and M. Jamshidi, “*Fuzzy Control of Storage Unit for Energy Management in Micro-Grids*” University of Texas at San Antonio College of Sciences Research Conference (UTSA-COS), 2011, San Antonio, TX, USA.
- **Y. S. Manjili**, and M. Jamshidi, “Online Monitoring of Industrial Plants Based on Independent Components Analysis”, UTSA-ABES student conference, 2011, San Antonio, TX, USA.
- Y Ganjdanesh, A Hendookolaei, **Y.S. Manjili**, S Khaleghy, “*Neural controllers applied in drum type boilers*”, Proceedings of the 12th WSEAS international conference on Mathematical methods and computational techniques in electrical engineering (MMACTEE'10), pages 15-18, ISBN: 978-960-474-238-7.
- Y. Ganjdanesh, **Y. S. Manjili**, M. Vafaei, E. Zamanizadeh, and E. Jahanshahi “*Fuzzy Fault Detection and Diagnosis under Severely Noisy Conditions using Feature-based Approaches*”, American Control Conference (ACC), 2008, Seattle, WA, USA, DOI: 10.1109/ACC.2008.4587004.
- E. Jahanshahi, K. Salahshoor, and **Y. Sahraie** “*Application of fuzzy observer and controller in gas-lifted oil wells*”, IEEE International Conference on Networking, Sensing and Control (ICNSC), 2008, Hainan, China, DOI: 10.1109/ICNSC.2008.4525191.
- E. Zamanizadeh, K. Salahshoor, M. Shahbazian, and **Y. S. Manjili**, “*Predictive Monitoring of Abnormal Situation in Nonlinear Systems*”, Proceedings to the American Control Conference (ACC), 2008, Seattle, WA, USA.
- E. Zamanizadeh, K. Salahshoor, and **Y. S. Manjili**, “*Prediction of Abnormal Condition in Nonlinear Systems Using EKF*”, IEEE International Conference on Networking, Sensing and Control (ICNSC), 2008, Hainan, China.

Services

- Journal Reviewer: Autosoft Journal, Intelligent Automation and Soft Computing (IASC), 2014
- Conference Co-General Chair: UTSA-ABES Student Conference, 2013.
- Conference Reviewer: World Automation Congress (WAC), 2012.
- Conference Reviewer: International Federation of Automatic Control (IFAC), 15th Symposium on Systems Identification (SYSID), 2009.

References:

- Reference #1:
 - Name: Mo Jamshidi
 - Title: PhD, Lutcher Brown Endowed Chair Professor
 - Company: Autonomous Control Engineering (ACE) Lab – UTSA, San Antonio, TX
 - Phone: (210) 849-6992
 - E-mail: moj@wacong.org
 - Relationship: ACE Lab Director and PhD Advisor
- Reference #2:
 - Name: Les Shephard
 - Title: PhD, Director of the TSERI
 - Company: Texas Sustainable Energy Research Institute (TSERI), San Antonio, TX
 - Phone: (210) 458-6245
 - E-mail: les.shephard@utsa.edu
 - Relationship: Institute Director and Project Supervisor
- Reference #3:
 - Name: Valerie Von Schramm
 - Title: PhD, Strategic Research and Innovation Manager
 - Company: CPS Energy, San Antonio, Texas
 - E-mail: VVvonSchramm@cpsenergy.com
 - Relationship: CPS Energy Representative for Supervision of Solar Forecasting Project