

Yuhong Yan Ph.D.

CONTACT INFORMATION

46 Dineen Drive
Institute of Information Technology
National Research Council
Fredericton, NB E3B 9W4
Canada

Voice: (506) 444-0388
Fax: (506) 444-6114
E-mail: yuhong.yan@nrc.gc.ca
Personal Website: www.flydragontech.com
Official Website: iit.nrc.gc.ca/personnel/yan_yuhong_e.html

EXPERIENCE

Associate Research Officer in eBusiness **02/2003 - present**
Institute of Information Technology
National Research Council of Canada (NRC), Fredericton, NB, Canada
Research on Web services, business process management, symbolic model abstraction and data mining.

Post-doc Fellow **04/2001 - 01/2003**
Department of Informatics (under supervision of Prof. Philippe Dague)
University of Paris 13, Paris, France
Research on Model-based Approaches and Qualitative Reasoning in EU FP5 project on Integration of Diagnosis and Design (IDD).

Software Engineer **01/2000 - 03/2001**
Westgroup Inc., Rochester, NY, USA
Project 1: workflow management system for document processing based middleware.
Project 2: Honda production data management system (client side GUI and middleware), partner with Oracle and Honda. Team leader for 5 software engineers.

Post-doc Fellow **09/1999 - 01/2000**
Enterprise Integration Laboratory (EIL) (under supervision of Prof. Mark Fox)
University of Toronto, Canada
Research on workflow management, autonomous agents and virtual enterprises modeling. Design and develop visualization tools for agent behavior definition based on the Conversational Coordination methodology developed in EIL.

SECONDARY AFFILIATION

Adjunct professor at the Faculty of Computer Science in the University of New Brunswick (UNB).

EDUCATION

Ph.D. (1999)
Tsinghua University, Beijing, China (A joint program with **the University of Leipzig**, Germany)
Dissertation Title: "Agent-based Distributed Business Process and Workflow Management"
Advisor: Prof. Shiyuan Yang and Prof. Jürgen Bode

M.S. (1995)
Institute of Optics and Fine Equipments
Science Academy of China, China
Thesis: Real-time Visual Feedback in Control System

B.E. (1992)
School of Information Science

Xi'an Jiaotong University, Xi'an, China

Thesis: Chinese Graphic User Interface for Industrial Control System

TEACHING

- **CS6905 Advanced Technology for E-business** (Sep 2004 and Jan 2006)

A new graduate course covering Web services and data mining in computer science in University of New Brunswick. 15 registered students, 64 hours.

- **CS6905 Model-based Diagnosis** (May 2003)

A new graduate course covering automated reasoning and model based reasoning in computer science in University of New Brunswick. 3 registered students, 64 hours.

- **Analogue Circuit** (Spring semester, 1997)

Undergraduate core course in computer science in Tsinghua University. About 150 registered students.

- **Experiments for Digital Circuit Design** (Autumn semester, 1996)

Undergraduate core course in computer science in Tsinghua University. About 60 students.

- **Experiments for Analogue Circuit** (Spring semester, 1996, Autumn semester, 1995)

Undergraduate core course in computer science in Tsinghua University. About 60 students.

- **TA for Digital Circuit Design** (Autumn semester, 1996)

Undergraduate core course in computer science in Tsinghua University. About 60 students.

- **TA for Analogue Circuit** (Spring semester, 1996, Autumn semester, 1995)

Undergraduate core course in computer science in Tsinghua University. About 60 students.

STUDENT SUPERVISION

Thesis Co-Supervision (Taking the Major Responsibility of Supervision)

- **Han Liang**, Master's student, CS, UNB, (9/2005-5/2007). Co-supervised with Prof. Huajie Zhang. Thesis title: "Learning Naive Bayes Tree for Conditional Probability Estimation". 5 co-authored papers published ([AJCAI06], [ICTAI06a], [ICTAI06b], [ICWS06], and [CAI06]). He plans to enter a Ph.D. program in 2007.
- **Yong Liang**, Master's student, CS, UNB, (9/2004-5/2007). Co-supervised with Prof. Weicheng Du. Thesis title: "Composing Business Processes with Partial Observable Problem Space in Web Services Environment". 5 Co-authored papers published ([ITPro06], [ICWS06], [ICWS05], [CSCWD05], and [EDMEDIA06]). He won **2006-2007 Part-time Graduate Student Merit Award** at UNB. He is working as a software engineer at Institute of Information Technology in NRC since February 2006.
- **Matthias Klein**, Master's student, CS, UNB, (9/2004-5/2007). Co-supervised with Prof. Jane Fritz. Thesis title: "Design and Prototype a Music Learning Portal". 2 Co-authored papers published ([ESC06] and [EDMEDIA05]). He switched to part-time program in September 2005. He is now a full time software engineer in Germany.
- **Xinge Du**, Master's student, CS, UNB, (12/2004-5/2006). Co-supervised with Prof. Ali Ghorbani. Thesis title: "Applying Web Services to Online Experiment Systems". 4 Co-authored papers published ([ITPro06], [ICWS05], [CSCWD05], and [EDMEDIA05]). He is now a software engineer in Swiftradius, an IT company in Fredericton, NB Canada.

Advise Committee

- **Jiang Su**, Ph.D. student, CS, UNB (12/2004-5/2007). Supervisor: Prof. Huajie Zhang. Dissertation topic: "Learning Decision Trees from Probabilistic Perspective".

