

MEHDI GANJI

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SUMMARY

Internationally published technical author, analytical thinker, and problem solver with 17+ years of global work experience in Smart City Solutions; Information Communication Technologies (ICT) infrastructure integration into community physical infrastructures (Energy, Water, Waste, Transportation, and Health); different types of microgrids (Community, Campus, and Building) with renewables as an environmentally friendly, economic, resilient, and reliable energy supply; alternative fuel transportation systems (hydrogen, fuel Cell, V1G, V2G); district energy (electricity and thermal); building multidisciplinary teams with the capability to perform complex projects leveraging existing resources and hiring new talent; building innovation ecosystems to provide an environment for stakeholders whose voices need to be heard (residents, local jurisdictions, utilities, R&D, industry); developing new policies and standards supporting innovative solutions; establishing business models for innovative solutions that leverage public findings resulting in private investment and P3 model development.

EXPERIENCE

Willdan Group, Anaheim, CA
Vice President, Smart City

2015-Present

New Business Development

- Built a new business line, *Smart City*, using the standards and milestones developed at the IEEE *Smart City* and experience achieved through collaboration with national universities and research projects. The *Smart City* initiative demonstrates the successful integration of the Information Communication Technologies (ICT) infrastructure into community physical infrastructures (Energy, Water, Waste, Transportation, and Health).

Creation of Innovative Solutions

- Built the *Smart City Innovation Ecosystem* to address the *Smart City Development Pipeline Requirements* (solutions development, solution performance validation, and market adoption facilitation).
- Collaborated with leading and internationally known R&D organizations and universities nationwide, including IIT (Energy & Waste), UCI (Energy), CSU Fresno (Water), CSUSD (Cyber Security), and MSU (Transportation) to seamlessly apply, develop, and prove their innovative solutions before large-scale deployment.
- Worked on DOE-funded campus microgrid project at IIT and its expansion to the community microgrid leveraging renewables and fossil fuel energy resources (Bronzeville Microgrid).
- Worked on more than 20 community microgrid developments that were anchored around different sites including mixed-use environment, transportation transit hub, university campus, Red Cross recognized shelter, emergency responder district, and Indian Tribe reservations.
- Facilitated the market adoption of innovative solutions developed at R&D institutions through establishing the supporting policies, standards, and guidelines.
- Served on the company technical committee working with a team of attorneys to acquire new companies (Integral Analytics and Weidt Group), not only to guarantee company growth in the *Smart City* market, but also to enable organic company growth.
- Collaborated with the legal team to develop solutions using existing solutions and technologies with protected IP.

Stakeholder Engagement/Partnership Establishment

- Led a team of more than 30 Willdan multidisciplinary employees including engineering, urban planning, financial, and law and shared the *Smart City* vision, enthusiasm, goals, objectives, and approaches to motivate the team members.
- Established the required partnership with industries to develop, design, and implement *Smart City* projects.
- Advocated research-supported results developed by universities at the federal and state levels, utilities, regulatory and local jurisdictions, and working groups, and guidelines and standards development initiatives.
- Initiated new opportunities through constructive discussion with management, investors, and partners.
- Interacted with local jurisdictions through peer-peer engagement (such as Culver City, City of Chicago) and group engagement (Local Government Commission, California League of Cities, Statewide Energy Efficiency Coalition).

Regulatory Agency Integration

- Collaborated with federal R&D agencies (DOE and USTDA) and state R&D agencies (California Energy Commission-CEC, NY State Energy Research and Development Agency-NYSERDA, Massachusetts Clean Energy Center-Mass CEC) to facilitate the market adoption of innovative solutions through partnerships with R&D centers and industries, creation of an innovative solutions commercialization roadmap, and development of standards as part of technical working group engagement.

Funding Source Acquisition

- Identified mechanism to finance innovative solution, *Smart City*, that included three major steps: (1) educate the local governments about the *Smart City* solutions and build trust with local jurisdictions to support the *Smart City* solutions leading to the development of a *Smart City Innovation Ecosystem* process/pipeline; (2) leverage public funding to implement *Smart City* pilot projects; and (3) apply for publicly funded proven solutions to industry-level projects that are attractive to private investment and PPP.
- To date, raised more than **\$20M** in public funding and **\$21M** in private investment.

Illinois Institute of Technology, Galvin Center for Electricity Innovation, Chicago, IL
Director of Operations

2010-Present

Creation of Innovative Solutions

- Initiated campus microgrid system leading to one-time \$7M and annual \$1M savings through planning and operation of interdependent campus infrastructures (Energy, Heat, Water, Transportation, and Waste).
- Oversaw the development and supervision of the Galvin Center's 25-member multidisciplinary team of researchers, graduate students, and international visiting scholars from across the world.
- Managed the Center for Smart Grid Applications, Research, and Technology (CSMART) to test and evaluate emerging technology (energy, water, transportation) performance and worked with technology developers, investors, and early adopters, such as local jurisdictions (City of Chicago) and utilities (Commonwealth Edison-ComEd), to facilitate large-scale deployment.
- Developed innovative solutions (technologies, algorithms, and turn-key) and supported industry development/improvement of innovative solutions/technologies.

