Tal Lavian, Ph.D.

http://telecommnet.com
http://cs.berkeley.edu/~tlavian
tlavian@telecommnet.com

1640 Mariani Dr.
Sunnyvale, CA 94087
(408)-209-9112

Research and Consulting: Telecommunications, Network Communications, and Mobile Wireless technologies

- Scientist, educator, and technologist with over 25 years of experience
- Co-author on over 25 scientific publications, journal articles, and peer-reviewed papers
- Named inventor on over 80 issued and filed patents
- Industry fellow and lecturer at UC Berkeley Engineering – Center for Entrepreneurship and Technology (CET)

EDUCATION

- **Ph.D.**, Computer Science specializing in networking and communications, UC Berkeley
- **M.Sc.**, Electrical Engineering, Tel Aviv University
- **B.Sc.**, Mathematics and Computer Science, Tel Aviv University

EXPERTISE

Network communications, telecommunications, Internet protocols and mobile wireless:

- **Communication networks:** Internet Protocols; TCP/IP suite; TCP; UDP; IP; VoIP; Ethernet; network protocols; network software applications; Data Link, Network, and Transport Layers (L2, L3, L4)
- **Internet Software:** Internet software applications; distributed computing; cloud computing; Web applications; FTP; HTTP; Java; C; C++; client server; file transfer; multicast; streaming media
- **Routing/switching:** LAN; WAN; VPN; routing protocols; RIP; BGP; MPLS;OSPF; IS-IS;DNS; QoS; switching; packet switching; network infrastructure; network communication architectures
- **Mobile Wireless:** Wireless LAN; 802.11; cellular systems; mobile devices; smartphone technologies

LITIGATION SUPPORT SERVICES

- Expert witness in numerous USPTO PTAB – Inter Partes Review (IPR) and CBM cases
- Expert witness in Federal courts and the ITC (over 30 cases)
- Expert reports, depositions, and courtroom testimonies
- Skilled articulation of technical material for both technical and non-technical audiences
- Product and technology analysis, patent portfolios, claim charts, patentability research
- Litigation support and technology education in patent disputes
- Past cases involved Cisco, Juniper, HP, Ericsson, Microsoft, Google, Samsung and Apple

ACCOMPLISHMENTS

- Selected as Principal Investigator for three US Department of Defense (DARPA) projects
- Led research project on networking computation for the US Air Force Research Lab (AFRL)
- Led and developed the first network resource scheduling service for grid computing
- Led wireless research project for an undisclosed US federal agency
- Managed and engineered the first demonstrated transatlantic dynamic allocation of 10Gbs Lambdas as a grid service
- Spearheaded the development of the first demonstrated wire-speed active network on commercial hardware
- Invented over 80 patents; over 50 prosecuted *pro se* in front of the USPTO
- Created and chaired Nortel Networks' EDN Patent Committee
- Current IEEE Senior Member

PROFESSIONAL EXPERIENCE

University of California, Berkeley, Berkeley, CA 2000-Present

Berkeley Industry Fellow, Lecturer, Visiting Scientist, Ph.D. Candidate, Nortel's Scientist Liaison

Some positions and projects were concurrent, others sequential

- Serves as an Industry Fellow and Lecturer at the Center for Entrepreneurship and Technology (CET).
- Studied network services, telecommunication systems and software, communications infrastructure, and data centers
- Developed long-term technology for the enterprise market, integrating communication and computing technologies
- Conducted research projects in data centers (RAD Labs), telecommunication infrastructure (SAHARA), and wireless systems (ICEBERG)
- Acted as scientific liaison between Nortel Research Lab and UC Berkeley, providing tangible value in advanced technologies
- Earned a Ph.D. in Computer Science with a specialization in communications and networking

Telecomm Net Consulting, Inc. (Innovations-IP) Sunnyvale, CA 2006-Present

Principal Scientist

- Consulting in the areas of network communications, telecommunications, Internet protocols, and smartphone mobile wireless devices

- Providing architecture and system consultation for software projects relating to computer networks, mobile wireless devices, Internet web technologies
- Acting as an expert witness in network communications patent infringement lawsuits

VisuMenu, Inc. – Sunnyvale, CA 2010-Present

Co- Founder and Chief Technology Officer (CTO)

- Design and develop architecture of visual IVR technologies for smartphones and wireless mobile devices in the area of network communications
- Design crawler/spider system for IVR / PBX using Asterisk, SIP and VoIP
- Deploy the system as cloud networking and cloud computing utilizing Amazon Web Services (EC2, S3, VPC, DNS, and RDS)

