Dmitri Kondratiev
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Currently working at Luxoft Moscow
Online version of my resume:
http://geocities.com/dkondr/welcome.html

Career Objective

Principle Architect, Expert. Design and architectural role in defining and deploying intelligent, distributed component systems including:

- Wireles Sensor Networks, Amorphus computing, Smart Dust
- Domain Specific Languages and Virtual Machines for embeded systems
- Autonomus mobile software agents and Multi-Agent systems
- Evolutionary Computation, ALife
- Active Networks, application based routing, scalable ineractive media multicast on Internet
- Adaptive, intelligent web systems with service composition and mediation

Expertise Summary

Key Areas of Experience

AI Researcher, Principal System Architect, Chief Scientist, Team Leader with 19 years of distributed intelligent system software development experience.

General AI Research Expertise

- Amorphus computing, Smart Dust
- Intelligent Mobile Agent and Emergence software technologies.
- Evolutionary Algorithms and Genetic Programming
- Logic, Constraint and Genetic programming.
- Knowledge Representation Frameworks.

Generic Application / System Software Development Expertise

- MultiAgent system design (using RUP/UML), programming and modeling
- Simulation modeling of software/hardware systems, including Wireless Sensor Networks, GRID computing, P2P networks, handhelds and embedded devices
- Domain Specific Languages (DSLs)
- Distributed component frameworks and Aspect Oriented Programming (AOP)
- Algorithms for add-hock networks and amorphus computing.
- Portable software, across operating systems and hardware architectures.
- Object-oriented design and programming (OOP) with design patterns and Standard Template Library (STL).
- Handhelds and embedded devices programming and emulation (VMs)

- Real Time Operating System programming (QNX) : network, IPC, POSIX threads and system resource managers.
- Kernel and device drivers programming
- System-level, fork and interrupt service routines.
- Robotics: Paralax systems – building and programming

Distributed Systems, Networks & Protocols

- Wireless Sensor Networks, 802.15.4, multi-hop routing, ZigBee – architecture and specialized OS design, programming and simulation.
- Active Networks (AN) - architecture and specialized OS design, Active Application (AA) development and and real time programming.
- Reliable Multicast programming for Active Networks in QNX Neutrino
- Distributed, dynamic object frameworks and meta object protocols on Internet, CORBA / MOF (XML), Java ORB/RMI, ObjectSpace Voyager, Java Beans.
- Multimedia streaming and reliable multicast programming on Internet
- Internet security: Intrusion Detection Systems (IDS)
- WEB Services: UDDI, WSDL, WSDL, SOAP, XML RPC, IBM WebSphere SDK
- Research and development of Virtual Worlds (VRML) on Internet.
- Development and implementation of heterogeneous network protocols, based on ISO OSI Reference model.
- QNX Neutrino
- Design and implementation of e-mail system for Internet and LAN.
- Network file system software development and implementation.
- Working knowledge of TCP/IP, UDP, Telnet, FTP, HTTP, SMTP, POP, UUCP, RTP, RTSP protocols.
  Berkely / Win Sockets and Microsoft NDDE transport programming.
- Network adapter drivers software design and implementation.
- Network and IPC programming.

Software design tools

- Design of complex software with Rational Rose UML process.
- Working knowledge of Extreme Programming software design and development process.

Most Recent Research Expertise

- Hierarchical Temporal Memory (HTM).
- Amorphous computing for add-hoc networks, Virtual Machine for WSN node.
- Functional programming and Domain Specific Languages (DSLs)
- Programming and modeling environments for exploring the workings of decentralized systems or SWARMs
- Autonomus mobile software agents and Multi-Agent systems
- Evolutionary Computation, ALife
- KQML - Knowledge Query and Manipulation Language, KIF - Knowledge Interchange Format
- Web agents using Linda-based system (IBM T Spaces) for cooperative problem solving.
- A.B.E - "an agent development kit for building intelligent agents that can interface to the Web or to USENET news services".

