

MATTHEW C. VALENTI

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I. PROFESSIONAL BACKGROUND

A. EDUCATION

Virginia Tech

Ph.D., Electrical Engineering, August 1999
B.S., Electrical Engineering, May 1992

Johns Hopkins University

M.S., Electrical Engineering, May 1995

B. EMPLOYMENT AND APPOINTMENTS

West Virginia University, *Lane Department of Computer Science and Electrical Engineering*

Raymond J. Lane Department Chair, July 1, 2020 to present

Interim Chair, July 1, 2019 to June 30, 2020

Professor, 2010 to present

Associate Professor, 2005 to 2010

Assistant Professor, August 1999 to 2005

Center for Identification Technology Research (CITeR), *an NSF I/UCRC*

Director, WVU Site, Aug. 2014 to present.

Virginia Tech, *Bradley Department of Electrical and Computer Engineering*

Bradley Fellow, Graduate Research Assistant, and Instructor, Aug. 1995-July 1999

U.S. Naval Research Laboratory, *Naval Center for Space Technology*

Electronics Engineer, Summer 1991, May 1992-August 1995

C. HONORS AND AWARDS

IEEE MILCOM Award for Sustained Technical Achievement (2019)

Fellow, Institute of Electrical and Electronics Engineers (IEEE)

Student Member 1992, Member 1999, Senior Member 2007, Fellow 2018

WVU Foundation Outstanding Teaching Award (2013)

Outstanding Teacher (2012, 2009, 2006, 2003, and 2001)

Outstanding Advisor (2012, 2004)

Outstanding Researcher (2008, 2001, and 2000)

West Virginia University, Statler College of Engineering and Mineral Resources

Bradley Fellow, August 1995-May 1998

Virginia Tech, Bradley Department of Electrical Engineering

D. PROFESSIONAL REGISTRATION

Professional Engineer (P.E.)

Registered in the state of West Virginia since 2011

II. TECHNICAL CONSULTING BACKGROUND

A. PATENT LITIGATION SUPPORT AND EXPERT WITNESS EXPERIENCE

1. Kirkland & Ellis for Lenovo
Dates: 2020-2021
Venue: UK High Court
Cases: InterDigital Technology Corporation and others v Lenovo Group Limited and others (Claim No. HP-2019 000032)
Technology: Wireless technology including control signaling for LTE
Activity: Expert Report (Invalidity, non-essentiality), Rebuttal Report
2. Fish & Richardson for LG
Dates: 2019
Venue: United States Patent and Trademark Office
Cases: Petition for *Inter Partes* Review (IPR) of United States Patent No. 7,039,435 (held by Bell Northern Research)
Technology: Wireless technology including power control of wireless transmissions
Activity: Expert Declaration (in support of IPR Petition)
3. Fish & Richardson for Apple
Dates: 2017-2019
Venue: United States District Court; Southern District of California
Cases: Apple Inc. v. Qualcomm Inc., Civil Action No. 3:17-cv-00108
Technology: LTE wireless technology.
Activity: Expert Report (Patent portfolio technical evaluation). Deposition (Oct. 17, 2018). *Testimony before jury was scheduled for April 22, 2019, but case settled after opening arguments.*
4. Quinn Emanuel Urquhart & Sullivan for Samsung
Dates: 2017-2019
Venue: United States District Court; Northern District of California (San Francisco Division)
Cases: Samsung Electronics Co., LTD. et al. (counterclaim-plaintiffs) v. Huawei Technologies Co., LTD., et al. (counterclaim-defendants), Case No. 16-cv-02787-WHO Huawei Technologies Co., LTD vs. Samsung Electronics Co., LTD, Case IPR2017-01974 (US Patent 8,457,588)
Huawei Technologies Co., LTD vs. Samsung Electronics Co., LTD, Case IPR2017-01982 (US Patent 8,228,827)
Technology: LTE wireless technology.
Activity: Declarations (Claim Construction, 2 Patent Owner's Responses to Petition for IPR); Expert Report (Infringement); Rebuttal Report (Validity). Depositions (June 20, 2018, Aug. 10, 2018, Aug. 11, 2018).
5. Baker Botts for AT&T; Gibson, Dunn & Crutcher for T-Mobile
Dates: 2016-2017
Venue: United States District Court; District of Delaware
Cases: (a) Intellectual Ventures I LLC v. AT&T Mobility LLC et al., Civil Action No. 12-CV-193-LPS (D. Del.); Intellectual Ventures I LLC v. AT&T Mobility LLC et al., Civil Action No. 1:15-CV-00799-LPS.
(b) Intellectual Ventures I LLC v. T-Mobile USA Inc. et al. D. Del. Case No. 1:13-cv-1632-LPS.
Technology: HSDPA wireless technology.
Activity: Expert Report; Declaration; Sur-Reply Report. Deposition (Mar. 23, 2017).

