7145 Meadow Gate Drive   pete@soper.us
Apex, NC 27502   919 270 9433 (cell)
                                                919 362 4635 (home)

SUMMARY

Owner of SdevCS, LLC (DBA Apex Proto Factory), a North Carolina corporation chartered to facilitate electronic embedded system development during the proof of concept and prototype hardware and software design, assembly/coding, and testing phases as well as providing consulting and instruction services. Engaged with multiple community organizations and activities oriented toward STEM education. Extensive experience with software and hardware development.

EXPERIENCE

Self study and community engagement, late 2011 to present.
Refreshed math skills and understanding of electronics theory while practicing with modern embedded development tool chains and building a highly capable electronics and software development facility. Developed a data logger and associated software for ecological study of an endangered species, helped an area entrepreneur with development of data loggers for trail and road traffic projects, developed a rangefinder-based athletic workout accessory for weight lifters and completed many personal projects to become proficient with PCB design, on site reflow soldering and rework, and use of RTOS and stand alone software for demanding technical applications. Continuing study and practice with new tool chains, getting up to date on behavior science starting from Kahneman and Tversky and working forward.

Private R&R July, 2008 to late 2011 following the collapse of Sun Microsystems and my failure to get isolates into java.lang.

SDevCS, LLC (DBA Apex Proto Factory). Owner and managing member, 2015 to present. Creating proof of concept and prototype implementations of embedded electronic systems. Firmware development. Facilitating related development by others. Small volume custom PCB design, assembly and test, specializing in practical small scale SMT. Technical consultation. Specialized Instruction. Patent related services available.

Sun Microsystems, Staff Engineer, 1997-2008.
Solaris Software Division. Original specification lead for addition of a process abstraction to the Java programming model via an "Application Isolation API". (JSR 121: ending up as an optional class library that has provided its advanced capabilities to small and large scale Java implementations.) Part of a team responsible for development of the virtual machine and core runtime environment software systems for multiple major revisions of Java. Helped rewrite the fourth edition of *The Java Tutorial.* Co-inventor for three patents. Took part in discussions with the authors as they wrote *Java Concurrency in Practice.*

Storage Division. Developed an automatic, self-maintaining C to Java Native Interface API generator to connect the company's storage management software written in Java to storage control software residing in the Solaris operating system kernel.

Encore Computer Corporation (startup), Software Engineer, 1984-1997.
Put together and maintained a system for emulation of an IBM mainframe operating system that

served as a test bed for IBM I/O channel-emulating SCSI target interfaces at Encore's Cary, NC R&D site. Compiler development related to the company's bundled third generation language tool chains (C, C++, Fortran, and Pascal). This included writing the back end NS32k code generator for the Pascal compiler for the company's National 32k-based family of multiprocessor computer systems, writing parts of a new libm to bring floating point performance in line with customer requirements, extensive work on Green Hills compiler improvements and development and implementation of a systematic regression testing and a code base management system that drove the compiler and runtime library bug count to zero and kept it there. Managed the group for two years before returning to individual technical contribution. Encore Computer was acquired by Sun Microsystems.

Network Products Corporation (startup from day one), Software Engineer, 1982-1984.
Created software development tools, the realtime operating system and associated drivers, hardware POST and manufacturing test software for a line of data communication appliances including standalone and modular statistical multiplexers. Network Products was acquired by Penril DataComm, Inc.

Business Application Systems (startup: employee #1), Senior Software Analyst, 1978-1981.
Created custom network software products for sale while the company prepared to develop the "BASPort" portable operating system product supporting the "write once, run anywhere" feature offered by Java 15 years later. Interim products included a dumb terminal driver that emulated TI's standard minicomputer terminal and a statistical multiplexer built on top of a custom embedded operating system. The latter required a from-scratch HDLC implementation written in TI990 assembly language. Lead developer of one of the virtual machines for BASPort. Also created various tool chain components including a macro assembler, linker, and machine level debugging tools. BAS was acquired by SCI Systems, Inc.

Data General Corporation, Programmer, 1975-1977.
Took over development of the company's RPG commercial programming language system compiler and virtual machine based runtime environment as it was transitioning from alpha to beta testing, finished product debug and refined and extended the product with advanced development features. Managed a small team to assume responsibility for maintenance and further development. Lead a small team investigating avenues for the company's entry into the word processing market.