- LIFE (Logic, Inheritance, Functions, and Equations) an experimental programming language from Intelligent Software Group

Academic Understanding & Potential Abilities

- Hierarchical Temporal Memory (HTM), modeled on Jeff Hawkins' theory of human neocortex operation.
- Sparse Distributed Memory
- Amorphous computing and Smart Dust algorithms, Tiny Virtual Machines
- Autonomous mobile software agents and Multi-Agent systems .
- Evolutionary Computation including: Genetic Algorithms (GA), Evolutionary Programming (EP), Evolution Strategies (ES), Classifier Systems (CFS), Genetic Programming (GP) and Artificial Neural Networks (ANNs), Bayesian networks
- ALife, Swarm Intelligence
- Functional programming: Standard ML, Haskel, Ocaml
- Public-Key Cryptography, PGP, Solitaire output-feedback mode stream cipher.
- GIS, GPS - geographical information and global positioning systems, GPS programming
- SGML - Standard Generalized Markup Language
- Sun Jini, Telescript, Magic Cap
- WAIS, TCL, Sun DOE, etc..

Technical Skills

Languages and Tools

- Developing with Java from its very first Alpha release
- Java 2 Platform, applications, native classes and applets, Java Beans , Swing
- Aspect Oriented Programming, UML, XML /HTML
- PtolemyII simulation modeling in Java
- Haskell, Scheme, Lisp (CLOS), Standard ML, Ruby, Python
- GNU C/C++, nesC, GNU Make, CVS, GNU Emacs, Perl, sh, MSVC++, MFC
- Prolog, Amzi! Prolog + Logic Server
- VRML 2.0 and Liquid Reality Toolkit from DimensionX
- Paralax Javelin Stamp programming
- Palm Pilot programming with PRC-Tools and CodeWarrior
- MIT Star Logo , Forth, Pascal, FORTRAN, etc..
- Intel 386 assembler, DEC PDP 11/x Macro Assembler
- CVS, SCCS - source code control systems

Hardware & Operating Systems

- WinXP, Win2000, WinNT, Win98, MS-DOS, MS-Windows 3.11, MS-WFW
- Linux, QNX Neutrino, NetBSD, TinyOS, PalmOS, Solaris V 2.5
- Garmin, Paralax Stamp
- DEC PDP-11/* under RSX-11M, RT-11, TSX-11.
- SCO UNIX, Interactive Unix, XENIX.
- Novell Netware, Oberon.

Education

- B.S. Computer Science - Moscow Mining Institute, Moscow, Russia 1983.
- Professional Qualifications (certificates, memberships of professional associations) "Mathematics for engineers", Faculty of Mechanics and Mathematics, Moscow State University , 9/1993-5/1994.
- Foreign Languages: Native Russian. Fluent English. Can read and speak French.
- Hobbies/Outside Interests: philosophy, mathematics, literature, linguistics, languages, mountain biking, traveling, sailing, archery, ship modeling

Miscellaneous

Foreign passport, US Visa (multiple), US Driver License

Work Experience

References can be furnished on request.

Year 09/2006 - today
Company Luxoft DPS, Moscow, Russia
Department Project Services
Segment Distributed Load Testing of Network-based Applications
Role Principle Architect

Skills
Design of highly Distributed Load Testing architecture for Russian nation-wide Treasury Information System on Internet.

Details
Designed complete architecture for stress testing and performance analysis of Russian Treasury Information System on Internet. New architecture extends SLAMD Distributed Load Generation Engine in many innovative ways. Work in progress.

Year 12/2005 – 09/2006
Company Luxoft DPS, Moscow, Russia
Department Project Services
Segment Biometric authentication in geographically distributed system
Role Principle Architect

Skills
Work on government project building nation-wide biometric passport and visa authentication system in Russia, which uses biometrics to authenticate the citizenship of travelers according to ICAO machine readable travel document (MRTD) standards.
Details
Analysis of existing architecture of biometric passport and visa authentication system developed by third-party government organization. Determining system scalability bottlenecks, points of failure. As a result of the analysis, proposed architecture to solve existing system drawbacks. Designed innovative testing framework to test highly distributed installation of the existing system.

Year 01/2005 – 12/2005
Company Luxoft PingID ODC, Moscow, Russia
Segment Identity Management on Internet
Role Principle Architect

Skills
Federated Identity for Web Services and Federated Single Sign-On Solutions based on Web Services Trust Language (WS-Trust), The Security Token Service (STS), Security Assertion Markup Language (SAML)

Details
Designed end-to-end Test Plan Automation system for PingID Conformance Engine (CE), including Function Box framework and FBL – declarative representation of a CE test plan.
Developed FBox Framework implementation that provides foundation for test plan automation as well as highly reusable test elements and thus considerably increase productivity of testing process, both in development and deployment.
Took part in design and development of STS .NET client with support of WSE from Microsoft.
Advocacy and mentorship for the team:
Explaining and teaching technology, advocating good design, teaching ideas about modular, component-based, scalable systems and how to build them with highly reusable components and abstraction principles. Reviewing team developments according to the above criteria.