Ixia, Santa Clara, CA 2008-2008

Communications Consultant

- Researched and developed advanced network communications testing technologies:
  • IxNetwork/IxN2X — tests IP routing and switching devices and broadband access equipment. Provides traffic generation and emulation for the full range of protocols: routing, MPLS, layer 2/3 VPNs, Carrier Ethernet, broadband access, and data center bridging.
  • IxLoad — quickly and accurately models high-volume video, data, and voice subscribers and servers to test real-world performance of multiservice delivery and security platforms.
  • IxCatapult — emulates a broad range of wireless access and core protocols to test wireless components and systems. When combined with IxLoad, provides an end-to-end solution for testing wireless service quality.
  • IxVeriWave — employs a client-centric model to test Wi-Fi and wireless LAN networks by generating repeatable large-scale, real-world test scenarios that are virtually impossible to create by any other means.
  • Test Automation — provides simple, comprehensive lab automation to help test engineering teams create, organize, catalog, and schedule execution of tests.

Nortel Networks, Santa Clara, CA 1996 - 2007

Originally employed by Bay Networks, which was acquired by Nortel Networks

Principal Scientist, Principal Architect, Principal Engineer, Senior Software Engineer

- Held scientific and research roles at Nortel Labs, Bay Architecture Labs, and in the office of the CTO

Principal Investigator for US Department of Defense (DARPA) Projects

- Conceived, proposed, and completed three research projects: Active Networks, DWDM-RAM, and a networking computation project for Air Force Research Lab (AFRL)
- Led a wireless research project for an undisclosed US federal agency

Academic and Industrial Researcher

- Analyzed new technologies to reduce risks associated with R&D investment
- Spearheaded research collaboration with leading universities and professors at UC Berkeley, Northwestern University, University of Amsterdam, and University of Technology, Sydney
- Evaluated competitive products relative to Nortel's products and technology
- Proactively identified prospective business ideas, which led to new networking products
- Predicted technological trends through researching the technological horizon and academic sphere
- Developed software for switches, routers and network communications devices
- Developed systems and architectures for switches, routers, and network management
- Researched and developed the following projects:
  - Data-Center Communications: network and server orchestration 2006-2007
  - DRAC: SOA-facilitated L1/L2/L3 network dynamic controller 2003-2007
  - Omega: classified wireless project for undisclosed US Federal Agency 2006
  - Open Platform: project for the US Air Force Research Laboratory (AFRL) 2005
  - Network Resource Orchestration for Web Services Workflows 2004-2005
  - Proxy Study between Web/Grids Services and Network Services 2004
  - Streaming Content Replication: real-time A/V media multicast at edge 2003-2004
  - DWDM-RAM: US DARPA-funded program on agile optical transport 2003-2004
  - Packet Capturing and Forwarding Service on IP and Ethernet traffic 2002-2003
  - CO2: content-aware agile networking 2001-2003
  - Active Networks: US DARPA-funded research program 1999-2002
  - ORE: programmable network service platform 1998-2002
  - JVM Platform: Java on network devices 1998-2001
  - Web-Based Device Management: network device management 1996-1997

Technology Innovator and Patent Leader

- Created and chaired Nortel Networks' EDN Patent Committee
- Facilitated continuous stream of innovative ideas and their conversion into intellectual property rights
- Developed intellectual property assets through invention and analysis of existing technology portfolios

Aptel Communications, Netanya, Israel 1994-1995

Software Engineer, Team Leader

Start-up company focused on mobile wireless CDMA spread spectrum PCN/PCS

- Developed a mobile wireless device using an unlicensed band [Direct Sequence Spread Spectrum (DSSS)]
- Designed and managed a personal communication network (PCN) and personal communication system (PCS), the precursors of short text messages (SMS)
- Designed and developed network communications software products (mainly in C/C++)
- Brought a two-way paging product from concept to development

Scitex Ltd.,Herzeliya, Israel 1990-1993

Software Engineer, Team Leader

Software and hardware company acquired by Hewlett Packard (HP)

- Developed system and network communications (mainly in C/C++)
- Invented Parallel SIMD Architecture
- Participated in the Technology Innovation group

Shalev, Ramat-HaSharon, Israel 1987-1990

Start-up company

Software Engineer

- Developed real-time software and algorithms (mainly in C/C++ and Pascal)

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