

This letter is in response to the advertisement for a Principal Software Engineer.

I strongly believe that with my design, testing, experience in the telecom and data network industry both in software and hardware coupling with the web applications recently gain which your company can benefit.

I see myself as a versatile, mature, self-motivated, reliable, independent, strong leadership, hardworking individual, enthusiastic devotion and eager to learn and produce.

It would be a pleasure to meet and discuss with you regarding the above position.

Regards,

To Van Tran

Website: <http://www.tovantran.com>

Resume

Contact Information

To Van Tran

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Summary of Qualifications

Twenty Three years progressive experience in Mini and Microcomputer based systems and communication:

- Testing and Trouble Shooting
- Technical Support
- Product Management
- Hardware and Software Design

A diverse background in the Communication Industry:

- OSI Layers: working with Layer 1, Layer 2, Layer 3, Layer 4 and Layer 7
- Telecommunication protocols including ISDN: Q.921, Q.931, X.25, X.31/X21, rate adaptation (bit stuffing) to 64 kbps for V.110, DMI
- System and Peripherals Communication Interface: EIA-232-C/D, V.35, X.21, HDLC, DNIC, T1/E1, DS3, OC3-OC48, Ethernet driver: IEEE 802.2/802.3 encapsulation SLIP/PPP
- Network Protocols including TCP/IP, PPP, SLIP, LAPD, LAPB, SS7
- ATM, Frame Relay, Wireless UNI 3.1/4.0, Q.2921, Q.2931, FRF.5, FRF.8, 802.11
- Routing Protocols: OSPF, PNNI
- NMS Network Management Solution: SNMP
- Familiar Protocols stack: Telenetwork and Trillium using for ISDN in PBX or ATM/Frame Relay Core Switch
- LAN: Wire/Wireless LAN, Access Point/HUB/Route/Switch/PBX
- Server/Client and Network Management HP Openview(SNMP)
- DHCP, DNS, Mail Server ArgoSoft/SMTP/POP3.
- WAN: ISDN, ATM, Frame Relay, Ethernet
- IBM, PDP-11, and SUN/Ultra SPARC
- Web-based: Apache, HTTP, VT100, X-term, Telnet
- MS DOS Windows XP/98/NT/2000/Win7, Solaris, Unix, Linux, OS partition Lilo/Grud, pSOS
- ClearCase, Emacs, Gedit, Cscope, Documentum, Vantive, File merge

Testing

- Adtech Spirent AX4000 ATM OC3-OC48 Generator/Analyzer, Spirent BERT TEST and SMARTBITS, SNMP Sniffer, DS3 Tester including TBIRD 310, FIREBIRD testers, Wireshark, TCP dump, HP 8153A, 8156A, Teketec and Logic Analyzer Signaling Protocols: tools including Adtech with Telcordia Test Suite for PNNI and UNI 3.1, UNI 4.0

Languages & Debug Tools

- GNU Compiler, gcc/g++14 , gdb, Workbench, GNU make w/ debug tools: in-circuit emulator/JTAG/ ICE960 Debugger, Crash Dump, Xray debugger (Microtec)
- CodeTap From Applied Micro System and GNU960 compiler for i960, Pentium
- Borland Builder and Microsoft Visual C++, ANSI C, Shell script, Java and Python
- Microtec C and CodeTap using XRAY debug for Motorola 68000 series
- Cross compiler: Archimede C, Bytecraft C, etc... for Motorola 6800 series
- Assembler for Intel 8080, 8051, 80X86, i960 Motorola68000, 68340, 6809, 6802, 6502, Hitachi 6301, 6303, PowerPC and TI/Qualcomm ARM 7, 9
- Firmware, EPROM, EEPROM, Flash, u-boot
- OS: Linux/VxWorks/Android

Web applications & e-commerce

- Adobe Photoshop & Flash and Dreamweaver
- LAMP (Linux Apache MySQL PHP), JavaScript, HTML, CSS, AJAX. JQuery
- PHPAdmin/Web hosting manger WHM/DNS
- CMS: Joomla, WordPress