Year 08/2004 – 12/2004
Company Luxoft Labs, IBS, Moscow, Russia
Segment Wireless Sensor Networks
Role Principle Architect Department Scientific

Skills
Research and architecture design / development in the following :

- Wireless Sensor Networks (WSN) Simulation Modeling
- Virtual Machine and Emulator for WSN
- ZigBee protocol stack simulation
- Real-world security modeling with multi-agent-based simulation

Details

- Work in progress: WSN architecture design and application modeling with new algorithms for add hock networks: amorphus computing, mult-hop routing, gradient-based routing, etc. Models are developed in Ptolemy II (Java-based) simulation environment.
  Modeling ZigBee protocol stack for applications controlling wirelessly networked, reliable, low-power and cost-effective devices.
- Architecture design of Mote VM – tiny virtual machine for WSN node running TinyOS.
- Architrcture design of MEM Net - Mote EMulator Network, that consists of:
  - MEM - Wireless Sensor Node (mote) emulator
  - MEM Net - network of emulated motes. Designed with support of TinyOS (open source operating system for WSN from Berkeley) MEM Net will:
    - Allow develop, debug and profile WSN mote software on a host PC.
    - Support virtual mote devices emulated on a host PC.

- Automatically translate emulated mote software to target mote platform. Emulate different models of radio channels (powerloss, collisions, etc.)

Year 12/2002 – 08/2004
Company Luxoft, IBS, Moscow, Russia
Segment Software development
Role Principle Architect Department R&D

Skills
Architecture design: Multi Agent Based Simulation (MABS) system for modeling complex dynamic real life environments with emergent behavior.
Research and implementation: Distributed Artificial Intelligence methods for simulation with software agents.

Details
Designed complete architecture of multi-agent discrete event simulation system for real-world security modeling. Architecture includes multi-agent framework and other subsystems / tools required for visual simulation.
Developed reference implementation of SimpAg multi-agent simulation framework and CogSpace environment to create / control / visualize modeling experiments in a Grid world. Both systems are implemented in pure Java environment.

Year 06/2001 -- 10/2002
Company Cambira US - Geonix Joint Venture, Moscow, Russia
Segment Telecom
Role Chief Scientist / Principle System Architect / General Manager / Team Leader

Skills
R&D: Chief Scientist and Principal System Architect of Active Network software platform for Cambira Guaranteed Service Node (GSN) - new generation smart active network router.
Management: General Manager, Team Leader of Moscow team in joint project with Cambira (US).

Details
Research & Development:

- Main role in complete design of Cambira GSN Active Network Platform in QNX Neutrino run time, including :
  - Cambira Virtual Machine (CVM) - Active Node OS for Cambira GSN smart router.
  - Main author of highly composable / customisable in run-time real time OS based on component architecture of channels and data flow processing elements.
  - CVM Active Application Framework
  - Smart Messages IPC - distributed interprocess communication framework based on QNX messages and shared memory.
  - Active Reliable Multicast (ARM) family of protocols including ARMTP multicast transport protocol, SAP - session announcement protocol and multicast multi-session framework.
  - Bulk multicast data transfer with TFTP
- Took part in the design of the following Active Applications for Cambira Active Network platform:

- Multicast Media Streaming framework (MPEG video / audio) for Darwin video server.
- Scalable WaveVideo over Active Network.

Management:
General Manager, Team Leader of Moscow team in joint project with Cambira (US). Lead a team delivering on time complex system software through complete design and development cycle in Extreme Programming process wisely using Rational Rose UML methodology.

Year 04/99 - 06/2001
Company MetaHood, Geonix - Moscow, Russia
Segment Internet Technology
Role Chief Scientist and Team Leader, Web Service Mediation Framework joint project with EpnaSoft (US)

Skills
Research and development of agent frameworks for mobile, wireless and highly distributed environments on Intranet/Internet.

