SINA ABOUTORABI

Email: sina.aboutorabi@sjsu.edu Cell: (661) 212-2468

Professional Summary

Experienced electrical engineer, communications engineer, and astronautical engineer with a demonstrated 19-year history of working, teaching, and learning in the interdisciplinary areas of electrical engineering and aerospace engineering. Skilled in astronautics, spacecraft systems, rocket propulsion, spacecraft and satellite communications, deep space communications coding, digital communications, wireless and mobile communications, RF systems, and antenna engineering. Mentored and educated 800+ lower- and upper-level undergraduate electrical engineering, mechanical/aerospace engineering, and engineering technology students over eight years.

EDUCATION

Engineer's Degree (terminal advanced graduate degree): Astronautical Engineering – with emphasis on Deep Space Communications Coding and Satellite Communications, **USC** School of Engineering – Los Angeles, CA 2018
Doctoral Supervisor: Late Professor Solomon Golomb
Dr. Golomb was a world-renowned mathematician and engineer recognized for his pioneering contributions to coding theory, cryptography, and shift register sequences, which have had a profound impact on modern communications and space technology.

Master of Science: Electrical Engineering – Communication Systems, Majored in **Wireless & Digital Communications**, Minored in Applied Mathematics, **USC** Viterbi School of Engineering – Los Angeles, CA 2018

Master of Science: Astronautical Engineering - with an emphasis on **Space and Spacecraft Systems**, **USC** Viterbi School of Engineering – Los Angeles, CA 2015

Bachelor of Science: Electrical Engineering – Electronics, Qazvin Azad University 2008

PROFESSIONAL EXPERIENCE

Part-Time Faculty 8/2022 to Present
San Jose State University, SJSU Department of Electrical Engineering and SJSU Department of Aviation and Technology – San Jose, CA

- Lecturing courses in Circuit Analysis (EE98), Wireless Communication Technologies (Tech165), Introduction to Electronics (Tech60), and Analog and Digital Circuits (Tech63).
- Accomplishment: Assisted the SJSU Department of Aviation and Technology in bringing approximately $450,000 worth of wireless equipment donated by the LitePoint Corporation. These state-of-the-art instruments are units of vector signal generators (VSG) and vector signal analyzers (VSA). We currently utilize twelve of these donated apparatus in my wireless communications lab.

Part-Time Lecturer 1/2025 to 3/2025
Santa Clara University, SCU Department of Mechanical Engineering – Santa Clara, CA

- Lecturing two sections of an upper-division undergraduate course in Introduction to Aerospace Engineering (MECH145)

AIAA San Francisco Section Vice Chair and Council Member 1/2022 to Present
American Institute of Aeronautics and Astronautics (AIAA) – San Francisco, CA

Part-Time Lecturer/Teaching Faculty 9/2018 to 5/2019
California State University, Northridge, CSUN Department of Electrical and Computer Engineering – Northridge, CA

- Lectured several undergraduate and graduate-level electrical and astronautical engineering courses, including ECE350 (Linear Systems), ME370 (Engineering Thermodynamics), & AE572 (Rocket Propulsion)
- Supervised students' term projects, monitored their progress, and utilized innovative instruction methods, including video, interactive class activities, and discussions to present course material.

Chief Technology Officer and Vehicular Communications System Architect 9/2018 to 5/2019
Fare Share, Inc. (Jasper) – Los Angeles, CA

- Designed a backbone V2V/V2I COMM system for platooning semi-autonomous vehicles.
- Analyzed and modeled multipath components of a rapidly time-varying MIMO fading channel.
- Performed qualitative and quantitative analysis of semi-autonomous vehicle platooning.
- Conducted research and drafted memos, reports, and summaries on mobile, vehicular, and millimeter-wave communications and dedicated short-range communications (DSRC).

Graduate Research Assistant 9/2017 to 5/2018
Wireless Devices and Systems Group, USC Communication Sciences Institute, Paul Allen Wireless Test Facility – Los Angeles, CA

- Researched extensively in mm-Wave MIMO vehicle-to-vehicle and vehicle-to-infrastructure communications.
- Reviewed METRANS and Vienna project materials in mobile and vehicular communications.
- Started implementing the initial phase of the NIST project: LabVIEW programming, configuring the NI-USRP channel sounder, FPGA and baseband processor, vehicle-to-vehicle (V2V) propagation channel estimation, and modeling.
- Prepared materials for weekly reports and presentations.

Graduate Research Assistant 6/2014 to 8/2017
USC Communication Sciences Institute – Los Angeles, CA

- Performed research in deep space communications coding, radar signal design, such as construction of Costas arrays, digital space communications, algebraic coding theory (specifically finite field theory and number theory), and satellite communications.
- Prepared materials for reports, presentations, and submission to peer-reviewed conferences and journal publications. Analyzed acquired information and presented it to the supervising professor.

Graduate Teaching Assistant and Physics Lab Instructor 1/2013 to 5/2014
University of Southern California – Los Angeles, CA

- Physics 151 Lab (Mechanics and Thermodynamics) – Spring 2013 & Spring 2014
- Physics 152 Lab (Electricity and Magnetism) – Fall 2013
- Instructed, managed, and trained science and engineering students to complete their weekly assigned lab experiments.

