

## Skills and Knowledge

- **Application developed:** 6 languages software metrics, [3D scene graph and ROS, embedded software, OpenGL script & interpreter](#), SCADA, DSP, firmware, police investigation
- **Algorithm and API developed:** OTA programming, data persistence, nesting, collision detection, direct and inverse kinematics, multi-tasking, VRML parser, 3D object reconstruction, File Systems, NoSQL databases, etc.
- **Libraries & drivers, interfaces, COTS, utilities developed:** Hitachi photo-printer, Mitsubishi sublimation color printer, JVC high-definition color camera; MOS Technology 6502 compiler; high-resolution CRT color monitor calibration probe; 2D graphic SDK (MGA-K2D) and 3D/OpenGL graphic SDK
- **Languages, interfaces, protocols, standards, guidelines, buses:** C, Assembler, WebAssembly, C#, C++, ADA, Java, Android, Kotlin, Perl, Python, VBA, Fortran, Basic, Pascal, Prolog, IBM Cobol, REXX, IBM JCL; DPMI, DMA, PIO, interrupt handling, multi-thread; IPC; Maple 8 and Wolfram Mathematica 5; 3DS, IGES; TCP/IP, UDP/IP, CSS/HTML, JSON, NodeJS, Npm, React & Native, VRML, LaTeX, XML, SMTP, socket & winsocket; SQL, NoSQL; MongoDB, Access, Postgres; RS232/RS485, GSM and GPS; MIL-STD-1553, ARINC 429, Spacewire, CAN, SPI, I<sup>2</sup>C, MVB, Modbus, UART, USB, Ethernet, IEEE-488 (GPIB), SCSI; Bluetooth & BLE, WiFi, RFID & IR; Swagger; MEAN, MERN; OpenScript by Asymetrics
- **Libraries and scripting languages:** Microsoft XML, libpcap & winpcap, 3D SXCi Matrox library, Silicon Graphics OpenGL/GLU; Canvas 2D, SVG, ThreeJS, WebGL, Matrox's imaging, video, 3D and 2D graphic libraries; Prof-UIS GUI; Halo graphic; Microsoft SDK, MFC, STL; MapPoint and Navigator [maps](#); Javascript, Typescript; REST/API, SaaS; DOS batch; UNIX/LynxOS vi, bash, sh, sed, grep, Grunt, etc.
- **Models, paradigm, methodologies, concepts:** MisraC, CENELEC, ISO/OSI, V-Model, W-Model, DDD, TDD, BDD, CI & CD, Agile Scrum & Kanban, DevOps, Software Testing (regression and smoke), Waterfall, project management, software architecture, requirements gathering, changing and management, technical specification definition, etc.
- **SDLC tools:** Atollic TrueSTUDIO, Eclipse; Arduino IDE; Qt, IntelliJ, GPS; ESP-IDF; Metaware, Intel, VScode, Theia, Visual Studio C/C++ & .NET up to 2019, StyleCop, Code Analyzer, Wavcom OpenAT, Watcom C/C++; Zworld DynamicC; AMD/Falcom MON186; Microsoft and Pharlap Assembler; cMake, Ant, Maven, Gradle, command line build & debug tools, GCC, GDB, script & batch files, makefile, local and remote debugging; [LabVIEW](#) CGI, VI and C interface; Cygwin, MinGW; GIT, SVN & CVS; MantisBT, Bugzilla, Wolken, Redmine; Jenkins; IBM Rhapsody, IBM DOORS & RM, UML, ER modeling, UMLet, MagicDraw, SmartDraw, EdrawMax; Rally, JIRA, Podio; Doxygen; IBM 3270 terminal emulator; CA Endeavor; XDC, TSO/E, ISPF, SMP/E; Zowe; JUnit, Jest, CUnit, Borland C/C++ compiler 4.52; Toolbook 1.5; MKS
- **Hardware,  $\mu$ Processor &  $\mu$ Controller, GPU, SoC, SBC, OBC:** Zynq UltraScale+ ZCU102, Enclustra Mercury+ XU7 Xilinx Zynq UltraScale+, STM32, Raspberry PI, Espressif ESP32, Rabbit Semiconductor R3000, ARM; LP3500 and [RCM3700](#); AMD186ES; Falcom, Wavecom, Siemens, Ericsson intelligent GSM/GPS/GPRS; Z80, MOS Technology 6502; Intel x86; Matrox MGA graphic chip series (Titan, Atlas, Dubic, Athena, Storm, MGA-2064W formally Millennium, [non disclosure agreement](#)); S3 Graphics chip series; Matrox's 3D, Image and Video boards; [JVC's highres](#) cameras; AT, VESA, MCA, PCI Bus; NI I/O boards [AT-DIO-32F](#), [RT7030 OBC](#) with 6533 I/O module; Intel 8255 and MCS-48; TIGA TMS34010 and TMS34020 graphic processors; *FPGA & Verilog & VHDL*
- **Electronics equipment, peripheral, IC blocks, datasheet:** timers, ADC, DAC, PWM, sensors, motors, encoder, CAN transceiver, transducers, PLC, ... [more](#)
- **Operating Systems, networks, clouds:** IBM z/OS, MS Windows from 3.11, FreeRTOS, RTEMS, LynxOS X11, Petalinux, Debian embedded, Raspbian, Linux (Ubuntu, Mandrake, Red Hat, Suse, Kodi, Debian, Kali) and LFS, VMWare, VirtualBox, Micrium  $\mu$ C/OS-II, CP/M, IBM PC DOS, MS-DOS, Pharlap and Rational DOS Extender, IBM OS/2; 10NET, Novell; Apple II & III, Macintosh "classic" MacOS; Commodore, Amiga, Olivetti P6060; IBM AS400 & System 35; Digital PDP11; AWS (Alexa/Echo dot skills)
- **High-tech software applications:** Understand, CA Endeavor SCM, ProjectLibre and MS Projects; MS Visio; Confluence, SharePoint; SAP; Freemind; Altia; [Matlab](#); [Maple](#); [LabVIEW](#) & [LabVIEW RT](#); [Mathematica](#); Autocad and 3D-Studio, Unity 3D, Unreal Engine, Blender, Crystal Graphics Topas and Topas Professional ([March](#) and [July](#) congratulation fax), Caddy, Cadence, Microstation, ComputerVision, Nemetschek Allplan, 3D-Designer, Arc+, Kinetix 3D Studio Max, Ziegler Signalys DSP, Twine, OrCAD
- **Most important business entities:** Brunel, BCS, IBM, **Matrox**, Broadcom Mainframe, Siemens Mobility, Sirio Panel, **BPD Defence and Space**, Fiat Auto, **Fiat Avio**, **ELV** (European Launch Vehicle), Avio-Spacelab, Minardi F1, Ansaldo, Mitsubishi, Hitachi, JVC, Autodesk, Wolfram Research Italia, National Instruments, Crystal Graphics, Altia, Gilardoni, Maplesoft, Nemetschek, Politecnico di Milano, Esercito Italiano, Marconi Group, Zworld, Falcom, Wavecom, Siemens, Ericsson, Olivetti, Intel, S3 Graphics, Philips
- **Software applications:** Excel (spreadsheet), Word (word processor), PowerPoint (presentation), video editing, picture editing, database, web editors, Apple II/III and Macintosh system and office software products

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