6. Rothwell Figg for LG; Paul Hastings for Samsung; Mayer Brown for Motorola Mobility
Dates: 2016
Venue: United States District Court; Southern District of California
Cases: (a) Odyssey Wireless Inc. v. LG Electronics USA, Inc., et al., Civil Action No. 3:15-cv-01746-H-RBB (S.D. Cal.).
(b) Odyssey Wireless Inc. v. Samsung Electronics Co., et al., Civil Action No. 3:15-cv-01738-H-RBB (S.D. Cal.).
(c) Odyssey Wireless Inc. v. Motorola Mobility, Civil Action No. 3:15-cv-01741-H-RBB (S.D. Cal.).
Technology: LTE wireless technology.
Activity: Expert Report (noninfringement). Deposition (Aug. 24, 2016).
7. Sheppard Mullin for Samsung; Gibson Dunn and Wilmer Hale for Intel; Boies Schiller for Apple
Dates: 2016
Case: Various regulatory agencies' investigations of Qualcomm Incorporated ("Qualcomm"), including the Korean Fair Trade Commission (the "KFTC") and the United States Federal Trade Commission (the "FTC").
Technology: LTE wireless technology.
Activity: Declaration (technical analysis of patent portfolio).
8. Boies, Schiller & Flexner for Apple; Sheppard, Mullin, Richter & Hampton for HTC; Kilpatrick Townsend & Stockton for Lenovo and Motorola Mobility; Quinn Emanuel Urquhart & Sullivan for Samsung; McDermott Will & Emery for ZTE; SidleyAustin for Microsoft
Dates: 2016
Venue: United States District Court; District of Delaware
Cases: (a) Evolved Wireless, LCC, v. Apple Inc., Civil Action No. 1:15-cv-00542-SLR.
(b) Evolved Wireless, LCC, v. HTC Corporation and HTC America, Inc., Civil Action No. 1:15-cv-00543-SLR. (c) Evolved Wireless, LCC, v. Lenovo Group Ltd., Lenovo (United States) Inc., and Motorola Mobility, Civil Action No. 1:15-cv-00544-SLR.
(d) Evolved Wireless, LCC v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc., Civil Action No. 1:15-cv-00545-SLR. (e) Evolved Wireless, LCC v. ZTE Corporation, ZTE (USA) Inc., and ZTE Solutions Inc., Civil Action No. 1:15-cv-00546-SLR. (f) Evolved Wireless, LCC v. Microsoft Corporation, Microsoft Mobile OY and Nokia Inc., Civil Action No. 1:15-cv-00547-SLR.
Technology: LTE wireless technology.
Activity: Declaration (claim construction).
9. Williams & Connolly
Dates: 2015
Case: Confidential Parties (Leading Global Wireless Communication Companies)
Consolidated Arbitrations Under the International Chamber of Commerce Rules.
Technology: LTE wireless technology.
Activity: Expert Report (patent portfolio technical evaluation).
10. Kirkland & Ellis for Samsung
Dates: 2013
Case: Samsung Electronics and Samsung Telecommunications America v. Ericsson Inc.
In the Matter of Certain Wireless Communications Equipment and Articles Therein
US. International Trade Commission (ITC) Investigation No. 337-TA-866
Technology: LTE wireless technology.
Activity: Expert Report (infringement, domestic industry practice), rebuttal report (validity).
Court testimony (ITC bench trial): direct (Oct. 23, 2013) and rebuttal (Oct. 30, 2013).

