Hen-Geul (Henry) Yeh, Ph.D., P.E. **Short Curriculum Vitae**
Professor, EE Department, California State U., Long Beach (CSULB), henry.yeh@csulb.edu

A. Academic Preparation

Institution	Dates	Degree	Major
University of California, Irvine	1982	Ph.D.	Electrical Engineering
University of California, Irvine	1979	M.S.	Mechanical Engineering
Cheng Kung Univ., Taiwan, ROC	1978	B.S.	Engineering Science

B. Appointments

- Visiting Professor, California Institute Technology, 1/2011 – 8/2011, worked on the adaptive control of the power flow for distribution circuits with renewables.
- Visiting Professor at California Institute Technology, EE Department, 1/2004 – 6/2004, worked on wireless communication systems.
- Visiting Professor at University of California, Los Angeles, EE Department, 2004
- Visiting Professor, Electronics Department, Telecom Paris University, France, 1988-1989
- Professor and Director of Multi-disciplinary Neural Networks and Digital Signal Processing (DSP) Laboratory, CSULB, 1986 - present, Responsible for developing both undergraduate and graduate DSP/Communications courses, such as Introduction to DSP, Digital Communication, Digital Filter Design.
- Associate Professor, 1983 – 1986, Professor, EE Department, CSULB, 1986 – present. Assignments include teaching and research in the areas of smart grid, adaptive controls, digital signal processor architectures, wireless and mobile communication systems (Total research and teaching projects: $7M since 1986).

C. Synergistic and Invited Speaker Activities

- Guest Editor, IEEE Systems Journal, Special Issue: Systems Engineering Innovations for Green Technology and Transportation, 7/2025 - present
- Associate Editor, INCOSE, Systems Engineering Journal, 12/2023 - present
- Associate Editor, IEEE Trans. Circuits and Systems II, Express Briefs, 2/2016 – 12/2019.
- Associate Editor, IEEE Systems Journal, 6/2018 – 5/2021
- Founder, IEEE Green Energy and Smart Systems Conference (IGESSC), 2010 – present
- Organizer and General Conference Chair, IGESSC, 2010 – 2022
- Founder and Chair, IEEE Systems Council Chapter, Coastal Los Angeles Section (2009 – present)
- Invited speaker at National Cheng Kung University, Taiwan, ROC, Topics are:
  - Data-Driven Adaptive Modulation Classification Systems, 6/2025
  - Adaptive Model Selection for Electrical Fault Detection, 6/2025
  - Convolutional Neural Networks for Shark Behavior Study, co-sponsored by IEEE Information Theory Society, Tainan Chapter, 12/2019
  - Conjugate ICI Cancellation Techniques for 2x1 and 4x1 Space Time Transmit Diversity OFDM Systems, co-sponsored by IEEE Information Theory Society, Tainan Chapter, 12/2019
  - From DSP to Machine Learning, July 2019
  - 4x1 Space-Time MIMO-OFDM Parallel Cancellation Schemes for Mitigating ICI, July 2018
  - Transmitter Beam-forming Techniques for Indoor Millimeter wave communication, July 2017
  - A scheme for canceling inter-carrier interference through conjugate transmission for multicarrier communication systems, July 2016
  - Future Trend in 5G and MIMO, Aug. 2015
- Invited speaker at National Tsing Hua University, Taiwan, ROC, Topics are:
  - Two-Path Parallel Cancellation ZP-OTFS Systems for Mitigating Residual Carrier Frequency Offset, 5/2025
  - From DSP to Machine Learning, July 2019
  - Architectures for MIMO-OFDM Systems in Frequency-Selective Mobile Fading Channels, Jan. 2016
- Invited speaker for Workshop at Da-Yeh University, Taiwan, ROC, Topics are:
  - The Fourth Industrial Revolution: The Things We Ought to Know, Taiwan, ROC, Dec. 2019
  - From DSP to Machine Learning, July 2019
  - Workshop: Mobile Communications and Applications, July 2018

- 5G and MIMO Systems, Nov. 2017
- Digital Signal Processing and Applications, Nov. 2017
- Five space-time-OFDM systems in mobile fading channels for multimedia transmission, July 2016

- Invited speaker at USC, Topic: Assistive User Interface for Ergonomic Port Crane Operation Using an Embedded System, Dec. 2012
- Invited speaker at California Institute Technology, May 2011. Topic: Adaptive VAR Control for Distribution Circuits with Photovoltaic Generators
- International Team Member for Reviewing Proposals submitted to Portuguese Science and Technology Foundation, 2007
- Invited speaker at UCLA, May 2004. Topic: New Parallel Algorithm For Mitigating The Frequency Offset of OFDM Systems
- Invited speaker at California Institute Technology, May 2004. Topic: A Conjugate Operation for Mitigating Inter-carrier Interference of OFDM Systems

D. <u>Practical Research and Consulting Experience in Controls/DSP/Communication Systems:</u>

- Spatial Digital Systems, Inc. (2008 – 2016 and 2022 - present), Enhance MIMO performance using active scattering platforms and Wavefront Multiplexing for green communications
- True Point Systems, Inc., 4/2007 – 3/2008, Beam-forming algorithm development for locating objects and implementation using low power control device "ZigBee" for Distributed Inventory Management Systems (DIMS) project
- NASA/JPL Faculty Fellow, Worked on Advanced OFDM project in the Communication Systems and Research Section, Jet Propulsion Laboratory, 2003
- Aerospace Corporation, 1995 to 2003, Worked on architecture and algorithm development for the payload of Satellite Communications
- NASA/JPL, Worked on digital transponder of Cassini spacecraft 1992-1995
- Magnavox, worked on adaptive nuller to reduce interferences in GPS receivers, 1987 –1991
- Momentum Data Systems, worked on Digital filter design and data acquisition systems, 1986 –1988