Achievement - Patent - Forums

- Outstanding Achievement Award Certificate, 1991
- Canada Patent No: 2220829 for a new invention in writing microcode algorithm in assembler and ANSI C language to sample the existing dial tone to detect voice or data call in order to allow a modem to operate in the case of the Interrupt (stutter) dial tone indicating a voice mail waiting during transmit voice over data as VoIP: [Patent 2220829](#) under International Classification: <http://www.google.com/patents/CA2220829C?cl=en>
- Currently is a member of Frame Relay Forum and ATM Forum, my last contribution regarding Frame Discard based on AAL IE Type will be added in Annex 13 of UNI 4.1 of ATM Forum, it can be found at: <http://www.tovantran.com/images/atm01-0230.pdf>

Educations & Training

- Member of ATM and Frame Relay Forum since 1999
- VoIP Understanding Voice over IP by Telecommunication Research Associates, 2001
- Design /Programming in C++ by Semantics, 2000
- Naviscore (OpenView) NMS Fundamentals Training for GX-550 and CBX-500, 1999
- Motorola Technical Training for Power PC MC750, 1998
- Windows NT Kernel Device Driver from OSR, 1997
- Management Training Skill, 1995
- ISO-9001 Training, 1991
- Technical Training Skills, 1990
- Quality Improvement Process Training, 1989
- Motorola Technical Training for MC68000, 1987
- Thalamus Electronics Award Certificate, 1982
- Programming Courses from McGillUniversity, 1982
- Bachelor of Science in Electrical Engineering, University of Saigon, Viet-Nam, 1978
- Proficiency in English Diploma, 1972

Freelancer

Position: Consulting
Software Engineer
<http://www.tovantran.com>

2013-Now

Port Linux and u-boot for the ARM processors: TI AM335x, Broadcom Quad BCM2837, Rockchip RK3066. Build device drivers for their wifi and Ethernet. Based on rt73 and Ralink RT8179 driver wireless adapters.

The webhost server using subset of Apache to control the on board devices and ssh. It is a part of Internet of things. I have tried Microsoft Visual Studio with win 10 IoT and it is also working to control I/O devices on board. It is similar what I am using Eclipse remote debugging on the target.

These are very small boards BSP runs Linux, has up 4 cameras to detect the motion, when the motions are detected, the images and video are sent to the cloud and notify user by email or on screen pop up message. It has many GPIO ports to control the hardware on the board for future application. It also does video and audio adaptation streaming using FFmpeg.

The CamCloud project is running on my sub-domain:<http://www.tovantran.com> I use the port forward feature of the router to forward its IP address to the internet and in my sub-domain there is only a index.html which runs a small javascript to map this sub-domain to IP address of router. This demonstrate it is possible to make the project work with the use of linux kernel, device drivers and run the whole website on top of it to control the hardware including layer 1, 2, 3, 4 and 7 of OSI.

I write application on Android using Qt 5 Creator instead of Java in the meantime there are Java Android applications to support to view the CamCloud since each webcam has the ip address and the port. It can be viewed any browsers the servers is Lighttpd a small version of Apache and website is based on LAMP stack, the device is controlled from the website using Linux system calls on PHP to write to GPIO address using AJAX call back function to refresh the screen objects in real time.

Working Modern C++14 and Qt 5 to develop future applications and for this project since it is not Android natively but Linux.

Tools: HTML5, LAMP stack and Wordpress. Adobe Photoshop and Dreamweaver. GDB. GCC/G++/GNU make, Apache, CSS, HTML5, Javascript, Java. JQuery, Firebug and Python.

Operating systems: Linux/Android/VxWorks

Flextronics

Position: Consulting
Software Design Engineer
<http://www.flextronics.ca>

2012-2013

First contract working on Equinox Project: Develop smart card scanner based on Linux kernel 3.2 with the processor ARM 11, CROSS_COMPILE from Broadcom

- Using Buildroot upgrade kernel to 3.2

- Implemented u-blox GSM Modem, Bluetooth and wrote the test code for production

Second contract working on EGC Project: Develop smart meter based on Linux 2.6 with the processor ARM 9, CROSS_COMPILE from TI

- Added Huawei E365 GSM Modem device driver to connect 3G network

- Developing touch screen device driver for TI controller TS2004

- Implemented MAC address for the Ethernet card read MAC address from EEPROM instead of reading from uBoot argument for production release.

- Wrote Python script to setup 3G modem connection and hand it over to Qt

- Wrote the DS specifications and slides how to do remote dynamic software upgrade with SCADA (*supervisory control and data acquisition*) server.