11. Quinn Emanuel Urquhart & Sullivan, LLP for Samsung
Dates: 2013
Case: Samsung Electronics GmbH v. Apple Inc.
German Patent Court, Case Number 5 Ni 49/11
Technology: Turbo codes; LTE wireless technology.
Activity: Declaration (validity).
12. Kirkland & Ellis for DIRECTV
Dates: 2009
Case: Rembrandt Data Technologies v. DIRECTV, Inc. et al.
Eastern District of Virginia, Case No. 1:08cv1009
Technology: Telephone modems; set-top boxes.
Activity: Rebuttal Expert Report (non-infringement). Deposition (May 20, 2009).
13. Kirkland & Ellis for Samsung
Dates: 2006
Case: Samsung Electronics and Samsung Telecommunications America v. Ericsson Inc.
In the Matter of Certain Wireless Communications Equipment, Articles Therein, and
Products Containing the Same
ITC Investigation No. 377-TA-577
Technology: WCDMA/UMTS wireless technology; mobile phone handsets.
Activity: Declaration (domestic industry practice). Deposition (Nov. 17, 2006).

B. TECHNICAL CONSULTING OF A NON-LEGAL NATURE OVER PAST TEN YEARS

1. 4D Tech Solutions, Morgantown, WV
Nonorthogonal Frequency Division Multiplexing
July 2017 to Dec 2018.

C. DESCRIPTION TECHNICAL AREA OF EXPERTISE

Dr. Valenti's area of expertise is communication technology, with an emphasis on wireless and cellular networks. This includes physical-layer technology; i.e., modulation, error-control coding, and receiver design, as well as issues related to cellular network call processing (e.g., control signal formats and protocols). Dr. Valenti has a working knowledge of several current standards, including UMTS/WCDMA (3-G Cellular), LTE (4-G Cellular), 5G NR, WiMAX, and DVB-S2 (Satellite Television).

III. RESEARCH

A. PUBLICATIONS

Journal Papers

- J1. V. Talreja, **M.C. Valenti** and N. M. Nasrabadi, "Deep hashing for secure multimodal biometrics," *IEEE Transactions on Information Forensics and Security*, vol. 16, pp. 1306-1321, 2021.
- J2. F. Taherkhani, V. Talreja, **M.C. Valenti**, and N.M. Nasrabadi "Error-corrected margin-based deep cross-modal hashing for facial image retrieval," *IEEE Transactions on Biometrics, Behavior, and Identity Science*, vol. 2, no. 3, pp. 279-293, July 2020.
- J3. E. Hriba and **M.C. Valenti**, "Correlated blocking in mmwave cellular networks: Macrodiversity, outage, and interference," *Electronics (Special Issue on Millimeter-Wave (mmWave) Communications)*, vol. 8, no. 10, article number 1187, Oct. 2019.
- J4. T. Ferrett and **M.C. Valenti**, "Noncoherent LDPC-coded physical-layer network coding using multitone FSK," *IEEE Transactions on Communications*, vol. 66, no. 6, pp. 2384-2395, June 2018.

