RESUME

Fred Koschara
39 S. Main Street, Apt. 1R
Wellsville, New York 14895-1520
mobile: **617 - 792 - 4320**
email: **wfredk@wfredk.com**

Web: **http://www.wfredk.com**

github: **L5Software**
StackOverflow (StackExchange network): **FKEinternet**
LinkedIn: **https://www.linkedin.com/in/fredkoschara**

Immediate Employment Objective

I am available for projects where my background and interests can quickly benefit the customer with opportunities to expand my skills in additional or supporting efforts. I am interested in Internet and Web application development and integration work where I could utilize my extensive recent experience with PHP, Python, JavaScript and CRUD with MySQL/MariaDb.

I am interested in offsite/telecommuting work arrangements, or assignments with an aerospace company in a warm location. I am primarily looking for "short term" contract or consulting jobs, but I *may* consider a full-time ("permanent") position offering a *particularly* attractive combination of interesting work *in line with my long-term objectives*, and suitable compensation.

My most recent work is secure O/S, Web and network system development, including ecommerce, GUI and CLI design using PHP, HTML, JavaScript (with and without jQuery) , AJAX, CSS, and Python, MySQL and PostgreSQL CRUD interfaces in PHP, Python, C++ ('nix & Windows), C/C++ for Windows (desktop, CE), client/server (Windows/FreeBSD) development in C++ including protocol design, Ruby on Rails, PHP, C/C++, and Perl CGI scripts, and hardware design; my diverse background also covers other languages and systems. My expertise and interests are in user-interface design, real-time systems, image processing, controls and robotics, hardware integration, diagnostics and debugging. I am experienced in start-to-finish system and software design: I built several programs from idea through completed software, including installation and setup utilities, user manuals, and online Help; four active on the Internet. I have done Java and C# tutoring; and have installed, configured, and managed PC network systems.

Employment History

Note: Most of my work history is in contract and consulting positions.

L5 Software Development, Wellsville, NY. 5/2018, 9/2018. *FOSS PHP developer*. **HumanMathTest** implements a math test 'bot deterrent PHP class for use in online forms. Published at *https://github.com/L5Software/HumanMathTest*

The Race To Space Project, Medford, MA, Wellsville, NY. 12/2017 – present. *Author, Web Developer*. Web development using PHP, JavaScript with and without jQuery, HTML, CSS, AJAX, MariaDb (MySQL), Python and shell scripts. Fiction and non-fiction writing, research, financial modeling, graphics and artwork, storyboarding, investor and production relations, a PowerPoint **funding deck** is on the Investors page (direct access at *https://RaceToSpaceProject.com/media/RaceToSpace.ppsx*).

PHP Generic Sites, Medford, Wellsville. 1/2016 – present. *President*. Write a CRUD system to monetize a portfolio of undeveloped domain names. (A portfolio of about 400 domain names, most unutilized, is now running this software.) The system offers domains that (may be) for sale, provides forms to request more information. Once complete, the system will put relevant ads on each domain's landing page to generate revenue. Besides creating income from the current portfolio, the system will be sold to other Internet real estate investors. The project site includes Admin page screen shots, and lists domains driven by the system, with prices of those for sale. Some system tools in Python and Perl.

Apperian, Inc., Boston, MA. 9/2014 – 8/2016. *Senior Software Engineer*. Architect, design, develop secure Android tablet including DAR (Data At Rest), DIU (Data In Use) and DIM (Data In Motion) components. Responsible for design & implementation of secure file system, select AES/XTS library for encryption. Wrote test and validation tools, documentation and supporting scripts in Python and bash. Debugging and support of app wrapping system. Agile development, primarily C and Java for Android in a Linux development environment in a VM hosted on a Mac.

Doble Engineering, Watertown, MA. 12/2013 – 8/2014. *PHP developer*. Convert Java email preprocessor to a stand-alone PHP list mailer. Add features, Web-based interface and control pages. Object oriented PHP, HTML, AJAX, jQuery/JavaScript and CSS development.

