Professional Summary

- **Senior systems programmer and software engineer** with over **50 years of professional experience** designing, developing, and maintaining **large-scale software systems**, including **process simulation engines, embedded systems, middleware platforms, and operating-system–level tools**. Extensive background in **C++ and systems-level programming**, with deep expertise across **simulation systems, distributed middleware, embedded firmware, and cross-platform desktop applications**, supporting **engineering analysis, data acquisition, system integration, and decision-making** in industrial, academic, and research environments.

Organizational Culture

- **Decades of collaboration** with industry, academia, and research institutions, including long-term roles with **engineering firms, universities, and multinational technology organizations**.
- Independent and highly reliable contributor, frequently **entrusted with foundational system design**, long-term maintenance, and **mentorship and training of engineers, students, and researchers**.
- Strong analytical mindset with a focus on **system architecture, problem decomposition, and low-level correctness**, applied to complex technical challenges.
- Extensive experience in **teaching, technical instruction, and knowledge transfer**, including college-level courses, university teaching assistantships, and invited technical presentations.

Technical Summary

Engineering & Development Tools

- Embarcadero RAD Studio, C++ Builder, Microsoft Visual Studio, Xcode, CMake, Git, CrossWorks for ARM, AutoCAD-related tooling, Microsoft Access, Oracle RDBMS, PostgreSQL, SQLite, MPW, CodeWarrior.

Programming Languages

- C++, C, Python, Java, JavaScript, Lua, Tcl, Objective-C, Pascal, Fortran, APL, Lisp, Smalltalk, BASIC, PL/I, Assembly (multiple architectures).

Systems & Modeling Expertise

- Design and implementation of **simulation engines**, **dynamic electronic flowsheets**, **middleware systems**, **embedded firmware**, and **distributed client/server architectures**.
- Extensive experience across **embedded systems**, **real-time operating systems**, **device drivers**, **cross-platform desktop software**, and **systems programming**.
- Broad exposure to **compiler design, language tooling, database systems, operating systems**, and **low-level hardware interaction** across decades of evolving computing platforms.

Contact

- **Email**: turing@shaw.ca
- **Mobile**: (604) 619-1676
- **Website**: http://www.opendragon.com

Experience

Senior Systems Programmer, Aurel Systems, Incorporated, Canada (2019 – Present)

Tasks Performed

- Continued development of a **dynamic electronic flowsheet** for chemical processing within the **CADSIM Plus** simulation environment.
- Contributed to advanced **process simulation and modeling tools** supporting engineering workflows involving **material and energy flows**.
- Maintained and evolved a long-lived industrial **C++ codebase** used in production environments.
- Supported Windows-based system integration using **DDE and COM**.

Technologies

C++, DDE, COM, Embarcadero RAD Studio, Microsoft Windows.

Senior Software Developer, Vecima Networks, Canada (2015 – 2019)

Tasks Performed

- Developed software supporting the **Entra** product line.
- Implemented a **Lua-based collectd system** for metrics collection.
- Worked within the **CI team**, developing automated scenarios using **Gauge** and **Python**.
- Supported Linux-based and embedded development workflows.

Technologies

C/C++, Python, Lua, LPEG, bitbake, gauge, git, Linux, embedded systems.

Software Developer, H+ Technologies & Simon Fraser University, Canada (2014 – 2015)

Project

Movement and Meaning (m+m) Middleware System.

Tasks Performed

- Designed and developed the **m+m middleware system** for distributed movement data.
- Enabled integration of **3D data sources** with tabletop holographic display systems (**Holus**).
- Trained engineers, students, and faculty in system usage and extension.
- Supported an international **industry–university collaboration**.

Technologies

C++, JavaScript, Xcode, Visual Studio, CMake, git, macOS.

Software Systems Engineer IV (Mac Developer), Absolute Software, Canada (2012 – 2014)

Tasks Performed

- Maintained and extended **CompuTrace** client software for macOS.
- Developed and supported macOS installers and security components.
- Contributed to endpoint security software for desktop systems.

