

## Curriculum Vitae

### Michael Caloyannides, Ph.D.

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### Summary:

- **Special expertise (both technological and testifying in court) on advanced cellular systems (4G, 3G, evolving 5G). Protocols, modulations, spectra, MIMO antennas, IQ channels, quadrature mixers, superhet and direct conversion receivers, etc.**
- **World class expertise in GPS navigation, and all radio direction finding techniques. Was one of the designers of the original GPS system.**
- **World class expertise in encryption (symmetric, PKI, Elliptic Curve, etc.)**
- **Expert in both analog and digital telecom, Digital Signatures, Authentication, Networks, VPNs, digital telecommunications, and IT security.**
- **Senior Scientist / Chief Scientist at a US Government Agency for 13 years concentrating on IT issues, networking, VPNs, encryption, etc.**
- **Chief Scientist at I3, Inc. Oversaw IT networking issues of US forces in the Middle East.**
- **Senior Fellow, Mitretek Systems ( a “think tank”), 8 years. Chaired the IT networks board.**
- **Adjunct Faculty, Johns Hopkins and George Washington Universities, in Networks, IT security.**
- **Scientist of the Year award, US Gov’t for Telecom and IT-related developments.**
- **Excellent in Teaching Award (Johns Hopkins University) for Graduate-level Computer Science**
- **Published several IT books and numerous refereed publications**
- **Expert Witness in Telecom and IT technology-related litigation, internationally.**
- **Testified in US Federal, State, and Circuit courts; also testified at the ITC**
- **Extensive experience in handling IPR cases at the Patent Office**
- **Expert witness in over 100 cases, deposed well over 150 times, written over 200 expert witness reports**
- **For patent cases, testified both as an infringement and invalidity expert**
- **Helped win multimillion dollar judgments for clients (\$24M in August 2016 for my client at the Federal Court in the Eastern District of Texas)**

- Caltech PhD in Electrical Engineering and Applied Math.

### **Key Strengths:**

- **In depth expertise in Signal Processing, Telecommunications Technologies, with emphasis on networks and cellular telephony (4G, 3G, other)**
  - **Technical (Decades of expertise, University professor)**
  - **Regulatory (FCC Panel Chairman)**
  - **Management and strategic planning**
- **GPS**
- **Possesses world class Networking and IT competence which requires multidisciplinary expertise: Telecommunications, Encryption, Signal Processing, Infosec and Infotech, Intelligence, Advanced Mathematics, Physics.**
- **In depth expertise on Digital Networks and Computer science (Adjunct professor of Computer Science, prolific author of Infosec books, sought after lecturer) and in particular on digital communications (both wireless and wired)**
- **Extensive experience in Intelligence (SIS-3 position for 14 years) with multiple recognitions and awards, including “Scientist of the Year” and “Meritorious Officer” awards.**
- **Respected in all three sectors of the economy. Held top positions in Government and Industry; taught at four universities and still teaching evening postgraduate classes at Johns Hopkins and George Washington Universities.**

### **Areas of Expertise:**

- Expertise in the advanced technical, management, strategic planning, academic, economic, operational, commercial, legal and applied R&D aspects of:
  - 1) Telecommunications
    - a. Digital Signatures, Encryption, VPN over cellular networks 4G/LTE, 3G, GSM, CDMA, AMPS, Narrowband AMPS, Nordic. Cellular Caller-ID, Call-waiting, other.
      - Quality of Service (QoS)
      - Buffer Statue Report (BSR) patents
      - Service Request handling (SR)
      - Modulation types (FDM, OFDMA, CDMA, etc.)
      - Codecs
      - Encryption
      - Geolocation with and without GPS. Assisted GPS technologies.

