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Marc-Antoine Parent

Professional profile

Title - Software Architect

Expertise - Object-Oriented architecture, Natural language processing, Knowledge representation

Experience - Total 16 years

Research skills

- Representation systems for hypertext technologies
- Algorithms and Object-Oriented architecture (UML and Design Patterns)
- Formal models of natural languages

Technical skills

- Object-Oriented languages: Python, Java, C++, Perl 5, C#, ...
- XML technologies: XSLT, XML-RPC, RNG, object marshalling, GXL, SVG, ...
- Web development frameworks: Plone, Django, Apache Turbine, Cocoon, TWiki, ...
- Javascript: jQuery, MochiKit, ...
- Database technologies (XML, OO, or relational): SQL, Oracle, ObjectStore, LDAP, eXist, XMLDB, XUpdate, XQuery, ...
- Platform-independent graphical user interfaces (wxWidgets, others.)
- Agent-based programming (Swarm, RePast, AScape)
- Natural speech application design (Nuance Speech Objects)
- Operating systems: MacOS X, Solaris, Mac OS, Linux, Windows NT, XP

Consultancy

- 2009 [RealWorld Systems](#)¹
- Web site deployment (Plone)
 - Prototype for dynamic database query (jQuery)
- 2007 [Ottawa Shambhala Center](#)²
- Database design and implementation of the event calendar and schedule application (Django)
- 2005 - 2006 [OpenConcept](#)³
- Work on the web-scraping for e-Petitions in the Back-End web engine (PHP, libxml)
- 2003-2005 [Goa Technologies](#)⁴

Professional experience

Closer Look - Search engine that identifies data in web databases

- Proof of concept for identification of web page structures based on XPath for data mining (Python, libxml)

2007 - 2008 **Software Developer** [Google](#)⁵

Undisclosed project

- General development (Java server, C++ client)
- Design and implementation of extensions to the communication protocol
- Gained experience with both Google-specific and open-source tools and development methods.
 - Client-server protocols with Protocol buffers
 - Internal tools for distributed process management, interprocess communication
 - Test-driven programming with junit/GoogleTest
 - Code reviews with Mondrian⁶ and Perforce
 - Templates and STL
 - SQLite
 - SCons
- Contributed to internationalization infrastructure (Python)

2003 - 2004 **Software Architect and Developer** [HandCastles inc.](#)⁷

DistriBistro - Palm-based wireless ordering system for restaurants

- Requirements, UI design and architecture
- Peer-to-peer communication architecture
- Prototype completed (SuperWaba⁸.) We decided not to proceed with production.

2000 - 2001 **Software Architect and Developer** [Mitel Networks inc.](#)⁹

Speak@Ease Messenger¹⁰ - Speech-enabled Unified Messaging

- Initial architecture draft
- Advanced natural-language dialogue designs using pronoun reference
- Integration with Microsoft Exchange 2000 using CDO objects through XML
- Other components : web back-end (XSLT), upgrades, inter-process messaging

1999 - 2000 **Software Architect** [Logiciels Panteor inc.](#)

Translateor - Automatic translation system for English and French (project)

- Developed a robust meta-data architecture using XML for storage of linguistic information in an object-oriented database
- Participated in the development of a OO model for abstract semantic representation of text (Java)

1997 - 1998 **Advisor** Centre de Recherche Informatique de
Montréal (CRIM¹¹)

Giza - OO architecture for polymorphic representation of structured data using contextual, dynamic attributes

- Conception and programming (Java) of a new Design Pattern
- Approach was published at OOPSLA

1997 **Senior Research Agent** CRIM, for Bunyip

*Radio Insite*¹² - Dynamic HTML page generator for logs of CBC radio shows.

- Programming (Perl5) of a log file parser that adjusts to a meta-data file and stores the results in HTML templates

1996 - 1997 **Senior Research Agent** CRIM

UKAT - Web interface to a knowledge assessment tool.