E. <u>Patents and Patent Applications in Controls/DSP/Communication Systems</u>

- Two-Path Parallel Mitigating Residual Carrier Frequency Offset for OTFS Systems (Patent pending), March 2025
- Controllers for Photovoltaic-Enabled Distributed Grid, US Patent No: 11368024, Jun. 21, 2022
- Real-Time Detection of High Impedance Fault, US Patent No: 11255922, Feb 22, 2022
- Orthogonal frequency division multiplexing multiple–input multiple-output power line communication systems, US Patent Application Publication No. 2021/0058277, Feb. 2021
- Method and Apparatus for Canceling Intercarrier Interference Through Conjugate Transmission for Multicarrier Communication Systems, US Patent No: 7,616,557, Nov. 10, 2009.
- Parallel Orthogonal Frequency Division Multiplexed Communication System, US Patent No. 7289425, Oct. 30, 2007.
- Parked Vehicle Location Finder, US Patent No. 6529142, March 2003.
- Smart Object Locator, US Patent Application Publication No. 0141973 A1, July 2003
- Systolic VLSI Array for Implementing the Kalman filter algorithm, NASA, Case No. P-17108, U.S. Patent No. 4823299, April 1989.

F. <u>Honors/Awards</u>

- Best Paper Award, IEEE Int. Systems Conference: *Adaptive Model Selection for Electrical Fault Detection using Reinforcement Learning*, April 2025
- **2023 Class of Senior members of National Academy of Inventors (NAI):** in recognition of Dr. Yeh's achievements and contributions in the innovation of ecosystem.
- Best Paper Award, Special Session: Aerospace Systems Engineering, IEEE Int. Systems Conference 2019: *Multi Base Stations to Multi Mobile Units: Green Communication Systems via A Wavefront Multiplexing Technique.* The revised paper published in INCOSE Systems Engineering, 28(1), 1/2025.
- Best Chapter Award, Systems Council Coastal Los Angeles Section (CLAS) Chapter, 2023, IEEE Systems Council.

- Best Paper Awards of IEEE Green Energy and Smart Systems Conference 2019: "*Achievable Capacity of Multi-Polarization MIMO toward 6G Wireless Communications*," This revised paper "Achievable Capacity of Multi-Polarization MIMO with the Practical Polarization-agile Antennas," published in *IEEE Systems J*, vol. 15, no. 2, pp. 3081-3092, June 2021
- IEEE Region 6 Outstanding Engineering Educator Award for Outstanding Contribution to the Education of Electrical Engineers in in the Areas of Digital Signal Processing, Green Energy, and Smart Systems, 2019
- IEEE Region 6 Outstanding Large Student Branch Award for Recruiting and Inspiration the Newest Generation of EE Students Through Exciting Technical Programs, 2018
- CSULB President's Award for Outstanding Faculty Achievement, 2018
- Outstanding Alumni Award for contribution to DSP/Communications, Green Energy and Smart Systems, Engineering Science Department, National Cheng Kung Univ., Taiwan, ROC, 2017
- Outstanding Professor Award, CSULB, 2015
- Selected Visiting Faculty, Lawrence Berkeley National Laboratory, 2014
- Selected twice the Air Force Summer Faculty Fellow, 2011 and 2012
- Distinguished Faculty Scholarly and Creative Achievement Award**,** CSULB, 2009
- Northrop Grumman Excellence in teaching award, CSULB, 2007
- Boeing Welliver Faculty Fellow, Summer 2006
- Twice NASA/JPL Faculty Fellow, Summer 1992 and 2003
- Augmented Performance Recognition for outstanding performance on civil and commercial projects, The Aerospace Corp., Dec. 2002
- The Aerospace Corporation Inventor's Award for the invention entitled "Parallel Orthogonal Frequency Division Multiplexed Communication System," 2002.
- NASA Tech Brief Award for the creative development of a technical innovation entitled "Adaptive Line Enhancers for Fast Acquisition", NPO-19553, June 1996
- NASA Tech Brief Award for the creative development of a technical innovation entitled "Digital Base-band Architecture for Transponders", NPO-19330, May 1995
- Outstanding Advisor Award of the Best Ph.D. Dissertation, CSULB, May 1995
- NASA Tech Brief Award for the creative development of a technical innovation entitled "Advanced Transponders for Deep Space Applications", NPO-19189, Oct. 1994
- NASA Tech Brief Award for the paper entitled "Two-dimensional systolic array for Kalman filter computing," NPO-17108, Nov. 1987
- NASA New Technology Award for the disclosure of an inventive contribution entitled "Systolic VLSI Array for implementing the Kalman filter algorithm", Case No. P-17108, Aug. 1987

G. <u>Research Areas:</u> Machine Learning/Neural Networks/DSP, Interference Cancellation, Space-Time Coding, Orthogonal Frequency Division Multiplexing (OFDM) Systems, IEEE802.11 (Wi-Fi), Digital Transceiver for 4G/5G Communications, Power Line Communications, Adaptive VAR Controls, Smart Grid, Zero Emission Vehicles