- J5. D. Torrieri, S. Talarico, and **M.C. Valenti**, "Analysis of a frequency-hopping millimeter-wave cellular uplink," *IEEE Transactions on Wireless Communications*, vol. 15, no. 10, pp. 7089-7098, Oct. 2016.
- J6. K. Venugopal, **M.C. Valenti**, and R. W. Heath, Jr., "Device-to-device millimeter wave communications: Interference, coverage, rate, and finite topologies," *IEEE Transactions on Wireless Communications*, vol. 15, no. 9, pp. 6175-6188, Sept. 2016.
- J7. D. Torrieri, S. Talarico, and **M.C. Valenti**, "Performance comparisons of geographic routing protocols in mobile ad hoc networks," *IEEE Transactions on Communications*, vol. 63, no. 11, pp. 4276-4286, Nov. 2015.
- J8. P. Rost, S. Talarico, and **M.C. Valenti**, "The complexity-rate tradeoff of centralized radio access networks," *IEEE Transactions on Wireless Communications*, vol. 14, no. 11, pp. 6164-6176, Nov. 2015.
- J9. **M.C. Valenti**, D. Torrieri, and S. Talarico, "A direct approach to computing spatially averaged outage probability," *IEEE Communications Letters*, vol. 18, no. 7, pp. 1103-1106, July 2014.
- J10. S. Talarico, N.A. Schmid, M. Alkhwaldi, and **M.C. Valenti**, "Distributed estimation of a parametric field: Algorithms and performance analysis," *IEEE Transactions on Signal Processing*, vol. 62, no. 5, pp. 1041-1053, Mar 1, 2014.
- J11. D. Torrieri, **M.C. Valenti**, and S. Talarico, "An analysis of the DS-CDMA cellular uplink for arbitrary and constrained topologies," *IEEE Transactions on Communications*, vol. 61, no. 8, pp. 3318-3326, Aug. 2013.
- J12. D. Torrieri and **M.C. Valenti**, "Exclusion and guard zones in DS-CDMA ad hoc networks," *IEEE Transactions on Communications*, vol. 61, no. 6, pp. 2468-2476, June 2013.
- J13. D. Torrieri and **M.C. Valenti**, "The outage probability of a finite ad hoc network in Nakagami fading," *IEEE Transactions on Communications*, vol. 60, pp. 3509-3518, Nov. 2012.
- J14. **M.C. Valenti** and X. Xiang, "Constellation shaping for bit-interleaved LDPC coded APSK," *IEEE Transactions on Communications*, vol. 60, pp. 2960-2970, Oct. 2012.
- J15. **M.C. Valenti**, D. Torrieri, and T. Ferrett, "Noncoherent physical-layer network coding with FSK modulation: Relay receiver design issues," *IEEE Transactions on Communications*, vol. 59, no. 9, pp. 2595-2604, Sept. 2011.
- J16. D. Torrieri and **M.C. Valenti**, "Rapidly-converging series representations of a mutual-information integral," *ISRN Communications and Networking*, vol. 2011, Article ID 546205, 6 pages, 2011.
- J17. **M.C. Valenti**, S. Cheng, and D. Torrieri "Iterative multisymbol noncoherent reception of coded CPFASK," *IEEE Transactions on Communications*, vol. 58, no. 7, pp. 2046-2054, July 2010.
- J18. D. Torrieri and **M.C. Valenti**, "Efficiently decoded full-rate space-time block codes," *IEEE Transactions on Communications*, vol. 58, no. 2, pp. 480-488, Feb. 2010.
- J19. S. Cheng, **M.C. Valenti**, and D. Torrieri, "Coherent continuous-phase frequency-shift keying: Parameter optimization and code design," *IEEE Transactions on Wireless Communications*, vol. 8, no. 4, pp. 1792-1802, Apr. 2009.
- J20. D. Torrieri and **M.C. Valenti**, "Constellation labeling maps for low error floors," *IEEE Transactions on Wireless Communications*, vol. 7, no. 12, pp. 5401-5407, Dec. 2008.
- J21. D. Torrieri, S. Cheng, and **M.C. Valenti**, "Robust frequency hopping for interference and fading channels," *IEEE Transactions on Communications*, vol. 56, no. 8, pp. 1343-1351, Aug. 2008.
- J22. K. Vardhe, D. Reynolds, and **M.C. Valenti**, "The performance of multi-user cooperative diversity in an asynchronous CDMA uplink," *IEEE Transactions on Wireless Communications*, vol. 7, no. 5, pp. 1930-1940, May 2008.

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