- Wrote BSP test code.

<http://flexequinox.blogspot.com> and [Design specs.](#) for 3G modem..

Tools: C/C++ and GNU make, VMware and Eclipse.

Freelancer

2009-2012

**Position: Consulting
Software Engineer**
<http://www.tovantran.com>

Develop Websites based on
CMS: Joomla, Wordpress.
Tools: Adobe CS4/ CS5
Photoshop, Dreamweaver
and Flash

Linux Development:
C/C++/PHP/Net-SNMP
Eclipse and GEDIT with
plug-ins
GNU Make and GDB
SAMBA File Sharing
GIT

*Telcordia Technologies
(formerly BellCore),
Piscataway NJ, USA*
**Position: Consulting
Software Engineer**

pSOS and VxWork
Protocols: SS7
is a set of protocols that
describes a means of
communication between
telephone switches in public
telephone networks.

ViNetCom, Ottawa, Canada
**Position: Software
Manager**

- Soft phone with open source Asterisk using Helios Eclipse Platform 3.6 with plugging CDT (C/C++), PDT (PHP5), JDT/JDK, and recently with Android SDK on Linux Kernel 2.6.32 and 2.6.35 based on Ubuntu 10.04 on 64-bit platform
- VMware and Virtual Box Win 7 Host and Linux Guest
- UML with Rational Rose and Umbrello.
- Working on RT73 Ralink driver Wi-Fi 802.11 for the new Linux Kernel. See [my blog](#) for more details. It has changed from spinlocks to semaphore.
- Project ARM11 from Broadcom developing on Ubuntu 12.04 with Linux Kernel 3.2 This Board Support Package (BSP) has Bluetooth, Ethernet and WAN – GSM modem from u-blox. The board is connect to Linux via serial port and Ethernet uboot is downloading to the BSP target using serial port 115200 baud then download main code ulmage (Linux Kernel and device drivers) into BSP on Ethernet connection using TFTP protocol. Language: C/C++, Shell Script. Application and GUI: CGI, HTML, PHP, CSS, Apache and Python. The kernel for BSP is built using Buildroot and makes config/xconfig.
Set up: Win 7 host and Ubuntu 12.04 is guest using VMware. The reason using vmdsk (virtual machine disk) so it can be distributed between the development groups and to the customers.
- Self learning part time on Android Java applications, boot and system image.

2008-2009

- Main job is porting from pSOS to Wind River VxWorks 6.6 for SS7 systems. From old processor AMCC440GP/MPC8240 to new Processors Power PC: MPC8540/8560
- Using WRICE (Wind River ICE) and Workbench 3.0
- Got p2vLib (pSOS to VxWorks library) working for system calls translation
- Code VxMP share memory object working between 2 processors via PCI bus
- Set up the environment for a new development including diab/gcc compilers/tools in windows and moved all of them to Linux Ubuntu 8.04 instead of using windows. Linux is perfect to develop real time and embedded systems. Code is centralized in one Linux server.
- Everyone can telnet or using X windows to login to do their works in /home/users then copy image into /home/target and to download into BSP target using "ld" from VxWorks Shell
"ld" using TCP/IP. Uboot code is stored in /tftpboot and it is using TFTP via xinetd with service entry set to /tftpboot
- Documented on the website running Apache on the same server
- Added the new Ethernet driver, fixed some uboot issues and bring the system up using TFTP then TCP/IP from VxWorks
- Added the Comet driver PM4354 and bring E1 up. API detected "COMET-QUAD. Rev. 02 Enabling global E1 mode"
- Training people

2003-2007

- GUI is based on LAMP (Linux, Apache, MySQL, and PHP), AJAX, Perl, CGI, and HTTP.
- Designed ISDN PBX with ability to link with E1/T1/WiMAX/External RF/IP

Joined a Start Up for offshore software development.