Stakeholder Engagement/Partnership Establishment

- Collaborated with IIT attorneys to facilitate the commercialization of innovative and emerging technologies using results generated by the technology performance evaluation process.
- Leveraged the campus talent including researchers and graduate student team to apply developed solutions for clean energy workforce training purposes (9 NY Prize Community Microgrids, 3 MassCEC Community Microgrids, 3 CEC projects).
- Served on the strategy development committee using constructive discussion with other members and leadership to pursue new opportunities.
- Served on emerging technologies legal committee and actively participated in IP-related discussions for center-developed solutions.

San Francisco State University, Industrial Assessment Center, San Francisco, CA

2009-2010

Project Manager

- Collaborate with team of energy engineers to perform energy audits, prepare reports using the analysis.
- Managed the DOE funds to implement projects at the medium size facilities.

EDUCATION

Illinois Institute of Technology, Chicago, IL

2012-2015

PhD in Electrical Engineering; Major in Resilient and Reliable Energy Supply Systems

GPA: 4

- **Campus Microgrid:** developed a campus microgrid system, microgrid Standard Planning and Operation Platform, microgrid in the residential sector using smart home, microgrid in the commercial sector using Demand-Side Management System, V1G and V2G including an employee engagement program
- **Smart Home Operation Dashboard:** developed a real-time platform to provide visibility and controllability to home residents considering their daily schedules, real-time pricing scheme, and Distributed Energy Resources (DERs)
- **IIT Commercial Building Microgrid:** developed a solution system using different technologies including EATON direct load control panel and Zigbee communication

Illinois Institute of Technology, Chicago, IL

2010-2012

MSC in Electrical Engineering; Major in Energy Market Reliability

GPA: 3.85

- **Security-Constrained Unit Commitment Reserve Determination in Joint Energy and Ancillary Services Auction:** developed a methodology to enable the Independent System Operators (ISO) to determine the sufficient amount of reserve necessary to maintain the security and reliability of the system

San Francisco State University, San Francisco, CA

2009-2010

MSC in Electrical Engineering; Major in Embedded Systems (Transferred)

GPA: 4

TECHNICAL WORKING GROUPS

- Technical Advisory Committee Member for the Development of Comprehensive Standard Specifications for Microgrid Controllers (IEEE 2030.7) **2015-Present**
- Technical Advisory Committee Member for the Development of Testing of Microgrid Controllers (IEEE 2030.8) **2015-Present**
- Technical Advisory Committee Member for the Development of Distributed Energy Resources Interconnection Standards (IEEE 1547) **2015-Present**
- State of California Renewables-based Microgrid System Commercialization Roadmap Technical Advisory Committee **2017-Present**
- Committee Chair for IEEE Smart City Local Jurisdiction (Cities, Utilities, ISO) Outreach **2016-Present**
- Committee Chair for IEEE Smart City R&D **2018-Present**

PUBLICATIONS

- M. Ganji**, “Security-Constrained Unit Commitment Reserve Determination in Joint Energy and Ancillary Services Auction,” 2012.
- M. Ganji**, “Optimal Load Scheduling in Commercial and Residential Microgrid,” 2015.
- P. Burgess, M. Shahidehpour, **M. Ganji**, D. Connors, “Remote Power Units for Off-Grid Lighting and Urban Resilience,” *IEEE Electrification Magazine*, vol. 30, no. 4, pp. 16-26, May 2017.
- M. Ganji**, “Smart Grids: Advanced Technologies and Solutions,” 2nd Edition, Taylor and Francis, November 2017.
- M Shahidehpour, Z Li, **M. Ganji**, “Smart Cities for a Sustainable Urbanization: Illuminating the Need for Establishing Smart Urban Infrastructures,” *IEEE Electrification Magazine*, 2018.
- M Shahidehpour, **M. Ganji**, “The Growing Impact of Smart Cities,” *IEEE Electrification Magazine*, 2018.
- M Ganji**, M Shahidehpour, “Development of a Residential Microgrid Using Home Energy Management Systems,” *Application of Smart Grid Technologies*, Elsevier, 2018.
- M. Ganji**, Mohammad Shahidehpour, “Development of a Residential Microgrid Using Home Energy Management Systems,” *Application of Smart Grid Technologies*, Academic Press, pp.173-192, ISBN 9780128031285, 2018.