Technologies

C++, Xcode, macOS.

Software Engineer, POSH Manufacturing, Canada (2011 – 2012)

Tasks Performed

- Developed a **macOS GUI utility** for managing USB-based card readers.
- Implemented device configuration and control features.

Technologies

C++, Xcode, USB, macOS.

Senior Software Engineer, Webtech Wireless, Canada (2009 – 2011)

Tasks Performed

- Worked on **embedded automotive telematics platforms**.
- Implemented system services and rewrote the command interpreter as **Tcl extensions**.
- Maintained firmware for in-vehicle tracking devices.

Technologies

C++, Tcl, ARM, CrossWorks, JTAG/SWD, FreeRTOS.

Senior Systems Programmer, Aurel Systems, Incorporated, Canada (2003 – 2009)

Tasks Performed

- Designed and implemented the **low-level simulation engine** for CADSIM Plus.
- Developed the **extension API** for simulation customization.
- Built Windows-based interfaces for simulation tools.

Technologies

C++, DDE, COM, Embarcadero C++ Builder, Microsoft Windows.

Senior Systems Programmer, ATP Engineering Limited, Canada (2000 – 2003)

Tasks Performed

- Continued development of the **Mobilidex** system.
- Built AutoCAD interpretation tools and a **recursive Java/JDBC database**.
- Member of the founding software development team.

Technologies

C++, Java, Microsoft Windows CE.

Senior Systems Programmer, INToo Software Corporation, Canada (1999 – 2000)

Tasks Performed

- Co-developed the **Mobilidex network-based disk system**.
- Contributed to software later awarded **U.S. and Canadian patents**.

Technologies

C++, Microsoft Windows CE.

Technical Consultant, Hewlett–Packard Canada (1997 – 1999)

Tasks Performed

- Co-developed **Skills Access**, an internal consultant-matching system.
- Built tools using Microsoft Access and VBA.

Technologies

Microsoft Visual Basic, Microsoft Access.

Systems Programmer, Aurel Systems, Canada (1990 – 1997)

Tasks Performed

- Developed dynamic electronic flowsheets, including a **Macintosh port**.
- Contracted to Hewlett–Packard for work on the **Canadian Advanced Air Traffic System (CAATS)**.

Technologies

C++, DDE, COM, Embarcadero C++ Builder, Windows, macOS.

Systems Programmer, Northwest Digital Research, Canada (1984 – 1990)

Tasks Performed

- Developed graphics systems, language translators, simulators, and low-level drivers.
- Built tool libraries and communication controllers.
- Acted as **HP 9000 system manager**.

Technologies

Pascal, Lisp, Assembler, X.25, HP 9000.

Systems Programmer & Operations Manager, Kockums CanCar, Canada (1981 – 1984)

Tasks Performed

- Developed system utilities, emulators, assemblers, and interpreters.

- Managed HP 3000, HP 1000, and Datapoint systems.

Technologies

Pascal, HP 3000, HP 1000.

Systems Programmer, MacMillan Bloedel, Canada (1979 – 1981)

Tasks Performed

- Developed graphics subsystems, communication software, and cross assemblers.
- Acted as backup systems manager across multiple enterprise platforms.

Technologies

Pascal, Fortran, APL, HP 3000, IBM VM/CMS.

Systems Programmer, Canadian Forest Products, Canada (1973 – 1979)

Tasks Performed

- Performed OS maintenance and systems programming for **IBM 1800** process control computers.
- Developed simulators, assemblers, and cross-reference tools.
- Acted as systems manager.

Technologies

Fortran, Assembler, PL/I, APL, IBM 1800.

Research Assistant / Computer Programmer, University of Washington Chemistry Department, USA (1972)

Tasks Performed

- Developed high-speed data sampling and graphics software for **T-jump and P-jump apparatus**.
- Supported experimental chemistry instrumentation and analysis.

Technologies

FOCAL, PDP 8/L.