RF Engineer, Control and Systems Engineer 6/2012 to 8/2013
USC Information Sciences Institute, Space Engineering Research Center (SERC) – Marina del Rey, CA

- Nano-Sat Build and Launch: Ground Station Testing and Data Reception for the Aeneas CubeSat; tracked the Nanosat with the Satellite Tool Kit (STK) software
- Lunar Lander Exploration System Development: LEAPFROG Guidance, Navigation, and Control (GNC & IMU)

Executive Director (President) and Member of the Board of Directors 1/2010 to 8/2011
Arsham Barsam Electric Company – Qazvin

- Installation, maintenance, and configuration of wireless modems, routers, and delivery of ADSL service provided by the telecommunications company.
- As a contractor company, partnered successfully with the telecommunications industry and regional power electric-producing companies.
- Maintained project quality with a hands-on management style. Developed and rolled out new policies.
- Trained, coached, and mentored staff to ensure smooth adoption of a new program.

Board Member, Research Unit Director, Inventor, and Elite Member 9/2007 to 8/2011
Qazvin Association of Elites, Inventors, and Entrepreneurs (A nonprofit and non-governmental organization which is very similar to any think-tank association or Mensa International organizations) – Qazvin

- Implemented marketing strategies that produced industrial patents and inventions.
- Participated in numerous scientific competitions, tech exhibitions, and innovation showcases. Disseminated the invention and innovation culture and demonstrated its role in sustainable development.
- Analyzed invention and innovation documents for patent filing.

Telecommunications Specialist and Optical Fiber Communications Engineer 11/2008 to 4/2010
Qazvin Telecommunication Company (QTC), Technical Support Department of Metropolitan Communications, Qazvin Telecommunication Company – Qazvin

- Installation, maintenance, supervision, and technical support of the following units:
    - PSTN/ISDN Access Network: Optical Fiber Communications and Optical Network Units (SONET, SDH, and PDH)
    - Reception and Transmission Terminals: Microwave and Radio Systems
    - WLL (CDMA, TDMA, UMTS, PHS, GSM, and WiMAX)
    - Mobile Switching Centers, Cellular and Fixed Telephone Networks

- Monitored network performance and provided network performance statistical reports for both real-time and historical measurements. Recommended architectural improvements and integration solutions.

RECOGNITION AWARDS AND ACHIEVEMENTS

- **National Award Recipient** and **Laureate** of the "**3rd Khwarizmi Youth Festival**" among more than 30,000 students, Math Section of the Festival, International Conference Center, Tehran, Dec 2000 (Submitted math paper was titled "Sub-Sequence Progressions with Variable Common Ratio." Later, this paper was developed into Infinitely Countable Generated Sequences with Progressive Common Ratio.)
- **Association of Professors and Scholars (APSIH) Award** for the Recognition of Achievement in Graduate-Level Education, Los Angeles, UCLA, U.S., May 2019
- **The Engraved Trophy from the Qazvin Association of Elites, Inventors, and Entrepreneurs (QAEIE)** was awarded to honor my academic and research achievements and leadership and managerial contributions. Qazvin, June 2011.

PATENTS

- Full Transistor High Power Wide Band FM Transmitter with Adjustable Output Power and Frequency Tunings
- 9-Volt Low Power Narrow Band FM Transmitter

PROGRAMMING LANGUAGE AND SOFTWARE SKILLS

- **MATLAB:** M-file Programming, SIMULINK, DSP System, Signal Processing, Communications System, RF, Phased Array System & Antenna Toolboxes
- **PROGRAMMING & CODING LANGUAGES:** Python
- **Statically and Dynamically Typed Languages:** C/C++, LABVIEW Programming
- **Electrical Simulation Software:** HSPICE, ORCAD, PROTEUS, PROTEL, NI Multisim, VHDL, Verilog, CMOS VLSI Design, Electrical CAD (ECAD) and Mechanical CAD (MCAD), FPGA, and PCB layouts (EDA)

PROFESSIONAL AFFILIATIONS

- American Institute of Aeronautics and Astronautics (**AIAA**), Senior Member and Vice Chair of the San Francisco Section, as well as serving on the reviewing panel of judges for several AIAA Student Conferences and AIAA Scholarships and Graduate Awards 2011 – present
- American Astronautical Society (**AAS**), Senior Member 2022 – present
- California Faculty Association (**CFA**), Active Member 2019 – present
- University of Southern California (**USC**) Alumni Association, Alumnus Member 2018 – present
- Association of Professors and Scholars (**APSIH**), Member 2016 – present
- Institute of Electrical and Electronics Engineers (**IEEE**), Member 2013 – present
- American Mathematical Society (**AMS**), Member 2005 – present
- Mathematical Association of America (**MAA**), Member 2011 – present

CERTIFICATIONS

1. Fundamentals of Astronautics (AST101), a hands-on suborbital spaceflight training program completed at the International Institute for Astronautical Sciences
2. Endorsement Certificate for Private Pilot Ground School, **3.** Huawei Access Network, **4.** Huawei C&C08 Engineering
5. Principles of Telecommunications Switching (Transmission Systems), **6.** Programmable Logic Controller (PLC)