

Exponent®
Engineering & Scientific Consulting

Jun Tian, Ph.D.

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Professional Profile

Jun Tian, Ph.D., is a manager in Exponent's Computer, Data & Security Sciences practice with over 20 years of experience in wireless and wired networking, RF analysis, embedded systems, and communication security. She advises technology companies, legal teams, and government clients on system architecture evaluation, protocol analysis, and vulnerability assessment.

Dr. Tian has technical knowledge and experience relating to architecture definition, design, development, and verification. Her core competencies include:

- Technical Investigations & Failure Analysis
- Networking & Communications Systems
- Real-Time Embedded System Software
- Cybersecurity & Vulnerability Assessment
- RF Engineering & Analysis

Wireless & Wired Networking

Dr. Tian provides consulting on the design, evaluation, and troubleshooting of wireless and wired network systems, with deep expertise in Wi-Fi (IEEE 802.11 standards including Wi-Fi 6 and Wi-Fi 7), satellite communication, and cable access networks (DOCSIS). She advises clients on network architecture optimization, protocol design, interoperability testing, and new product integration. Her experience spans both the technical standards, including IEEE, ANSI, and CTIA, and the practical engineering challenges of deploying them at scale.

Dr. Tian has served as a technical expert and industry liaison to major standards and certification bodies, giving her a distinctive perspective on how products are evaluated against published specifications and where gaps in compliance or performance arise.

Security & Vulnerability Assessment

Dr. Tian helps clients identify and address security weaknesses in communication systems, including wireless networks, embedded platforms, and connected devices. Her work encompasses vulnerability analysis, security protocol review, and the development of countermeasure test suites for Wi-Fi and related communication technologies. Her background in satellite communication payload design, including requirement analysis, interface design, and network resource planning, extends her capabilities into space-based and long-haul communication architectures.

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She has led industry-wide vulnerability studies in collaboration with ecosystem vendors, producing actionable recommendations and test methodologies that have been adopted as industry guidance. This work is directly relevant to clients facing product liability disputes, regulatory scrutiny, or intellectual property challenges involving the security of networked systems and communication protocols.

RF Analysis

Dr. Tian conducts radio frequency (RF) analysis across a range of communication systems. Her RF expertise encompasses signal characterization, interference analysis, spectrum management, and the evaluation of RF performance against applicable standards. She applies this knowledge to help clients validate RF characteristics and address performance issues.

Real-Time Embedded Systems

Dr. Tian advises clients on the design, evaluation, and failure analysis of real-time embedded systems used in communication and networking applications. Her expertise covers time-critical software, high-speed logic design, and the hardware-software partitioning decisions that determine system reliability and performance under demanding operational conditions.

Dr. Tian brings practical insight into the constraints of real-time operating environments, including latency, determinism, and fault tolerance that are often central to disputes involving embedded communication products. This experience is particularly relevant to clients in the telecommunications, defense, and consumer electronics sectors where embedded system behavior is subject to technical scrutiny or regulatory review.

Architecture & Software Evaluation

Dr. Tian conducts independent architecture reviews and software evaluations for clients developing or defending complex communication systems. Her consulting in this area includes system architecture assessment, protocol stack analysis, software partitioning, and the evaluation of design decisions against industry best practices and applicable standards. Dr. Tian has applied these methods across Wi-Fi, satellite, and cable access networks, helping clients understand whether a system was designed and implemented in a manner consistent with its intended requirements, and she has served as a technical expert in intellectual property and product liability matters involving communication system architecture and software design.

Academic Credentials & Professional Honors

Ph.D., Computer Engineering, University of Louisiana Lafayette, 1996

M.S., Electrical Engineering, University of Akron, 1991

B.S., Computer Science, Shanghai Jiao Tong University (SJTU), 1986

Prior Experience

MediaTek 2024-2025

Cisco Meraki 2021-2024

Wi-Fi Alliance 2016-2021

CableLabs 2012-2016

Boeing 2005-2012

Conexant 2001-2004

ViewLogic 2000-2001

Intel 1997-2000

Patents

Patent 9,596,622, “mesh network of access points for load balancing”

Patent 9,009,353, "split network address translation”

Patent 6,560,286, ”field frame motion design for digital video decoder”

Project Experience

Wireless & Wired Networking

Dr. Tian has led and supported networking projects spanning Wi-Fi product qualification, satellite communication integration, and cable access architecture, representing over two decades of hands-on engagement with the systems and standards that define modern connectivity.

