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

## 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](#)<sup>5</sup>

**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 Mondrian<sup>6</sup> and Perforce
  - Templates and STL
  - SQLite
  - SCons
- Contributed to internationalization infrastructure (Python)

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

**DistriBistro** - Palm-based wireless ordering system for restaurants

- Requirements, UI design and architecture
- Peer-to-peer communication architecture
- Prototype completed (SuperWaba<sup>8</sup>.) We decided not to proceed with production.

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

**Speak@Ease Messenger**<sup>10</sup> - 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 (CRIM<sup>11</sup>)

*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*<sup>12</sup> - 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*<sup>13</sup> - 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*<sup>14</sup> - 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 technologies<sup>15</sup>

*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 inc<sup>16</sup>

*Le Correcteur 101*<sup>17</sup> 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*<sup>18</sup> - 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](#)<sup>19</sup>

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*<sup>20</sup>, at the Boston  
Tinderbox Weekend<sup>21</sup>, 2004

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

**Demonstration :** *Applications of the RoleAdapter Pattern*<sup>23</sup>:  
*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*<sup>24</sup>, CRIM,  
1997

**Presentation:** *GIZA : A framework for visualization*<sup>25</sup>, by Marc-  
Antoine Parent and Louis Vroomen, in the workshop: *Graphical User  
Interfaces for Hierarchies*<sup>26</sup> (Human-Computer Interaction  
Laboratory<sup>27</sup>, University Of Maryland, 1997)

**Article:** *Cheops: A Compact Explorer For Complex Hierarchies*<sup>28</sup>, 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*<sup>29</sup>, 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](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](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](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/oopsia\\_demo.html](http://maparent.ca/oopsia_demo.html)

[24] [http://maparent.ca/maparent\\_jdb/](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>