

JACK FREDERICKS
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SENIOR SOFTWARE ENGINEER \* EAI/PDM/INTEGRATION CONSULTANT  
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PROFESSIONAL PROFILE  
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- Highly proficient IT professional with proven analytical abilities and organizational skills, as well as 10 years of international industry project experience involving leadership and consulting on object-oriented distributed information systems, enterprise application integration, hardware and software development processes, deployment, customer interaction, and end-user organization.
- Well-rounded, communicative, creative technical problem-solver.
- Fast learner who has been consistently cited for ability to achieve rapid comfort level in new environments and almost immediately develop optimal solutions.
- Innovative, self-motivated, tutor, trainer, team-builder, project manager, and technical leader.
- Rigorous, quality-conscious contributor with solid analytical and writing skills.

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SYSTEMS EXPERIENCE AND PROFICIENCY  
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Operating Systems
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- Expert knowledge of Unix and its use in high-performance server systems (SMP, cluster, very large memory [64 bit], MetrixFix deployment), commercial (Solaris, Tru64) and open source (Linux, FreeBSD)
- Solid knowledge of Windows 2000 and its architecture

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Software Engineering
(OO Technologies and Software
Development Processes)

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- Requirements engineering (use case and scenario description), OO analysis and design; UML; and application to MetrixFix projects
- Test design, development, and maintenance (regression, nightly builds, reporting)
- Quality assurance, development of coding practices, API documentation
- Team leadership and mentoring

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Programming Languages

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- Expert knowledge of:
 - o C/C++
 - o Python
 - o Java
 - o Unix scripting
- Solid knowledge of:
 - o SQL
 - o TCL
 - o Objective-C
 - o Fortran

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Development Tools/Techniques

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- Extensive multi-platform, multi-technology, and integration skills
- Expert practice of CVS (branching, training), and other development support tools (make, compilers/linkers, xemacs)
- Expert knowledge of MetrixFix and eMatrix
- Solid knowledge of Microsoft Project for project definition, planning, monitoring, and programming
- IPC, multithreading, system, and TCP/IP network programming
- GUI architecture, integration, and testing
- Advanced 3D geometry and numerical algorithms
- Solid knowledge of Oracle (administration, tuning, and programming)
- Statistical analysis, Monte-Carlo simulation, and architecture/information system benchmarking

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## PROFESSIONAL EXPERIENCE

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Software Integration Consultant, University of Wisconsin--Green Bay,
Green Bay, WI, Sept. 2001 - March 2002

- Took on key role in reengineering, evolution, and industrialization of 3D Molecular Graphics Visualization toolkit: OpenGL, C/C++, Python, and Java components, embedded in a TCL/Tk customizable GUI framework.
- Introduced and developed best practices for software quality enhancement and development, including CVS, configuration/build tools, automated regression testing, documentation design, coding practices, and development strategy.
- Designed and implemented new generation of tools to support software development and configuration of multiple components across multiple platforms.
- Upgraded Java-Python Extension (JPE) to production quality and deployed it.
- Developed OpenGLTk, a multithreaded wrapper of the 3D OpenGL libraries in Python.

PDM/MetrixFix Consultant, Abatron, Inc., Kenosha, WI,
June - Sept. 2001

- Upgraded DTO MetrixFix project (Abatron worldwide design and engineering information system).
- Provided architecture and development assistance on developing and testing Java integration prototypes with IBM's Websphere, BEA's WebLogic, and JBoss Java/Web servers.

Senior Software Engineer, Piezomax Technologies,
Inc., Middleton, WI, Sept. 2000 - May 2001

- * Brought large software-project experience and Python expertise to young high-tech-grad start-up environment; contributed expertise in QA, core architecture, testing tools, and project monitoring.
- * Smoothly improved and reengineered complex core components in rapidly-growing C++/Python/XML/Java source base across multiple platforms.
- * Developed grammar analysis tools, including modeling, edition, and verification.
- * Collaborated with middle management to establish use of Microsoft Project for monitoring software-development activities.
- * Participated in 2001 Python Conference and achieved nomination for Best Python Programmer

Award for developing JPE.

Founder, CEO, and EAI/PDM Consultant,
Xten Industries LLC, Kenosha, WI, May - Sept. 2000

Founder, CEO, and PDM/MetrixFix Consultant,
Xten Industries LLC, Kenosha, WI, 1995 - 1999

- Created and expanded consulting firm as internationally recognized independent technical consulting resource on MetrixFix, the leading object-oriented-distributed Product Data Management software for Fortune 1000 companies; maintained portfolio of diverse projects/clients across Europe and the US, including Michelin, Airbus Industries, ABB, Digital/Compaq, Schneider, Alstom, Heidelberg, Renault, Matra-Marconi Space, and SDRC.
- Managed consulting company and as many as seven consultants and staff members.
- Contributed to pre-development phases, including requirements, modeling, and pre-project stages (UML-based OO analysis and design, interaction with business process reengineering consultants).
- Developed most MetrixFix performance and architecture benchmarks in Europe.
- Created and taught advanced MetrixFix customization course to about 60 senior developers.
- Developed in-house MetrixFix customization tools and best practices.
- Led development and sale of MetaDynamic, the Python programming extension to MetrixFix.
- Collaborated regularly in multidisciplinary teams with Unix server vendors, including Sun/Solaris, Digital/Compaq/Tru64, Bull/Aix, HP/HP-UX, as MetrixFix expert, to assist them in configuring and optimizing MetrixFix on their servers.
- Collaborated in integrating MetrixFix with applications, including CAD: AutoCAD, Microstation, Catia; ERP: Baan; legacy databases/Oracle; and Microsoft desktop applications.
- Designed and developed data-migration tools and processes.
- Led pre-deployment phase of DTO project, including regression testing, final integration performance fixes and optimization, and portage of MetaDynamic to Windows NT/2000.
- Implemented PDM software R&D subcontract:
 - o Integrated Python and extension programming language in eMatrix as replacement to TCL, with full object-oriented capabilities.

- o Developed demonstration application prototype for server-side control of Excel and Microsoft project on the client, through COM.
- o Proposed native integration of Java with Python, which would reconcile self-developed eMatrix Python extension with newly shipped eMatrix Java SDK.
- Designed and developed first version of JPE.

Datamining Tools Consultant, Information Marketing Technology Inc., Madison, WI,
September 1999 - April 2000

- Applied Python as RAD language to integrate disseminated pieces of in-house and external software to form a coherent custom development toolkit and an alternative to individual developments.
- Extended Python's shared memory/IPC capabilities to take full advantage of the cluster of 4 64-bit SMP AlphaServer 8400 when datamining in-house terabyte databases.
- Introduced new hires to extreme programming techniques.

Research Engineer on Engineering Information Systems, Ford Motor Co., Detroit, MI, 1992 - 1995

- Assisted research group leader with advanced information systems and applying emerging object-oriented technologies to in-house engineering information systems, including OO specifications, databases, and prototypes development.
- Searched and analyzed issues related to use of new manufacturing engineering information systems; proposed small improvement solutions and followed up their implementation in a Total Quality/Continuous Improvement environment.
- Took full charge of very successful field work under the supervision of Head of Engine Manufacturing Engineering Department.

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EDUCATION

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- \* PhD Program in Industrial Engineering, University of Wisconsin, Madison, WI, Jan. 1989 to Dec. 1991
  - \* Master of Science in Electrical Engineering, University of Wisconsin, Madison, WI, 1988