- b. Telecommunications (RF, LPI, Wireline, Optical/Laser, Fiberoptic, etc.)
  - c. Wireless data communications; VPNs over Wi-Fi, Wi-Max, Ad-hoc networks, other.
- 2) GPS, radio-navigation, direction-finding.
  - a. Designed part of the GPS system before the satellites were first launched.
  - b. Helped design evolutionary changes to GPS system.
  - c. Taught GPS and other radio-navigation at the graduate school level.
  - d. Testified numerous times on GPS issues.
- 3) IT
  - a. Has been teaching Computer Science, with emphasis on Encryption, Digital Signatures, Authentication, Networks, VPNs, etc. at Johns Hopkins and George Washington Universities.
    - PPTP, L2F/L2TP, SOCKS-5, other
    - VPN forensics
  - b. Information Security
    - Encryption, Digital Signatures, Authentication, Identity Theft. Techniques, consequences, Remedies (legal, technical)
    - Information Technology (Infrastructure protection, Information assurance)
    - Privacy and Network Security; legal basis of privacy in the U.S.
    - Information theft and exfiltration.
    - Computer Forensics. Forensics on non-computer digital devices.
    - Electronic data privacy. HIPAA compliance.
- 4) Covert Communications
  - a. Encryption, Data hiding, Covert channels and Steganography.
  - b. Hidden communications through the Internet and other channels
- 5) Security
  - a. Physical Intrusion Detection Sensors and their vulnerabilities.
  - b. Physical Security.
- Often quoted in the New York Times and other news media on Information Security and Infrastructure Protection issues.
- Experience as a court-qualified testifying expert witness on Telecom and IT issues. Has testified at the Federal Court in Alexandria in a billion-dollar telecom and IT patent infringement case. Also retained as an expert witness on telecom

and IT issues in a number of civil and criminal cases including a major telecom liability case in Australia (Sept-Dec. 2009).

### **Work Experience:**

Jan. 2014 – Now:

- CTO, Caloyannides Consulting, LLC, Northern Virginia

Oct '08 – Jan. '14:

- Senior Scientist for TASC, Inc., Northern VA. Led new corporate directions in IT.

May '06 – Sept. '08.:

- Chief Scientist, Ideal Innovations Inc. Arlington, VA.  
Expanded a military-focused company into one focused on IT and infosec.

June '99 – May '06:

- Senior Fellow” with Mitretek Systems (now renamed to Noblis Inc.), a Washington, DC area “think tank” (ongoing) in DoD information assurance, RF technologies, cellular telecom, network security, VPNs, computer forensics, and related aspects.
  - Extensive experience with the “Infosec Research Council”, the Interagency board clearinghouse for infosec issues (NSF, National Institute of Justice, DARPA, DoD/SecDef, FAA, NRO and others.)
  - Chaired the Infosec Control Board which oversees all aspects of the corporate network, introduces new features, adjudicates requests for changes, etc.
  - Led the consulting effort for a proprietary government customer on infosec and telecom issues.
  - Chief contributor to numerous ongoing programs in VPN, infosec, biometrics., geolocation.

June '98 – Late 2013.

Independent senior consultant to NASA/NIAC to evaluate advanced technology proposals for work in deep space exploration, mostly IT and telecom.

August 2002 – Now.

Adjunct Professor, Johns Hopkins University, Applied Physics Laboratory

Teaching: 1) VPNs

2) “Enterprise Security”

2) RF

2) “Network and Data Communications”

3) “Internet Communications and Issues”

(all graduate level courses).

February 2004 – 2013.

Adjunct Professor, George Washington University, Washington, DC  
Teaching: a) IP Networks and b) Information security

2000 – Now.

Expert witness in intellectual property litigation.

Testified in billion-dollar disputes in Federal Court in Alexandria, VA

Invited expert witness at the Australian Federal Court in Sydney, Australia.

Testified at the US Trade Commission Court, in Washington DC.

Wrote over 100 expert witness reports for the courts.

Been deposed over 100 times under oath.

My qualifications were never disputed by any court.

July 2008 – Nov. 2008.

Adjunct Professor, George Mason University, Fairfax, VA

Teaching: Information Technology Security

January 2000- Now.

Technical consultant and testifying Expert Witness to attorneys on technical issues, including: a) VPNs, b) Telecom, c) IT, d) Cellphones, e) VoIP, f) Computer Forensics. g) GPS

2000-2001

Chairman of an FCC NRIC advisory panel on Packet Networks. (2000-2001)

9/98-6/99

Senior Scientist at Boeing Corp., responsible for:

a) Getting Boeing into the commercial information technology business

Tasked to steer Boeing into the broadband commercial satellite telecommunications business; this involved interfacing with the highest levels of various regulatory authorities, recommending corporate acquisitions in satcom, assessing multi-billion dollar marketing options, working the frequency management issues, interfacing with competitors, and laying the groundwork for this new business for Boeing.

b) Corporate direction on:

1. The "Ellipso" commercial satcom system. At my recommendation, Boeing pulled out of the "satellite cellular" business. My recommendation was subsequently proved right by the well-known commercial demise of Iridium and ICO.
2. Technical oversight of US DoD's satellite-based tracking of all Army mobile platforms.
3. Spearheaded the refocusing of the corporation towards a network-centric approach.

9/84-8/98

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