Professional Associations

Memberships, affiliations, and professional service:

1. **iOS Developer Program** — Apple Developer Program member.
2. **Mac Developer Program** — Apple Developer Program member.
3. **SGI Developer Program** — Registered developer.
4. **HP Developer Program** — Registered developer.
5. **VanLisp (Vancouver Lisp Users Group)** — Member (2005 – Present).
6. **Whisper[s] Project** — Principal member (2002 – Present).
7. **SIGGRAPH Vancouver Chapter** — Executive member (1989 – 1993); Editor of the *Vancouver local SIGGRAPH Newsletter ("Computer Vistas").*

8. **Graphics Interface Conference** — Editor of the *Graphics Interface '92* and *Graphics Interface '93* Conference Proceedings.
9. **Computer Graphics Pioneers** — Member.
10. **V2_Lab (Rotterdam)** — Artist-in-residence (2003).

Patents

Issued patents:

1. **Jaffe, N.**, Crisologo, J. (2013). *Sensing ignition by voltage monitoring.* **U.S. Patent 8,393,201**, issued March 2013.
2. Duncombe, C., **Jaffe, N.**, Swain, N. M. (2006). *Method and system for access to automatically synchronized remote files.* **U.S. Patent 7,127,477**, issued October 2006; **Canadian Patent CA 2411294**, issued 2011.

Education

B.Sc. Computer Science & Mathematics (1974 – 1977), Simon Fraser University

Degree Summary

Graduated with a **Bachelor of Science**, **double major in Computer Science and Mathematics**.

Focus Areas

Foundational and advanced training in **computer science theory**, **mathematical methods**, and **systems-level problem solving**, forming the academic basis for later work in **systems programming, simulation, and software architecture**.

Undergraduate Studies (1971 – 1973), University of Washington

Program Summary

Completed undergraduate coursework prior to transfer, with academic involvement connected to scientific computing and research environments.

Academic Context

This period coincided with early work as a **research assistant / computer programmer** in the University of Washington Chemistry Department, supporting computational and experimental research activities.

Publications

Selected peer-reviewed publications and invited works:

1. Bernardet, U., Adhia, D., **Jaffe, N.**, Wang, J., Nixon, M., Alemi, O., Phillips, J., DiPaola, S., Pasquier, P., Schiphorst, T. (2016). *m+m: A novel Middleware for Distributed, Movement-based Interactive Multimedia.* **MOCO '16**, Proceedings of the 3rd International Symposium on Movement and Computing, Thessaloniki, Greece, Article 21. DOI: 10.1145/2948910.2948942.
2. Schiphorst, T., Seo, J., **Jaffe, N.** (2010). *Exploring touch and breath in networked wearable installation design.* **ACM Multimedia 2010**, Proceedings of the International Conference on Multimedia, Firenze, Italy, pp. 1399–1400. DOI: 10.1145/1873951.1874225.

3. Schiphorst, T., Motamedi, N., **Jaffe, N.** (2007). *Applying an Aesthetic Framework of Touch for Table-Top Interactions.* **IEEE Tabletop 2007**, Second Annual IEEE International Workshop on Horizontal Interactive Human-Computer Systems, Newport, Rhode Island, pp. 71–74. DOI: 10.1109/TABLETOP.2007.20.
4. Schiphorst, T., Nack, F., KauwATjoe, M., de Bakker, S., Stock, A., Aroyo, L., Rosillio, A. P., Schut, H., **Jaffe, N.** (2007). *PillowTalk: can we afford intimacy?.* **TEI '07**, Proceedings of the 1st International Conference on Tangible and Embedded Interaction, Baton Rouge, Louisiana, pp. 23–30.
5. **Jaffe, N.** (2006). *Wearing Lisp: A Journey Towards Wearable Intelligent Systems.* **LispVan**, April 2006.
6. Schiphorst, T., Lovell, R., **Jaffe, N.** (2002). *Using a gestural interface toolkit for tactile input to a dynamic virtual space.* **CHI '02 Extended Abstracts on Human Factors in Computing Systems**, Minneapolis, Minnesota, pp. 754–755.