HelmetHub, Boston, MA. 9/2013 – 10/2013. *Python programmer*. Add missing embedded Python features to a bike helmet dispenser.

SpacePowerNow.org, Peabody, Medford, Wellsville. 3/2013 – Present. *Evangelist*. This project aims to raise public awareness of the critical nature of the end-of-oil crisis looming in the near future, solar power satellites in Earth orbit are the only reasonable long-term solution. Web design and development including content, tab-style page menu, CRUD based customer data system, PayPal integration, automatic email messaging, Admin back end for CRUD database maintenance, viewing log files, emailing customers. Mass mailings using my custom Perl script.

MIT Sloan School of Management, Cambridge, MA. 3/2013 – 6/2013. *Web developer*. Rebuild school's home page during interview and first project: incorporate new design, object-oriented programming. Clean up PHP notices, warnings to make `error_log` useful. Build Spring 2013 Alumni magazine Executive Education page. Build Big Idea 2013 campaign site, convert hand coded HTML 2012 site to object-oriented PHP. Create prototypes, PageFrame.php file to ease development, aid consistency, support OOP. Update titles and `<meta>` tags for SEO. Update pages in response to Web requests. Clean PHP and HTML to eliminate XHTML validation errors. Post-event Alumni Reunion 2013 page updates. Write PHP code style guide. Create file upload system for the production server cluster. Write procedures to updating Media Highlights XML files to pass ampersands through of XML parsing. Tutor re. PHP best practices and object oriented programming. Work on moving PHP sites to Ektron CMS.

The Original Prototype, Peabody, Medford, Wellsville. 10/2012 – Present. *Inventor*. Electromechanical system engineering and design, e.g., hand-held devices, robotics, stereo vision equipment, miniature machines. Web design and development including content, password protected customer portals, Admin section for site and database CRUD maintenance, system support tools in Python, PHP, Perl and shell scripts.

- **Project:** Innovative electronic cigarette: Develop hardware and software for a novel electronic cigarette concept, including apps on Bluetooth or USB connected devices. Wrote and filed provisional patent application.
- **Project:** Participate in development of a meeting recording system using IP cameras. Develop DirectShow software components, hardware/software integration, develop packaging and accessory hardware.
- **Project:** Develop Arduino-based "Automatic Rocket Controller" to cut costs, enhance uniformity and accountability, and improve end user experience. Arduino software development, prototype shield to interface customer equipment, debug Arduino development tools. Once initial development finishes, design a custom board for initial production.

Active Broadband Networks, Framingham, MA. 1/2010 – 5/2012. *Network system software development*. Design, develop and optimize software used by major cable operators to monitor & control resources for millions of subscribers. Major rewrite of mission-critical usage analysis system, design, implement data aggregation to store 2 data months in progressively less granularity, major rewrite of analysis and reporting database ETL system including design and implementation of plug-in architecture, high-availability cluster configuration user interface, support replication between cluster primary and backup, major contributions writing LifeRay customer portal system, GUI controls for tiered/timed "sliding window" congestion management system, Python sys admin CLI command development, help design and implement a new prepaid service offering. Extensive Web GUI rewrite for more uniform user experience, JavaScript, CSS enhancements. Software test plan execution, updates. Mercurial source control. Back-end CRUD code primarily Python, PostgreSQL stored procedures; shell scripts, Perl; UI work in PHP, JavaScript, CSS, Java.

L5 Software Development, Beverly, Medford, MA, Wellsville, NY. *Software Developer, Consultant.* 9/1995 - present. Web site design and production, Web application development, contract programming, hardware/software system design and development, commercial desktop software development, FreeBSD Web hosting, source control using Mercurial, svn, cvs and SourceSafe.