- Architecture and programming (C++) of a HTML template-based system

1995 - 1996 **Senior Research Agent** CRIM

*Francoroute*¹³ - Prototype of a classification system for francophone Internet sites

- Team coordination, architecture and programming (Java, Perl 5, Oracle) of one of the first hybrid web search engines (using both keyword search and category classification), based on the Cheops approach
- Programming (Perl 5 and Oracle) of a web spider that explored French sites
- Programming (Perl 5) of a web-based site classification tool based on Dewey

1995 - 1996 **Senior Research Agent** CRIM

*CHEOPS*¹⁴ - A navigation tool for hierarchical data

- Programming (Java) of a unique data navigation tool based on visual elision

1994 - 1995 **Research Agent** CRIM, for Alis technologies¹⁵

Lys - Multilingual mail agent

- Architecture and programming (C++) of a Unicode-based mail agent able to handle Arabic, Chinese, Japanese and Korean scripts using font composition

1992 - 1994 **Analyst** Les Logiciels Machina Sapiens inc¹⁶

*Le Correcteur 101*¹⁷ v.2.0- French grammar analyzer and checker

- Team coordination between linguists and programmers, research

- in computational linguistics, algorithms, programming in C++
- Awards won by the software (version 1.0 or 2.0):
 - 1993, **Prix Octas**, from the Fédération d'Informatique du Québec
 - 1994, **Prix du Français en Informatique**, from GIRICO

1990 - 1992 **Programmer** Les Logiciels Machina Sapiens inc.

Le Correcteur 101 v1.0b - French grammar analyzer and checker

- First grammar checker of the industry to do global parsing of French syntax
- Design and programming (C++) of the user interface on a platform-independent framework

1988 **Research Assistant** Montreal General Hospital
Real-time neurobiology data acquisition system

- Reengineering (Vector Basic) of a graph display system

1986 **Programmer** O.C.C. Informatique, for National Bank

FéER estimate software

- Programming (MS-Basic) of an iterative analysis method
- Graphical user interface on a text-based display

1984 **Programmer** La société Québit logiciel inc.

Méga-Texte - word processor for primary school students

- Design and programming (6502) of a graphic-display based word processor on the Apple II+

1982 **Programmer** Société Logidisque enr.

*Têtards*¹⁸ - Labyrinth-type two-player video game

- Programming (6502 on Apple II+)
- First video game designed in Québec

Education and awards

Dec 2008 **Practitioner accreditation** [Cognitive Edge](#)¹⁹

2002 - 2006 **M.Sc in Systems Science** Ottawa University

- First recipient of a departmental bursary in 2003
- Thesis: *Construction des normes, entre stratégie et communication: un cas de négociation collective.* (Construction of norms, between strategy and communication: a case of collective negotiation.)

1989 - 1990 **Qualifying year in Mathematics** McGill University

- Scholarship from F.C.A.R. for a Masters' degree

1986 - 1989 **B.Sc. Joint faculty program in
Biology and Mathematics** McGill
University

- Great Distinction

1983 **Québec Mathematics
Competition** Québec Mathematics
Association

- Mention for the secondary V competition

Teaching experience

2003 **Teaching Assistant** University of Ottawa
Economic Systems Design (SYS5140)
Designed and presented an introduction to agent-based
programming

2002 **Teaching Assistant** University of Ottawa
Concepts des langages de programmation (CSI3525)
Participated to the design of laboratory demonstration and problems

1994 - 1995 **Instructor** CRIM
Séminaire d'Introduction à l'hypertexte

1989 **Teaching Assistant** McGill University
Differential calculus (189-121A)

1984 **Instructor** Collège Mont-Saint-Louis
Initiation to Computer Science - evening course

Publications and workshops

Presentation: *Outside the box : Tinderbox XML Tools*²⁰, at the Boston
Tinderbox Weekend²¹, 2004

