

Rebecca Harvey

7 Duston Lane, Acton, MA. 01720 – N1GZD@comcast.net – 508-574-2201 or 978-287-5457

OBJECTIVE:

Senior level software Engineering position.

SUMMARY:

- 13 years software engineering experience.
- A Principal contributor to design and implementation of 7 product cycles of Optical Character Recognition engine (OCR) used in award winning products such as TextBridge, OmniPage, PaperPort, PaperConverter, Pagis Pro, ScanSoft OCR tool kit and Microsoft Office.
- Wrote several PDF libraries for writing and reading PDF files with images, 6 types of annotations, and embedded OCR results. Including support for Asian languages. This PDF library provided important competitive feature superiority to the products TextBridge, PaperPort and OCR SDK.
- Have experience writing Unicode and MSLU application code that is to be localized in many languages including Asian.
- Implemented code that uses various image formats and compression technology including Mixed Raster Content (segmented into background, foreground and foreground mask to optimize compression). Implemented code that writes MRC PDF resulting in very small files with high resolution content.
- Designed and implemented automated test tools for regression testing and accuracy analysis.
- Accustomed to international collaboration -Xerox Parc, Russia, Ukraine, Budapest.
- Accustomed to working on large projects, completely responsible for design and implementation of specific technologies and modules, including writing specifications and proposals.

SKILLS:

- **Languages/scripts:** C++, STL, Python, Perl, Unix shell scripts, Postscript, PDF, Javascript
- **Development Environments/Compilers:** MS Visual Studio, Visual Studio .NET, InstallShield, DevStudio 9, Solaris/SunOS, Linux, Gnu, Code Warrior, MPW
- **Development tools:** Rational Purify, Rational Quantify, bounds checker, source safe, CVS
- **Other Technologies:** XML, MSXML, SAX, HTML, Win32, XWindows, MSLU,COM, OCR technology, image formats, image technology, image compression technology, MRC, document image management, text parsers. Font technology. Portable code.

PROFESSIONAL EXPERIENCE:

ScanSoft, Inc., Peabody, MA (Formerly Xerox Imaging Systems and Kurzweil Computer Products) **1990-present**
Senior Software Engineer – Strategic Engineering Group August 2003 – present

Designed and developed OCR and PDF conversion modules for enterprise high speed scanning Windows application and other products for the Asian market.

Key contributions:

- Designed and implemented Asian language PDF library which was a key requirement for winning contract.
- All modules Unicode/MSLU compatible for Asian language localization.
- Wrote modules which extract text from images using OCR in both Asian and Western languages.
- Implemented installer.

Senior Software Engineer – PaperPort Product Development Group May 2001 to August 2003

Designed and developed Windows application code for complex award winning document image management application (PaperPort 9). Product was localized in 7 languages.

Key contributions:

- Designed and implemented PDF reader/writer with annotations and embedded OCR results. This PDF capability was a key feature differentiating the product from the competition and compelling users to upgrade. Conducted tests to evaluate competitor PDF technology.
- Enhanced OCR toolkit PDF library with multiple character set support and embedded fonts. This contributed to winning new contract.

Senior Software Engineer – Image Processing Technology Group

November 2000 to May 2001

Designed, developed and tested core image processing technology including image compression technology.

Key contributions:

- Designed and implemented PDF writer/reader library which produces small file by representing the images using mixed raster content (MRC compression technology).
- Developed automated tests for image thresholding, segmentation and document recomposition performance. Wrote reports on results which were important aids to winning contracts to companies such as Microsoft.
- Conducted image thresholder technology evaluation for a contract with an unmentionable government agency.
- Evaluated JBIG2 compression prototype for effectiveness in reducing file size.
- Implemented new object oriented image buffering scheme which resulted in faster more efficient code.

Senior Software Engineer – Photo Image Products Group

April 2000 to November 2000

Designed and developed fun to use Digital Photo Editing products for Windows and Mac (Kai's Photo Soap, Goo, Show).

