

Resume
Dr. Erfan Ibrahim

Education and Training

Syracuse University	Physics	1983
University of Texas, Austin	Mechanical Engineering	1984
University of California, Berkeley	Nuclear Engineering	1987

Professional Experience

	Professional/Academic Position Title	Brief Description
December 2019 – Present	Founder & CEO, The Bit Bazaar LLC (TBB)	<p>Waste Management: Providing pre-sales support to design, propose and fund waste to energy plant projects globally leveraging pyrolysis technology. Offering full plant lifecycle technical and management support services to waste to energy facilities with particular emphasis on pyrolysis. Serving as an authorized global distributor of pyrolysis technology from Global Green International Investments Pte. Ltd of Singapore since October 2021.</p>
March 2018 - Present		<p>Networking & Cybersecurity: Offering networking, cybersecurity and resilience expertise to utilities, government agencies, product vendors, academia, and integrators. Offering a complete life cycle methodology for protecting digital technologies to clients including cyber governance assessments with Cybernance CMOM software, vulnerability assessments, cyber penetration testing, network and cybersecurity technology implementations, failure scenario development and mitigation, threat hunting with Python and cybersecurity awareness training. TBB retains subject matter experts in networking and cybersecurity with top US security clearances to perform consulting services onsite and remotely.</p>
March 2015 – February 2018	Center Director, Cyber-Physical Systems Security & Resilience, Energy Systems Integration Directorate, National Renewable Energy Lab, Golden CO	<p>Led the research program in cybersecurity and resilience within the Energy Systems Integration Directorate at NREL. Supporting public and private sector R&D needs in securing energy infrastructure. Oversaw the cyber governance assessments of 20 utilities across the US including cooperatives, municipals and investor owned utilities. Led the Smart Grid Educational Series monthly webinars and seminars from NREL on topics relating to Smart Grid, Clean Tech and Energy Efficiency from a technology, business process and policy perspective. Public speaking on topics related to cybersecurity, resilience and Smart Grid at professional conferences, workshops and panel discussions.</p>

	Professional/Academic Position Title	Brief Description
August 2013 – August 2014	Chief Scientist, GridSTAR Project, Penn State University, Philadelphia, PA	Led the R&D effort for this DoE funded project in its final year of public funding at the Philadelphia Navy Yard. Addressed the cybersecurity requirements for a micro grid including a smart home, storage, electric vehicles and rooftop solar panels. Convened a 25-member industry advisory board to identify cybersecurity and requirements for micro grids and developing an R&D plan to address those needs.
August 2012 – August 2013	Energy Sector Lead, Scitor Corporation, Sunnyvale CA	Led the R&D effort at Scitor in the energy sector. Helped bring together cutting-edge cybersecurity technologies into the Scitor CIP Lab in Reston VA to demonstrate the “defense in depth” concept and security interoperability for securing energy infrastructure.
March 2008 – November 2011	Technical Executive, Intelligrid Program, Electric Power Research Institute, Palo Alto, CA	Managed the cybersecurity and smart meter R&D programs within the Intelligrid Program. Worked with EPRI member utilities to identify high priority research topics in cybersecurity and customer premises integration into the grid. Provided technical oversight to the R&D projects in both programs and prepared annual reports on research results. Led the consensus building exercise in the NIST Smart Grid Interoperability Roadmap Project in 2009 with the industry. Convened the first two workshops for Smart Grid for NIST in Washington DC that was the basis of the NIST Domain Expert Working Groups and the Priority Action Plans during the publicly funded 2009 – 2013 phase of Smart Grid Interoperability Panel (SGIP). Led the National Electric Sector Cybersecurity Organization Resources (NESCOR) Project for DoE during 2010 – 2011. Organized the three working groups within NESCOR to address vulnerabilities and failure scenarios for the electric sector, evaluating standards for cybersecurity specifications, and developing test plans for cybersecurity compliance with standards. NESCOR had 17 industry partners including NREL, INL and SNL.

Publications

1. NIST Interoperability Roadmap Project Phase 1 Report, September 2009
2. California Energy Commission 2020 Roadmap for Smart Grid, July 2011
3. NESCOR 1st Year Annual Report, July 2011

Synergistic Activities

1. DoE funded Distributed Crypto Module Project
2. Managed 7 cyber governance assessments of small and medium size cooperative and municipal utilities using Cyberance CMOM software for DoE EPSA to support QER 2nd Edition cybersecurity section
3. Secure, Scalable & Interoperable Distribution Grid Management, NREL LDRD Project 2015
4. GridSTAR Micro Grid Study
5. DoE funded NESCOR Project
6. EPRI Intelligrid Program Cybersecurity R&D project reports (2009 – 2011)