- **Web site design/coding:** I've been designing and building LAMP stack sites and components ('L' is Linux and/or FreeBSD, 'A' is Apache, 'M' is primarily MySQL/MariaDb, also PostgreSQL, 'P' is primarily PHP, also Python or Perl) since 1996, using nearly every modern Web technology, including CRUD, AJAX, CSS and XML, addressing browser compatibility, and development in languages including (X)HTML, JavaScript and jQuery, SQL, Java and Unix shell scripting. Very familiar with ecommerce, I wrote three custom shopping carts for complex product and pricing, including Authorize.net and PayPal payment processing. I began with procedural PHP 3, now use object-oriented programming in PHP 5, currently upgrading to PHP 7. Building sites I used custom code, frameworks such as Ruby on Rails, and CMSs including WordPress, Drupal and Joomla, and I use PaintShop Pro extensively for graphic design work.
- **Web application development:** In addition to public-facing Web sites, I have worked on several "back-end" Web applications. This work included designing client/server communication protocols, building CRUD-based application servers in C/C++ for Linux and FreeBSD, interfacing Web services using SOAP and XML, and high throughput (400 million+ hits per month) server code, with a Ruby/Rails front end, to update Flash ads in real time with MySQL data and log user metrics.
- **Contract programming:** I worked on many projects, primarily using C/C++, including a winCE device driver, proprietary server application updates, and serial communications between custom hardware and PocketPC devices. I also worked on a video switcher application, both a unique user interface and some video processing internals, and on Y2K date remediation. I worked on a Symbian multi-modal cell phone browser, and contributed significant portions of the code for a high-security ID card printing system.
- **Hardware/software system design and development:** I was the primary contributor in two iterations of the hardware and software architecture definition and design of an intelligent thermostat system to contain heating costs in landlord-heated apartments. I did all of the hardware design, component selection, power supply design, schematic capture, PC board layout, software design, and made substantial contributions coding 8051 and 8- and 32-bit PIC microprocessors.
- **Commercial desktop software development:** I wrote several applications marketed with varying degrees of success on the Internet, including Web development tools, search spiders and media collecting robots. I have also developed several "desktop-only" applications (ones with no Internet code) including utilities for eliminating duplicate files, time logging, and calendar applications.
- **FreeBSD Web hosting:** I run an Apache-on-FreeBSD hosting service, which gives me intimate knowledge of server configuration, operation and security including SSL, Kerberos, wrote custom shell and Perl scripts automating common tasks.

Web site development (a few examples; I own about 400 domain names, some more developed than others)**:**