Manager 2 groups:

- Device Driver group
- Web applications group

This time where I learned about Web applications

Layer 7 of OSI

*Lucent Technologies,
Westford MA, USA*

Position: *Principal Software Engineer*

Project leader for call

control & signaling group

Project leader for system integrations group

Mentor

ATM, Frame Relay

Routing protocols:

OSPF, BGP

Member of Forums:

ATM

Frame Relay

Contribution:

[Atm01-0230.pdf](#)

This is transition for me from ISDN to Frame Relay and ATM

*Ascend Communications,
Westford MA, USA*

Device Driver for Core Switching

Position: *Senior Software*

trunks. IP/PSTN interoperability, calls can be routed to a traditional, typically public switched telephone network (PSTN) using Q.921/Q.931 or Internet via TCP/IP. Based on PowerPC and Linux Kernel 2.4 developing on gcc/g++ GNU C/C++ compiler, gdb, ICE, CLI, and NET SNMP open source.

- Call control and signaling using subset of Linux open source ISDN protocol stack and Linux open source IPv4 TCP/IP stack. Processes Communication - IPC using socket interface.

- Switch allowing users to make local call on the telephone network while switching to Voice over IP for long-distance via layer 3 messages.

1999-2002

- Implemented 32-bit Node Id address for OSPF and PNNI for MR2 release that will be used in the multi-domain for Europa release.

- Bugs fixed for maintenance releases MR1, MR2, MR4 and Europa relating to call control (pvcmgr) and SNMP agent (snmpa) including new features such as increase maximum VCI and VPI bits from 14 bits to 28 bits on the Lport.

Thus, increase the number of VCI and VPI of connections for different equipment's vendors supporting PVC, SVC and SPVC in both Frame Relay and ATM networks. Allow provision UNI Lport end-to-end instead of hop by hop. Change Node ID to 32 bit address to allow the network integration for OSPF.

- Worked on FRF.5 and FRF.8 for ATM/Frame Interworking

- Bugs fixing for the all the conformance of Telcordia test suite for UNI 3.1/4.0 for Jade and Europa 8.0 and 8.1 release

- Integration some areas of vcmgr to the Trillium Stack

- Implemented the multi-domain trunks for PNNI or OSPF allowing the CBX-500 and GX-550 to inter-connect different equipment's vendors supporting PVC, SVC and -SPVC for both Frame Relay and ATM networks. Allow provision UNI Lport end-to-end instead of hop by hop. Change Node Id to 32 bit address to allow the network integration.

- Implemented the change to the Internal SVC from ATMIZER to CHARM ASIC for CP 2 (control processor) card to work with PNNI between 2 CP nodes.

- Resolving critical customer issues, interface with technical field support

- Training sustaining Engineers to take over the old projects and how to use the debug tools to fix bugs for Lucent in Chicago and Infosys in India

- Technical lead for Integration between Lucent Core Switch (GX 550 and CBX 500) with Yurie (PSAX) using PNNI and UNI 3.1 signaling protocol.

- Language C/C++/bash script, pSOS

Setting up device testing lab network, build regression test bed and automation test

- Adtech from Spirent with Telcordia Test Suite for PNNI and UNI 3.1, UNI 4.0

- Write the automatic call set up and tear down on SPVC/PVC calls

- Code review and test plan review

1999-2000

- Designed and implemented the ATM enhancement service for GX-250 which is a shell allows multiple DS3 ports connecting to an uplink cards to GX-550 (Core

Engineer

C/C++, pSOS,
gcc/gdb
SNMP

switch). Each uplink has the bandwidth of OC12 with redundancy (1:1) and DS3 cards with redundancy (3:1). Based on Framer PMC-Sierra PMC7346 (QJET) and Intel i960, PowerPC.

- Add a new MIB in SNMP to program the physical port to ATM or Transparent Mode
- Code review and conduct test plan review
- Bugs Fixing
- Traffic Test
- Developed test plan and procedures to test SNMP MIB objects
- Setting up device testing lab network, build regression test bed and test automation
- SNMP Sniffer Tesla
- HP OpenView
- Tested MIBs, using IWL (Internet Working Labs)
- Adtech Spirent AX4000 ATM OC3-OC48 Generator/Analyzer
- BERT (Bit error test) TEST including: TBIRD 310, FIREBIRD Testers.
- Wrote the power up self test

*Lockheed Martin, Kanata,
Canada*

Position: *Group Leader of
I/O Software Engineer*

1998-1999

- Management and Forecast and scheduling for all the I/O peripheral interface projects
- Designed and implemented TCP/IP layers for ACR (Aurora Computer Replacement)
- Implemented 1553 Protocol to control the peripherals to interact with ACR
- Maintenance and fixed the problems on DSCAN (Digital Scanner) for RADAR - Based on Motorola 68060