University of Alabama in Huntsville, Research Assistant (part time), Research Analyst, 1972-1975.
Designed and implemented the realtime experiment data acquisition systems for space flight psychological environment simulations under NASA research grants. Designed and implemented data reduction and analytic software for experiment data, including a highly configurable analysis tool used by students in the department's theory of motivation course.

Self Employed, Programmer, 1973.
Designed and implemented a physician's billing system from scratch using a B-tree database.

Lurleen Wallace Developmental Center, Psychologist Assistant, 1972-1973.
Taught profoundly and severely mentally handicapped children basic self management skills and play behaviors. Trained attendant staff how to teach these skills as well as replacing problem behaviors with better alternatives. Designed and built custom equipment to aid with instruction.

Self Employed, Private Tutor, 1971.

Taught severely mentally handicapped children self-help, pre-language, and appropriate play skills in their own homes. Designed and fabricated custom equipment for visually displaying speech amplitude and duration, used in treatment of stuttering behavior.

International Business Machines Corporation, Machine Shop HS Graduate Intern, 1968. Fabricated custom parts for the Saturn V Instrument Unit, including an adapter plate that is on the Moon. Wrote a report characterizing Heli-Coil installation failures in detail to assist the machine shop manager in dealing with a problem vendor.

Community Engagement

2017 IEEE Southeastern Conference, Charlotte, NC, April, 2017. (pro bono) Developed and fabricated the custom control circuits for the nine identical contest arenas hosting an autonomous robotic contest. Over 50 university teams participated, and the arena hardware worked perfectly.

Triangle Embedded Interest Group (TriEmbed), April 2013 to present. Original Co-leader. Created email list, web and blog site, slide/video meeting archive, facilitated participation of TriEmbed people at area STEM-related events. Created much of the blog site content and many presentations to monthly meetings.

SplatSpace: Durham's Makerspace member since 2012, on the board of directors 2013 and 2015. Active, hands-on support of operations and infrastructure development; conducted tutorials and workshops for members of the community; and gave science demos at school and museum science fairs.

Supervised middle and high school field trips (passed Wake County school system background checks); Created elementary school chess club and conducted a science class enabling early grade school children to understand Boyle's Law.

Affiliations

Triangle DIY Biology (2017-present)
Triangle Embedded Interest Group (2013-present).
Triangle Linux Users Group (2003-present).
Triangle Java Users Group Board of Directors (2006-2010).
Potomac Valley Radio Club (amateur extra class callsign AD4L, 1996 to present)
Institute for Electrical and Electronic Engineers (lapsed).
Association for Computing Machinery (lapsed)

Education

Numerous online courses and in-service training sessions related to computer science and mathematics.
In-service self-study of computer languages, operating systems, concurrent programming, realtime systems, and software engineering.
Self-study of electronics augmenting childhood tutoring by EE parent starting at age eight. First personal computer (SWTPC 6800) built in 1976. Linux user since 1993.

Bachelors degree, University of Alabama in Huntsville. Psychology major, Computer Science and Sociology minors. Ate, drank and slept computing from about 1973 onward.

Engineering studies, Auburn University.

Publications and Patents

Grzegorz Czajkowski, Stephen Hahn, Glenn Skinner, Pete Soper, Ciaran Bryce:
A resource management interface for the Java platform. Softw. Pract. Exp. 35(2): 123-157 (2005)

(acknowledgement) Relative Desirability of Leisure Activities and Work parameters in a Simulation of Isolated Work Stations, Sullins, Walter R., Rogers, Jon G., Final Report November, 1971 through February, 1974, National Aeronautics and Space Administration George C. Marshall Space Flight Center under NASA Grant NGL 01-008-110. Submitted by the University of Alabama in Huntsville School of Graduate Studies and Research, July, 1974.

System and Method for Management of Characterized Resources, US Patent #7,685,597.

Regulation of Resource Requests to Control Rate of Resource Consumption, US Patent #8,046,763.

Dispenser Determines Responses to Resource Requests for a Single Respective One of Consumable Resource Using Resource Management Policy, US Patent #8,584,129.

0.80

.