- **Photo By Fred**, https://PhotoByFred.com, 2004-present, photographic art site, PHP cron script changes featured picture daily, includes slide show and calendar reviews of previously displayed images, subscription program (in development) to update subscriber's desktop with latest daily image through custom client/server protocol, protocol also supports dynamically updating marketing messages displayed in the client application, image manipulation tools to simultaneously generate watermarked wallpapers at multiple resolutions;
- **Limited Edition Photo**, https://LimitedEditionPhoto.com, 2004-present, CRUD driven ecommerce site (limited edition photo sales) with catalog pictures automatically added each day by a PHP cron script, includes sample pictures at various locations on the site automatically changed on each page visit, full CRUD shopping cart implementation, including PayPal integration, offline order forms, auction sales (in development), prices increment based on a print's sales, full admin CRUD-driven section;
- **L5 Development Group**, http://L5Development.com, 1997-present, commercial (for profit), privately funded, space exploration and development program featuring an extensive icon-based navigation system with many custom graphics, online newsletter, MySQL CRUD driven space history newsletter sent to subscribers each day, banner swappers, keyword access system, MySQL database system for membership data, and online registration and feedback forms supported by internally developed PHP and Perl CGI scripts;
- **FKE Internet**, http://FKEinternet.com, 2001-present, Web hosting service with domain registration provided through integration with an ICANN-recognized registrar's affiliate program;
- **L5 Software Development**, http://L5Software.com, 1997-present, commercial software/shareware site, e-commerce, PayPal card processing, online file download operations, online registration by PHP and Perl CGI scripts, MySQL customer and order records;
- **StudioLines.com**, http://StudioLines.com, 2000-2003, music site with RealServer streaming, member registration, song, admin forms, file up/download, custom shopping cart, Authorize.net real-time credit card processing: purchase tracks (immediate download or compilations), T-shirts, posters, etc., online message system, MySQL CRUD system for member, artist, track, and club info, password protected admin tools to send emails, for picture validation, for database maintenance, online newsletter, banner swappers, keyword access, built in PHP, Perl, JavaScript, CGI, graphics including Flash, Windows music validator communicates with remote database server, executes FTP file uploads/downloads, telnet commands, sends email; FreeBSD & Apache system/server setup, administration, secure server (OpenSSL), Sendmail, PHP, Perl, BIND, RealServer, and MySQL installation, upgrade and maintenance;
- **FredLines™ T-Shirts**, http://FredLines-TShirts.com, 1997-2003, on-line catalog with over 150 shirt designs and books driven by a PerlShop (shopping-cart script) version customized by L5 Software Development;
- **L5Business.com**, http://L5Business.com, 2009-present, "*The* site for L5 business development", a WordPress-based site, shares installed code with a blog on wfredk.com;
- **wfredk.com**, http://wfredk.com, 2003-present, my personal home page, blog shares WordPress code with L5Business.com;
- **CFO Rising**, http://www.dansmalltv.com/CFO/index.php, 3/2009-4/2009, implement access control system for a video on demand service, optimize Web code and presentation;
- **Changes Wellness and Nutrition Consulting**, http://ChangesWellness.com, 2004, diet/nutrition consulting site using PHP and MySQL, email response forms, database driven membership system, resource pages, picture swapper, PayPal e-commerce support, secure Admin control panel, graphic design;
- **Gifts From Brokers**, http://GiftsFromBrokers.com, 2004-2005, e-commerce site sells personalized gifts to real estate brokers, PHP and MySQL, secure credit card forms, Admin control panel, custom order information report download;

Clients:

- **DesignBlox**, Boston, MA. 7/2007 – 11/2008, **Adroit Interactive**, Boston, MA. 11/2008 – 1/2009. *Web app development.* CRUD systems: develop, optimize high traffic (400 million+ hits/mo) code to update dynamic Flash ads in real time through MySQL, LAMP environment (RHEL 4, 5). Develop report generation PHP cron scripts. Develop system & user control admin tools in PHP and shell script. SSH, OpenSSL secure communication, database encoding; bug tracking with BugZilla, Redmine. Support Ruby/Rails MVC UI updates, enhancements. Address browser compatibility. Financial service development (www.makemineamillion.org): credit scoring via SOAP XML, admin updates, credit report formatting, SSN validation by Social Security Administration rules, monthly cron script table updates. Design, implement property management (peabodyproperties.com) online rental application, customer login system with admin review, email notify, document upload, management, multi-level admin access. (Adroit split from DesignBlox Nov. 2008.)
- **Intelligent Building Controls**, Portland, ME. 2/2007 - 2/2009. *Product development partnership.* Offsite (telecommute) work. Hardware/software architecture/design of communicating recording intelligent thermostat system. LAMP Web site development.
- **OuterLink Corporation**, Lowell, MA. 9/2006 - 1/2007. *WinCE driver development.* Telecommuting/offsite development. winCE 4.2 device driver development to implement a unidirectional serial loopback port, and an installation program for the driver. The software was also verified under winCE 5.0.
- **Visual Venue**, Wayland, MA. 5/2005 - 9/2006. *Windows software development.* Telecommuting/offsite development. Develop a non-standard Windows GUI for a software-based video switcher using MFC for a .NET environment on Windows XP. DirectShow filter design, implementation. System architecture, code redesign. FireWire device control.
- **Agori LLC**, Cambridge, MA. 9/2003 - 5/2005. *Multiple development projects.* Telecommuting/offsite development. Debug, finish TCP/IP server ActiveX control, build Visual Basic demo. Optimize server playing proprietary video. Create Windows proprietary video viewer. Debug XRF tool to PocketPC 2003 PDA serial comm. Design, code win32 data download app from winCE PDA. Update PocketPC app user interface, report generator. Convert PDA API to DLL. Support user DLL interface. Multi-platform (winCE, Symbian) multimodal browser development: C++ OOD, ASR (automatic speech recognition) encapsulation, interface, state machine design, coding, handle custom hardware buttons, system event listener interface, system integration. Tech documentation, spec writing.
- **Computer Software Designs**, Westborough, MA. 4/2003 - 7/2003. *Development partnership.* Telecommuting/offsite development. System-level design, hardware design (intelligent thermostat system), select components, schematic capture, Qcad PCB layout, order prototype components, circuit assembly, Parallax Stamp PBASIC programming, Philips 80C552 (8051 core) assembler.
- **Agori LLC**, Cambridge, MA. 3/2003 - 4/2003. *Windows software development.* Telecommuting/offsite development. Design, develop JPEG-to-AVI conversion system, integrate into existing Web server. Design, build module development & verification test. Investigate file formats. Visual C++ development/test for operation under w2K.
- **TF Software LLC**, Merrimack, NH. 5/1998 - 12/1998. *VAX/VMS software development.* Design, document, and develop multi-threaded, cross platform terminal intercept software module for real time date remediation in and validation of an encapsulation Y2K solution for VAX/VMS systems. Design, build test harnesses for module development, verification. Visual C++ development/test environment, targeted for Windows NT/95, ROM-based MS-DOS, and within a VAX driver.
- **Progress Software Corporation**, Bedford, MA. 3/1998 - 4/1998. *Software QA.* QA developer for multi-platform fourth-generation database language products. **I am not interested in further software QA assignments.**
- **Safety Net Solutions**, Salem, NH. 9/1995 - 1/1997, 4/1997 - 8/1997. *Windows software development.* Telecommute (offsite) job. Develop, implement & document major sections of multi-thread ID card printing system.