Details
- Service Mediation and Discovery Framework. Framework was developed as a practical approach to web service deployment in heterogeneous environments. As a part of this work innovative Recipe Language was developed to describe web services on meta level and thus facilitate automatic discovery, inference and composition of web services. Framework and Recipe Language were deployed using DARPA Agent Markup Language (DAML) and OIL ontology RDF(XML) specification
- Meta Object Framework (MOF) Repository and Rational Rose MOF Link for CORBA-based Application Telecommunication Server, developed for US telcommunication company - a leader in advanced network management frameworks and tools for the telecommunications and enterprise industries.
- Mall Navigator - Palm Pilot Shopping Assistant research prototype. With a Palm Mall Navigator a shopping mall visitor can get information on the goods of his/her particular interest directly to his Palm Pilot from electronic kiosks scattered across the mall. User can specify his shopping preferences in Mall Navigator and then get relevant information on the best byes including graphical map and navigation guide to mall locations of interest as well as up-to-date advertisements.

Year 9/95 - 04/99
Company ParaGraph International - Moscow, Russia
Segment Virtual Worlds on the Internet
Role Research Team Leader, Senior Software Engineer

Skills
Team leader for a group researching and developing of distributed, dynamically composable object frameworks and meta-object protocols (MOP) for Virtual Worlds on the Internet.
Principal technical member of the team developing network architecture for ParaGraph Multiuser Virtual Space VRML 2.0 environment

Details

- Developed open distributed Java Beans framework for dynamic components that are both reusable and very efficient for a wide range of clients. Framework allows individual control of the beans's implementation with meta approach to the bean implementation strategy specified in XML based domain-specific language. As a part of this project Object-oriented extension for standard Prolog was also developed.
- Architecture for "VRML Beans" - reusable VRML components with behavior, which properties can be easily manipulated and customized in VRML2.0 builder tools.
- XLogo - a pilot project to research Meta OOP advantages for building dynamic component frameworks.
- Together with other four engineers created the architecture of reliable transport protocol over UDP, specifically designed to provide effective delivery of motion and state information in multiuser Internet VRML world

Year 3/94 - 9/95
Company ParaGraph International - Campbell, CA, US
Segment Internet Technology
Role Senior Software Engineer

Skills
Principal technical member of a six person team in R&D laboratory of the company. Responsible for the network architecture and implementation of Internet conferencing system - NetWriter

Details
Architect and developer of the Internet conferencing system - NetWriter, easy-to-use Windows software solution, designed to enhance personal and group productivity with exchange of graphics, freeform drawing and handwriting over Internet as well as local network. Personally developed transport-independent session and application level network protocols. Implemented network conferencing client-server architecture for TCP/IP and WFW networks under MS Windows 3.11, MS Windows For Workgroups.

Year 9/92 - 3/94
Company ParaGraph International - Moscow, Russia
Segment Handwriting Recognition
Role Senior Software Engineer

Skills

Senior engineer in Handwriting Recognition Group of the company's R&D laboratory.

Details
Designed network architecture and application-level protocol to provide Handwriting Recognition Server with requests from remote client to recognize handwriting data and retrieve results. Implemented this architecture and protocol for Handwriting Recognition Server running on Sparc Station 1+ under SunOS and MS Windows client , using PC/TCP NFS software. Along with one another full time engineer and one consultant designed and implemented "On-Line" Handwriting Recognition system for Sun Microsystems evaluation.

Year 1/83 - 9/92

Company	"Metallurgy Automation" Research Institute - Moscow, Russia
Segment	Networking
Role	Senior Software Engineer

Skills
Network protocol design and software development for LAN ALISA/ALISA+ in a joint project with Russian Academy of Science.

Details
Original Network Architecture ALISA+ was built in accordance with ISO OSI Reference model, and employed some concepts borrowed from MAP, TOP, ECMA. ALISA+ was designed, developed and shipped to customers in former Soviet Union. Along with two full time engineers designed and implemented ALISA+ E-mail system as integral part of Internet E-mail systems. Protocol design , specification and implementation of E-mail system. Personally designed, and implemented network , transport and session layer protocols for RT-11 OS as a system device handler. Implemented Remote File server and client software for RT-11 OS. Team member in implementation of Virtual Terminal protocol for RT-11 and RSX-11 systems.