# *CURRICULUM VITÆ*

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***Profile:*** I am a software developer, consultant and author of computer books with three decades of professional experience. First in European countries such as Hungary, Austria, Germany and the United Kingdom, later in North America, I worked on many software projects in the areas of scientific and business programming. In my spare time, I also work on problems in theoretical physics. I am a frequent contributor on the question-and-answer site quora.com, in topics such as information technology and theoretical physics, with many of my answers featured on *Apple News*, *Forbes* and *The Huffington Post*. My technical abilities and my communication skills are demonstrated by a variety of Windows and UNIX applications, planning documents and studies, scientific papers, and several books that bear my name. Highlights from my professional career include the following:

2016– : Developed a Web-based tool (PHP, MySQL, JavaScript) for evaluating prospective legal cases, for a European client.

2012– : Developed Microsoft SharePoint server-side (C#) and client-side (JavaScript using SharePoint) components for automatic translation for IceFire Studios. Continue to provide occasional assistance with developing new technologies.

2004– : Repaired and continue to maintain the tensor algebra packages of Maxima, the world's premier open-source computer algebra system, written in LISP and running on many operating systems. Manage Maxima releases.

2000– : Established and continue to maintain `rskey.org`, a virtual museum of programmable calculators.

1999– : Ported the world's first multi-user computer game (M.U.D., or Multi-User Dungeon) from BCPL and a 36-bit computer platform to modern 32-bit architectures. Continue to host this historical game at `british-legends.com`.

2016–2017: Developed IT security training course material (to be published in book form) for end users and home users.

1998–2017: Developed and maintained Industry Canada's Integrated Spectrum Observation Centre for Windows: in approximately 120,000 lines of C++ code and accompanied by a 300+ page training and reference manual, this client-server suite provides remote access to radio frequency instruments such as spectrum analyzers and test receivers.

2013–2016: Assisted Best Theratronics, a medical device manufacturer in the design and development of firmware (C#, MS-SQL; QNX) for a new radiological device, and with the preliminary design of a new software architecture.

2013–2015: Helped with the design, budgeting, organization and staffing plan and procurement for the IT architecture of a new metropolitan traffic management center in the United Arab Emirates.

2009–2013: Developed GPGPU N-body simulation code and Bose-Einstein condensate simulation code.

2005–2012: As a key member of a NASA JPL led team, participated in the resolution of the Pioneer Anomaly. Developed precision orbit determination code and a ray tracing estimator of thermal emissions (C++ and FORTRAN, Windows and Linux). Wrote code to interpret spacecraft telemetry records stored in obsolete binary formats. Co-authored several papers. This work was featured on the cover of *Physical Review Letters* (June 15, 2012) and *IEEE Spectrum* (December 2012).

1995–2011: Developed NORTEC H.E.L.P., a product database browser and engineering estimator for use by agents of NORTEC, a manufacturer of building humidification equipment; developed prototype of new Web-based application version.

2004–2010: Implemented a Web application (Oracle, Java, HTML and JavaScript) for NORTEL, tracking real estate development projects. Hosted, maintained and rewrote a similar application (MySQL, PHP, HTML, and JavaScript) for Canada Post.

2001–2009: Developed several Windows Mobile programs, some of which were licensed to AMD.

2005–2007: As a Director of our Condominium Corporation, oversaw the successful completion of the modernization of our condominium complex, meeting all project objectives while staying within the planned approx.. $1 million budget.

2003: Wrote an open-source C-language Linux driver for the Energizer line of low-cost uninterruptible power supplies.

1994–1999: Wrote several books published by SAMS Publishing in the United States, including *Visual C++ 5 Unleashed*, and *Linux: A Network Solution for your Office*.

1997: At National Defence, helped define a records and document management system and prepare the project for tender.

1994–1996: Developed bar code printing software (C/C++, macros in Microsoft Word, WordPerfect, and AMI Pro/Lotus Word Pro) for Canada Post. Developed experimental code to analyze the topology of letter carrier routes and coloring route maps.

1993–1996: For Bell Canada, developed software (C/UNIX), still in use as of 2010, to remotely test telephone switching systems.

1994–1995: Developed a Microstation CAD application to model the sight line of airport control towers, for Public Works Canada.

1987–1994: Coauthored the Canadian Patent Office's $65 million Automation Master Plan. Assisted the consulting company in the development of business opportunities with the patent offices of China, Hungary, Mexico, and Taiwan.

1989: Developed several extenions to the Microstation CAD software suite while working at Canada Post Corporation.

1988–1989: Coauthored a study for the redevelopment of the Financial Institutions File of the Canadian Payments Association.

1986–1987: At the Vienna University Hospital, ported a statistical analysis package from TRS-80 BASIC to SPSS/PC.

1986: Wrote my second book in Hungarian, a professional reference for programmers of the Commodore-16 home computer.

1982–1986: Helped develop several early computer games, including the first aircraft simulation game for the Commodore-64.

1984–1985: Developed statistical analysis software (Commodore-64 BASIC) used in agricultural research at Bábolna State Farms.