Key contributions:

- Enhanced user interface controls with unusual effects using proprietary UI framework.
- Member of next generation product planning team for web based image-editing product.

Senior Software Engineer Team Leader – OCR Engine Development Group

January 2000 to April 2000

Engineering lead for small group responsible for OCR engine interface architecture and document image text layout analysis modules.

Key contributions:

- Continued as a principal designer and implementer of interface architecture and document text layout analysis code for award winning OCR engine (TextBridge, PaperPort, OmniPage and OCR toolkit).
- Implemented automated tests that were key to evaluating performance.

Senior Software Engineer – OCR Engine Development Group

November 1992 to January 2000

Designed and developed and tested core Optical Character Recognition technology.

Key contributions:

- Designed and implemented document page layout analysis algorithms (reading order detection, column layout, paragraph style detection, text flow, header/footer/caption detection).
- Text output format conversion and page recomposition (recompose page in text domain to look like scanned image) in multiple text formats including Unicode text, XDOC (SGML), HTML.
- Designed and implemented PDF writer – imagerettes w/embedded OCR results and font retention. Multiple code page/language support. Font metrics and technology utilized.
- Wrote text parsers for SGML (XDOC) format.
- Wrote test tools for automated testing, benchmarking including graphical tools for visualizing results. Postscript tool which presents marked up output with color coded analysis.

Software Engineer – OCR Technology Development Group

January 1991 to November 1992

Developed test tools, regression testing and benchmarking of Optical Character Recognition engine.

Key contributions:

- Ported code to other platforms such as Mac and IBM RS6000 to help expand sales opportunities.
- Developed automated benchmark/build scripts and tools for overnight testing which contributed to our ability to increase the accuracy of the OCR engine.

Sr. Electrical Engineering Technician – Reading Machine Group January 1990 to January 1991
Built and debugged engineering prototypes including hardware for reading machine for the blind and DecTalk speech synthesizer card. Designed and built scanner data path thresholding circuitry for testing design concept. Documented findings. Co-wrote design proposal for SBUS based flash EPROM programmer/interface card for development tool. Debugged scanner SCSI problems. Utilized test equipment such as hardware disassembler and SCSI analyzer.

Sanders Associates, Inc., Nashua, NH June 1988 to January 1990
Electrical Engineering Technician – Airborne Surveillance Systems
Engineering test of large airborne radio direction finding systems including debugging of prototype designs using logic analyzers, network analyzers, IEEE-488 bus analyzers, noise figure meters and other equipment. Helped design and build specialized test equipment. CAD/CAE using Silvar-Lisco schematic capture package and Prototype Development System (PDS) running under VMS. Environmental, Vibration and EMI testing. Wrote test procedures. Antenna acceptance testing in a specialized antenna range. Repair of field returns. Field testing of onboard aircraft installations. Secret government clearance held.

EDUCATION:

B.S. 1986, University of New Hampshire–Durham
Major: Entomology Minor: Music performance

A.A.Sc. 1988, New Hampshire Technical College – Stratham, NH
Major: Electronic Engineering Technology

ADDITIONAL EDUCATION:

Microsoft Training Center - .NET programming – 2001
SD East – XML, web technology – 2000
Northeastern University: MS Windows Programming – 1997
UMass Lowell: C,C++,Logic Design, Calculus II,III,IV,Differential Equations – 1991-1995
Sanders Associates: Silvar-Lisco CAD/CAE/PDS (prototype development system)
MIL-454 Solder Certification

OTHER TECHNOLOGY RELATED ACTIVITIES:

Private Pilot – instrument rated
Ham Radio operator – Extra class license
Digital photography and video editing enthusiast
Regional Director – Grumman Light Aircraft Association (AYA)
Experimental Aircraft Association chapter 106 – webmaster, former vice president
Classic cars, aircraft repair
Music – play the violin
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