Melexis, Inc, Cambridge, Mass. *Manufacturing Technician.* 8/2009 - 9/2009. Duties: Program automotive camera module FPGAs. Epoxy fill access ports. Camera module testing. Debug test system. Support test data analysis.

Lotus Development Corporation, Cambridge, Mass. *Development Manager, CI.* 5/1999 - 12/1999.

Sensitech, Inc., Beverly, MA. *Program Architect.* 4/1994 - 9/1995.

KeySoft Corporation, Williamsville, NY. *Programmer.* 6/1993 - 4/1994.

Lotus Development Corporation, Cambridge, Mass. *Programmer.* 5/1991 - 12/1991.

FKE, **Computer Software Designs**, Westborough, Mass. *Product development partnership.* 2/1991 - 5/1991.

Lotus Development Corporation, Cambridge, Mass. *Programmer.* 6/1990 - 8/1990.

Lotus Development Corporation, Cambridge, Mass. *Programmer.* 2/1989 - 10/1989.

Please check http://wfredk.com/bio/resume.php for additional information and my work history prior to 1989.

Education

Geneseo Central High School, Geneseo, NY. Graduated valedictorian 1973; studies included math, science, mechanical drawing, shop, typing, and programming

Massachusetts Institute of Technology, Cambridge, Mass. fall 1973 - winter 1975. Specified major: Aerospace Engineering. Studies included electronics, solid-state chemistry, programming

Shawsheen Valley Technical School, N. Billerica, Mass. 9/1978 - 5/1979 (nights), certificate in photography

School of Experience, spring 1975 to present: I started as an electronic assembler in 1975, and taught myself the industry, rising through the ranks to the level of engineer, and got more into programming as employers requested my skills. I've been programming since before there were Computer Science degrees available, and I believe my real world programming experience should be considered at least equal to receipt of a Computer Science degree. My businesses and other life experiences have given me a solid understanding of business operations, many potential problems that may arise, and an awareness of how to develop solutions to them. I constantly study, at work and in my spare time, to keep my knowledge current, and to stay informed about relevant issues.

References *available on request*

Please check http://wfredk.com/bio/resume.php for the most current version of this document.

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