Jose Tellado

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SUMMARY

- Signal Processing and Digital Communications expert: Architected, designed and optimized, pre/post tapeout, numerous complex and high-throughput physical layers in both wireless and wired technologies using OFDM/DMT, QAM/PAM and MIMO.
- Team leader: built and led PHY/Systems teams to design, develop and map into hardware as well as troubleshoot algorithms within digital, analog, cost metrics and schedule constraints.
- Author of intellectual property with over 60 issued and filed patents.
- Key contributor to IEEE standardization efforts in 802.16 (WiMAX) and 802.3an (10GBase-T).

EDUCATION

Stanford University

Ph.D. in Electrical Engineering   1994 – 1999
   Dissertation Topic: Peak to Average Power Reduction for Multicarrier Modulation
   Advisor: Prof. John M. Cioffi

M.S. in Electrical Engineering   1993 – 1994
   Emphasis: Signal processing and Digital Communications

University of Santiago de Compostela (Vigo), Spain   1988 – 1992

B.S. in Telecommunication Engineering (top GPA in Spain)

PROFESSIONAL EXPERIENCE

Rasa Networks

VP Technology   2014 – present
- As the 2nd employee of this venture backed start-up, co-lead the transformation to a leading SaaS WiFi analytics company.
- Hired and lead a small team of Wireless and Data Science experts to derive insights from WiFi metadata to improve connectivity, reliability and performance and provide actionable feedback to WiFi network operators.

Headwater Partners

Technology Partner   2012 – 2013
- Headwater Partners is a venture-funded technology incubator.
- Responsible for idea creation and building up of IP portfolio to spin-off new ventures, license and protect licensees.
- Select areas: Mobile-device-assisted smart services, backhaul, content distribution.
- Generated over 20 provisional and non-provisional patent applications.

PLX Technologies

VP Systems Engineering, PHY   2010 – 2011
- PLX Technology is a public semiconductor company that acquired Teranetics. I managed the systems engineering group that supported the development of 28nm 10GBASE-T Ethernet transceiver and of the 40nm channel stacking ASIC developed for DirecTV.
- Responsibilities included analog specification for mixed signal ASIC, DSP algorithm design and development and providing C-based reference model to the digital ASIC team, development of DSP firmware and optimization of chip performance.

Teranetics (acquired by PLX Technologies)

Co-founder,
VP Systems Engineering   2005 – 2010
Director Systems Engineering   2003 – 2005
- Co-founded a venture-funded startup to develop 10GBASE-T PHY.
- Architected 2 generations (130nm and 40nm) of physical layer design of 10Gbps transmission over copper twisted pairs. Technology includes frequency domain processing, full duplex operation, MIMO channel transmission, interference cancellation and LDPC FEC.
- Hired and led DSP team to design, develop and map algorithms into hardware.
- Hired and led DSP firmware team to design, develop and troubleshoot real-time DSP software for controlling custom-built Vector DSP.
- Worked closely with Analog and Digital design architects to develop end-to-end performance modeling of analog specification and a bit-accurate algorithm simulation platform for digital verification.
- Supported the launch of the PHY at Cisco (Switch) and Intel (PCIe 10G Ethernet card).
- Played a key role in defining the IEEE 802.3an 10GBase-T physical-layer specifications. Served as the editor of the PCS and PMA section of the standard.

Intel, Broadband Wireless Access, WiMAX

Modem Architect   2002 – 2003
- Intel acquired the assets and team from Iospan Wireless. I managed the evolution of Iospan's MIMO-OFDMA wireless technology into a standards proposal for IEEE 802.16 (WiMAX).

Gigabit/Iospan Wireless (acquired by Intel)

Director Systems Engineering 1999 – 2002
- Venture-funded startup (Gigabit Wireless, renamed to Iospan Wireless)
- Stanford spin-off by Prof. A. Paulraj, recruited at pre-funding stage.
- Architected and designed a smart antenna wireless system based on MIMO-OFDMA technology for fixed wireless deployment in the MMDS bands.
- Hired and led DSP team to design, develop and map algorithms into hardware.
- Worked closely with RF and Digital design architects to develop end-to-end performance modeling of RF specification and a bit-accurate algorithm simulation platform for digital verification.
- Developed and field-tested the first MIMO-OFDMA Commercial PHY ASIC.
- Worked closely with Sprint and MCI in the development of the physical layer technology.