Tech Note: *On-the-fly contextual adaptation with the RoleAdapter
Pattern*²², in *Proceedings of OOPSLA'98* (Vancouver BC, 1998), ACM
Press

Demonstration : *Applications of the RoleAdapter Pattern*²³:
*Representing class inheritance and aggregation hierarchies with the
Giza framework*, in *Proceedings of OOPSLA'98* (Vancouver BC,
1998), ACM Press

Report: *état des technologies de stockage d'objets en Java*²⁴, CRIM,
1997

Presentation: *GIZA : A framework for visualization*²⁵, by Marc-
Antoine Parent and Louis Vroomen, in the workshop: *Graphical User
Interfaces for Hierarchies*²⁶ (Human-Computer Interaction
Laboratory²⁷, University Of Maryland, 1997)

Article: *Cheops: A Compact Explorer For Complex Hierarchies*²⁸, by

Luc Beaudoin, Marc-Antoine Parent and Louis Vroomen, in *Visualization '96*, San Francisco, USA, Oct 1996, pp. 87-92

Article: *Font Selection and Font Composition for Unicode*²⁹, by Martin J. Dürst and Marc-Antoine Parent, in *Proceedings of the Seventh Unicode Conference*, San Jose, CA, 1995

Languages

Fluent in spoken and written French and English
Basic level of reading and speaking Italian and Portuguese

Interests

My path can be described as a gradual shift of interest from individual to collective cognition processes. After studies in neurobiology and mathematical logic, and after a career in computational linguistics and data visualization, I am now focusing on how software communication tools can shape and enhance group processes, so diverse groups can achieve a common purpose.

To support this, I have experimented with a diverse set of software tools: content management systems, wikis, blogs, real-time collaborative editors, social software... I am also working on new methods that interweave text with more formal representations of human thought. But beyond tools, during my studies in systems science, I have analysed how issues of trust, face and justification affect communication, and how specific communication processes can be designed in a way that helps alleviate those issues.

Links

- [1] <http://realworldsystems.net/>
- [2] <http://shambhalaottawa.ca/cal/>
- [3] <http://openconcept.ca/>
- [4] <http://www.closerlooksearch.com/>
- [5] <http://www.google.com/>
- [6] <http://www.techpresentations.com/2006/12/27/google-mondrian/>
- [7] <http://www.handcastles.com/>
- [8] http://www.superwaba.com.br/en/tc_overview.asp
- [9] <http://www.mitel.com/>
- [10] <http://www.mitel.com/DocController?documentId=9808>
- [11] <http://www.crim.ca/>
- [12] <http://web.archive.org/web/20020228085507/http://www.radio.cbc.ca/cgi-bin/insite/BrowseDir.cgi>
- [13] <http://web.archive.org/web/19970220094736/www.francoroute.org/aide/apropos.html>
- [14] <http://web.archive.org/web/19971013233437/www.crim.ca/ipsi/cheops/index1.html>
- [15] <http://www.alis.com/>
- [16] <http://www.documens.com/>
- [17] http://www.documens.com/francais/produits_correcteurs.htm
- [18] <http://pages.infinit.net/vcote/tetards/tetards.html>
- [19] http://www.cognitive-edge.com/blogs/news/2008/11/boston_24_dec_cognitive_edge_a.php
- [20] <http://maparent.ca/tinderbox/>
- [21] <http://www.eastgate.com/Tinderbox/WeekendBoston.html>
- [22] <http://maparent.ca/TechNote.html>

[23] http://maparent.ca/oopsla_demo.html

[24] http://maparent.ca/maparent_jdb/

[25] <http://maparent.ca/GizaMaryland.ppt>

[26]

<http://web.archive.org/web/20070630083449/http://acm.org/sigchi/bulletin/1998.2/vroomen.html>

[27] <http://www.cs.umd.edu/hcil>

[28] <http://maparent.ca/paper.html>

[29] <http://maparent.ca/FontComposition.pdf>