1980–1982: Working for Hungary's civil aviation authority, developed aircraft simulation code (FORTRAN, Simula-67).

1979–1980: Wrote the first Hungarian language book on *Rubik's Cube*.

## *Platforms, Development Tools and Environments:*

- Windows, using Visual Studio (all versions); C/C++, C#, Visual Basic, .NET, MS-SQL Server, PowerShell, Office
- Apache server, HTML/CSS with PHP and MySQL/MariaDB, client-side JavaScript, jQuery, AJAX, Dojo
- Android using Eclipse and Visual Studio
- Linux using C/C++ and the GNU compiler suite, bash, csh, perl, X
- Scientific programming with Maple, Mathematica, Maxima, Minpack, R, SPICE/CSPICE, spreadsheets
- GPGPU programming using AMD Stream SDK, CUDA, OpenCL
- Enterprise platforms: Microsoft Exchange Server, Microsoft SharePoint, Oracle, Oracle AS, sendmail
- Machine-language development and debugging including Intel, Motorola and legacy 8/16-bit architectures
- Embedded systems development (Windows CE including Platform Builder, Cyan eCOG, Microchip with MPLAB, PIC)
- Networking (TCP/IP, sockets, network protocols, winsock) and remote control (GPIB/NI-488, RS-232)
- Geographic information systems, including ESRI ArcGIS, interfacing with GPS
- CAD including development of extensions for AutoCAD and Microstation
- Scientific typesetting via TeX/LaTeX
- Collaboration and project management: git, Microsoft Project, subversion
- Cloud platforms setup and management: Azure, AWS, GoDaddy

## *Legacy Systems:*

- Languages: ADA, ALGOL, BCPL, COBOL, FORTRAN, LISP, Pascal, PL-1, Simula-67, lex/yacc
- Platforms: CDC-3300, DECSystem-10, IBM S/360, PDP-11, 8/16-bit microprocessors and microcontrollers
- Software: dBase, FoxPro, QNX (older versions), SPSS

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## *Books:*

- *Linux: A Network Solution for your Office* (SAMS Publishing, 1999)
- *Visual C++ 5 Unleashed* (SAMS Publishing, 1998)
- *Visual C++ 4 Unleashed* (SAMS Publishing, 1996)
- *Windows NT Workstation 4 Unleashed* (SAMS Publishing 1996)
- *Windows 95 Programming Unleashed* (SAMS Publishing, 1995)
- *The Commodore 16 Internal Architecture* (Novotrade Budapest, 1986)
- *The Magic Cube* (TIT Budapest, 1980)

## *Select Publications:*

- Slava G. Turyshev et al., "Direct Multipixel Imaging and Spectroscopy of an Exoplanet with a Solar Gravity Lens Mission", Final Report for the NASA's Innovative Advanced Concepts (NIAC) Phase I proposal (arXiv:1802.08421 [astro-ph.IM])
- Hussain Al-Harthei, **Viktor T. Toth**, et al., "Efficient real-time allocation of patrol cars in traffic management", Proceedings of the 2nd World Congress on Civil, Structural, and Environmental Engineering (CSEE'17), ICTE-105
- Jun Luo et al., "TianQin: a space-borne gravitational wave detector", Class. Quant. Grav. 33 (2016) 035010
- Eniko J. M. Madarassy, **Viktor T. Toth**, "Evolution and dynamical properties of Bose-Einstein condensate dark matter stars", Phys. Rev. D 91, 044041 (2015)
- Slava G. Turyshev, Mikhail V. Sazhin, **Viktor T. Toth**, "General relativistic laser interferometric observables of the GRACE-Follow-On mission", Phys. Rev. D 89, 105029 (2014)
- **Viktor T. Toth** , "Humidification requirements in economizer-type HVAC systems", ASHRAE Transactions 119(1) (2013)
- **Viktor T. Toth**, Slava G. Turyshev, "Finding the Source of the Pioneer Anomaly", IEEE Spectrum, December 2012 (cover story)
- Slava G. Turyshev, **Viktor T. Toth**, et al., "Support for the thermal origin of the Pioneer anomaly", Phys. Rev. Lett. 108, 241101 (2012); (featured on the cover, June 15, 2012)
- Slava G. Turyshev, **Viktor T. Toth**, et al., "Support for temporally varying behavior of the Pioneer anomaly from the extended Pioneer 10 and 11 Doppler data sets", Phys. Rev. Lett. 107, 081103 (2011)
- Slava. G. Turyshev, **Viktor T. Toth**, "The Pioneer Anomaly", Living Rev. Relativity 13 (2010), 4
  J. W. Moffat, **V. T. Toth**, "Testing modified gravity with globular cluster velocity dispersions", Astrophys. J. **680** 1158 (2008).
- **Viktor T. Toth**, "Tensor manipulation in GPL Maxima", (arXiv:cs.SC/0503073)

## *Education:*

Budapest Technical University (Electronics Engineering)

## *Languages:*

English, Hungarian, some knowledge of French, German, and Russian

## *Personal:*

Born in 1963. Married (no children). Dual (Canadian and Hungarian) citizen, with residence in Ottawa.