*Mitel Corp., Kanata,
Canada*

Position: *Senior Software
Designer*

Invented: [Patent 2220829](#)

1982-1998

- Designed the functional test system by using the Digital Line Card, which was used for product verification. Based on Motorola 6809 with the Digital Time Space Cross Point Switching
- Designed and wrote the firmware code for the ST-BUS monitor, it can be used to monitor the traffic of the link and analyze the packets information between the digital sets and the PBXs. Based on Motorola 6809 and HDLCs
- Implemented the code for layer1, layer2 and layer3 for the Asynchronous Dataset, Low Speed Synchronous Dataset and the High Speed Synchronous Dataset. Based on Hitachi 6303
- Involved in the MSDN/DPNSS (Mitel Standard Digital Network/Digital Private Network Signaling System) for SX-2000 system
- Worked on the Coax Dataset that was used to interface between the IBM terminal or IBM printer to the host. Based on Motorola 6809. It translated the SNA protocol and low level commands of IBM to the Network Layer of OSI to be transmitted to the PBX's
- Wrote the Multitasking Operating System for a PC communication card, which was used to communicate between the IBM-PC and the PBXs for the Host Command Interface application. Based on the Motorola 6809B
- Involved in the ICM (Intelligent Communication Monitor) used as packet analyzer to monitor the information packet of layer 2 and layer 3. These capture packets can be sent to the PC via RS-232 to display or store for future analysis

- Wrote the code for the Milink Data Module. This technique allows to share the D-channel among 7 devices and to reduce the EMI, it called SLOW-BUS. The data on the SLOW-BUS will be rate adapted to the ST-BUS by using ASIC before sending to the system at 64 kbps. Based on the DMS320 of TI
- Wrote the SCSI-2 code for the new controller of the SX-2000. Based on Motorola 68340 and NCR 53C90
- Involved and implemented the TCP/IP on the new main controller of the SX-2000 for debugging and maintenance the PBX from remote end
- Fixed, debugged and maintained the code in the line card and peripheral card of the SX-2000. Implemented a series of firmware voice set to the SX-2000. Based on Motorola 6809 and 68000

- Wrote the DSP code for AIM (Analog Interface Module). AIM converts the Analog signal to the PCM allows the analog phones set or fax machine to

connect the Mitel digital PBX

- Worked on the MPA (Mitel Personnel Assistant) used the existing code from Rockwell to implement the 33.6 k and 56 k modem for the MPA. The data from the modem of MPA that is sent to the PC via 12.5 Mbit/s serial bus called USB (Universal Serial Bus).

All the above embedded development including the device drivers, and protocols interface with in-house proprietary operating system and the code in written in assembler and ANSI C.

1982-1985

Position: *Software*

Designer

Kontakt was a word processor unit with 1200 baud modem with the ability to send/receive emails

- Wrote the boot PROM for Kontakt system now we call u-boot
- Wrote the video and disk driver for Kontakt system
- Wrote test codes to test Kontakt system. Based on Motorola 6809.
- Responsible for testing Kontakt system
- Defined the methodologies for Test Department
- Defined the hardware or software problems and managed the field problems, direct interface with the designer, production and product manager
- Provided on site technical support
- Wrote the procedures to test the PCB boards and system final test
- Designed product verification and test plan

Philips, Montreal, Canada

Position: *Group Leader of Pre-Production*

Micom unit was a word processor with 300 baud modem. It is using mainly for printout.

Micom pictures were taken in 1979.

1979-1982

- Responsible for the new products such as Micom 2000, 2001 and 2002. Based on Intel 8080 and Zilog Z80
- Interfaced between engineer and production to release the new products to manufacture including defined the working methods of testing the new products
- Investigated problems and updated the part lists
- Wrote the test procedures and designed the training aids
- Responsible for testing and trouble shooting the Disk, CPU, Video, -

- Memory and Communication card for Micom system
- Wrote the test procedures and developed the automatic tester

References:

<http://www.tovantran.com/images/review.pdf>
<http://www.tovantran.com/images/reference1.pdf>
<http://www.tovantran.com/images/reference2.pdf>
<http://www.tovantran.com/images/reference3.pdf>

Status:

Single, Canadian, on TN visa and can apply TN Visa to work in any companies in the US

Languages: English, French and Vietnamese