- Led smartcard failure analysis focusing on RF performance, protocol handshakes, and on-site troubleshooting to resolve critical hardware and communication issues.
- Conducted root-cause analysis for a satellite system failure during a high-stakes legal dispute, delivering technical findings that enabled an amicable resolution for all parties.
- Directed network performance and video quality assessments for bandwidth-constrained environments, identifying optimal solutions across diverse operational scenarios.
- Led verification activities for next-generation Wi-Fi 7 devices at major semiconductor companies, evaluating protocol conformance, interoperability, and performance against IEEE 802.11be specifications to support product readiness for commercial deployment. Conducted performance analysis for satellite terminals integrated with wireless access points, evaluating throughput, latency, and link reliability.
- Managed new Wi-Fi 6 (IEEE 802.11ax) product qualification programs and issue resolution at a leading networking company, overseeing technical evaluations against Wi-Fi Alliance certification standards with a focus on EAP security and fast roaming protocols (IEEE 802.11k/v/r).
- Served as technology manager at a major Wi-Fi industry certification body, directing the launch of new certification programs for Wi-Fi 6, enterprise security, massive IoT device onboarding, peer-to-peer protocols, and location services while establishing standardized test suites for the global wireless ecosystem.
- Collaborated with cable operators on feasibility research and architecture optimization for cable access networks operating under DOCSIS standards, evaluating system design trade-offs and supporting network planning decisions.

Security & Vulnerability Assessment

Dr. Tian has led security-focused work at the intersection of industry standards, product certification, and vulnerability research, producing outputs that have shaped industry-wide security practices for Wi-Fi and connected device ecosystems.

- Led vulnerability studies in collaboration with Wi-Fi ecosystem vendors to analyze reported security incidents affecting Wi-Fi networks and connected devices, resulting in published industry recommendations and the development of countermeasures and test suites adopted across the industry.
- Directed the launch of Wi-Fi security certification programs at a major industry certification body, defining the technical requirements and test methodologies used to evaluate security protocol compliance including WPA3 and related IEEE 802.11 standards.
- Conducted advanced hardware vulnerability assessments utilizing side-channel analysis (SCA) and industry-leading security tools to identify cryptanalytic risks.

RF Analysis

Dr. Tian's RF analysis experience spans satellite communication payloads and Wi-Fi systems, encompassing both the design-phase evaluation of RF performance and the post-deployment investigation of signal and interference issues.

- Evaluated RF performance for Wi-Fi (802.11) and NFC smartcard devices, analyzing signal behavior, interference characteristics, and compliance with IEEE 802.11 and ISO standards to support product qualification and failure analysis.

Real-Time Embedded Systems

Dr. Tian has applied her expertise in real-time embedded systems across satellite, networking, and proprietary communication platforms, with a focus on time-critical software behavior and hardware-software integration.

- Evaluated embedded software and high-speed logic design for next-generation SATCOM payloads, assessing real-time performance, system integration, and validation against operational requirements at a major aerospace company.
- Applied expertise in time-critical software and embedded system architecture to support product integration and validation activities for Wi-Fi and satellite communication platforms, addressing reliability and performance requirements in operationally demanding environments.

Architecture & Software Evaluation

Dr. Tian has conducted architecture and software evaluations across multiple technology generations and platform types, providing clients and employers with independent technical assessments of system design decisions.

- Conducted system architecture review and protocol design analysis for Wi-Fi 6 and Wi-Fi 7 networking products, evaluating design choices against IEEE 802.11 standards and industry best practices to support product qualification and issue resolution.
- Assessed satellite communication system architecture for a major aerospace company, including requirement analysis, interface design review, and interoperability evaluation, supporting customers through formal milestone reviews and system validation activities.

- Evaluated cable access network architecture in collaboration with cable operators, analyzing feasibility and optimization opportunities for DOCSIS-based systems and providing recommendations on system design and resource allocation.