Consultant (concurrent with PhD)

- **Globalstar (Joint Venture with Qualcomm),** Low Earth Orbit Cellular System 1996 – 1997
- **Apple, Advanced Technology Group,** Wi-Fi 1994 – 1995

Patents

Author of 38 issued patents including:

- US6314146, Jun. 5, 2001, Peak to Average power ratio reduction
- US6424681, Jul. 23, 2002, Peak to Average power ratio reduction
- US6512797, Jan. 28, 2003, Peak to Average power ratio reduction
- US6377636, Apr. 23, 2002, Method and wireless communications system using coordinated transmission and training for interference mitigation
- US 6351499, Feb. 26, 2002, Method and wireless systems using multiple antennas and adaptive control for maximizing a communication parameter
- US 6711412, Mar. 23, 2004, Interference mitigation in wireless communications by training of interfering signals
- US 7227883, Jun. 5, 2007, Method and apparatus for domain transformation multiple signal processing
- US 7333448, Feb. 19, 2008, Full duplex transceiver
- US 7366231, Apr. 29, 2008, Sub-block domain transformation multiple signal processing
- US 7782852, Aug. 24, 2010, Multiple modulation rate 10GBase-T transmission
- US 7860020, Dec. 28, 2010, Master/Slave transceiver power back-off
- US 7362791, Apr. 22, 2008, Method and apparatus for domain transformation multiple signal processing
- US 9118469, Aug. 25, 2015, Reducing electromagnetic interference in a received signal
- US 7646699, Jan. 12, 2010, Transceiver power backoff

Author of 85 non-provisional patent applications including:

- US20030012308, Jan. 16, 2003, Adaptive channel estimation for wireless systems
- US20040198276, Oct. 7, 2004, Multiple channel wireless receiver
- US20040052228, Mar. 18, 2004, Method and system of frequency and time synchronization of a transceiver to signals received by the transceiver
- US 20050289204, Dec. 29, 2005, Parallel feedback processing
- US20070211794, Sep. 13, 2007, Transceiver non-linearity cancellation
- US20140105136, Apr. 17, 2014, Enhanced relay node with additional backhaul alternative and selection
- US20140105135, Apr. 17, 2014, Backhaul assisted by user equipment
- US20120140797, Jun. 7, 2012, Adjustable latency Transceiver Processing

Standards Contributions

Author of multiple standard contributions in the areas of xDSL, WiMAX, and Ethernet with organizations including ANSI (T1E1.4), ETSI, ITU and IEEE (802.16 and 802.3), including:

- J. Tellado and J. M. Cioffi. PAR reduction in multicarrier transmission systems. ANSI document T1E1.4/97-367, Sacramento, CA, Dec. 1997
- J. Tellado and J. M. Cioffi. PAR reduction with minimal or zero bandwidth loss. ANSI document TAE1.4/98-173, Huntsville, AL, Jun. 1998
- J. Tellado and J. M. Cioffi. Further results on peak-to-average ratio reduction. ANSI document T1E1.4/98-252, San Antonio, TX, Aug. 1998
- J. Tellado and J. M. Cioffi. Further results on peak-to-average ratio reduction. ETSI TM6, Vienna Austria, Sep. 1998

Publications

Author of many IEEE publications including:

- J. Tellado and J. M. Cioffi. Peak power reduction for multicarrier transmission. In Communications Theory Mini-Conference, Globecom '98, Sydney, Australia, Nov. 1998
- L. M. C. Hoo, J. Tellado, J. M. Cioffi, Dual QoS loading algorithms for DMT systems offering CBR and VBR services. Globecom'98. IEEE Globecom, Sydney, Australia, Nov. 1998
- J. Tellado, L. M. C. Hoo, J. M. Cioffi. Maximum-likelihood detection of nonlinearly distorted multicarrier symbols by iterative decoding, IEEE Transactions on Communications, Vol. 51, Issue 2, Feb. 2003
- L. M. C. Hoo, J. Tellado, J. M. Cioffi. Multiuser loading algorithms for multicarrier systems with embedded constellations. ICC 2000, New Orleans, LA. Jun. 2000
- H Sampath, S. Talwar, J. Tellado, V. Erceg, Fourth-generation MIMO-OFDM broadband wireless system: design, performance, and field trials results. IEEE Communications Society, Sep. 2002

Author of the book:
- "Multicarrier Modulation with Low PAR: Applications to DSL and Wireless" published by Kluwer Academic Press, 2000