Co-op Supervision

- **Karen Chen**, Master's student, CS, Acadia University (9/2003-12/2003). Project title: "Methods to Debug Qualitative Model for Diagnosis Purpose". She is a software engineer at Shandong Provincial Government in China.

- **Magda Piasecka**, Undergraduate student, CS, UNB (9/2004-12/2004). Project title: “e-Learning Management Functions for Online Experiment System”. She is in undergraduate program in UNB.

ACADEMIC SERVICES

Organizing Committee

- **Publication Chair**, the 2007 IEEE International Conference on Web Services.
- **Co-chair** Workshop of Service Oriented Techniques, in the 8th International Conference of E-Commerce (ICEC06).

Program Committee

- the 2007 International Conference on CSCW in Design.
- the 2006 International Conference on CSCW in Design.
- the 2005 International Symposium on Business Excellence through Services-oriented Transformation (BEST 2005).
- the 2005 International Conference on Rules and Rule Markup Languages for the Semantic Web.
- the 2004 International Conference on Rules and Rule Markup Languages for the Semantic Web.
- the Monet Workshop of Model-based System, in IJCAI05, and in ECAI04.

Referee

- ACM Transactions on Internet Technology, 1 paper in 2006.
- The International Journal of Artificial Intelligence, Neural Networks and Complex Problem-Solving Technologies (JAI), 1 paper in 2006.
- Data & Knowledge Engineering Journal (DKE), 2 papers in 2006, 1 papers in 2007.
- International Conference on CSCW in Design, 3 papers in 2005, 5 papers in 2007.
- Monet Workshop on Model-based System, 3 papers in 2005.
- International Workshop on Qualitative Reasoning, 2 papers in 2005.
- International Conference on Rule Markup Language, 5 papers in 2004 and 2005.

Journal Editorship

- A special issue for International Journal on Business Process Integration and Management, to appear in 2007.

Thesis Review

- Bo Xu, “Slope One in Collaborative Filtering”, Master’s thesis in CS, UNB.
- Xiaowen Xu, “Prediction of User Navigation Using Fuzzy Markov Model”, Master’s thesis in CS, UNB.

AWARDS, DISTINCTIONS AND FELLOWSHIPS (from Ph.D. program)

- Visiting Professorship Award from INRIA research center in Rennes, France (Mar - Apr 2007).
- Visiting Professorship Award from University of Paris 11 (Orsay) (Dec 2006).
- France CNRS Visiting Professorship Award - for my visit to INRIA research center in Rennes, France (May - Jul 2005).
- NRC DG Reserve (\$9, 600), NRC-IIT - for supporting my master students.
- Postdoctoral Fellowship (€24,000/year) from University of Paris (Apr 2001 - Jan 2003).
- Postdoctoral Fellowship from University of Toronto (Sep 1999 - Jan 2000).
- International Research Award from the German Academic Exchange Foundation (Deutscher Akademischer Austausch Dienst, DAAD) - for my one year visit to University of Leipzig (Sep 1997 - Dec 1998).
- CIMS Research Award (¥30,000) in Tsinghua University (with my supervisor Prof. Shiyuan Yang) - for supporting traveling, publications and other research related cost for me and the master students working with me (1997 - 1998).
- Excellent TA Scholarship in Tsinghua University (1996 - 1997).

- Excellent Student Scholarship in Tsinghua University (1995 - 1996).

INVITED TALKS, TUTORIALS, AND SEMINARS

- 15 November 2006, “Web Services enabled Online Experiment Systems”, **invited talk** at the 3rd Workshop on Internet Enabling Technologies and Advanced Applications, November 15-17, 2006 in So Paulo, Brazil.
- 13 September 2006, “Model-based Approaches for Web Service Process Reasoning”, **seminar** at Faculty of Computer Science in University of New Brunswick.
- 15 August 2006, “Foundations of Web services and SOA”, **tutorial** at the 8th International Conference on E-Commerce.
- 5 December 2005, “A Model-based Approach for Web Services Network Modeling and Monitoring”, **seminar** at INRIA and University Paris (Orsay) , Paris, France.
- July 2005, “Monotonicity Analysis in Qualitative Modeling and Data Mining”, **seminar** at IRISA, University of Rennes 1, France.
- May 2005, “Web Services as Architecture for Online Experiment System”, **seminar** at IRISA, University of Rennes 1, France.
- March 2005, “Qualitative Reasoning and Qualitative Model Abstraction for Diagnosis”, **seminar** at the National Research Council Colloquium Series, Ottawa, Canada.
- December 2003, “Qualitative Model Abstraction and Model Debugging for Model-based Diagnosis”, **seminar** at the Faculty of Computer Science, University of New Brunswick, Canada.
- October 2000, “Workflow Management and Multiagent System”, **seminar** at Phantom Works, Boeing, USA.

MEDIA

I gave an interview in January 2007 for the “Bulletin of Sao Paulo State Science Foundation” on Web-based laboratories.

PRACTICAL APPLICATIONS AND INDUSTRIAL PROJECTS

Web Services for Broadband Video Conference Systems (Sept. 2006-Sept. 2009) This project is a collaborative project with Dr. Martin Brooks in NRC-IIT-Ottawa. This project is to use Web services to support synchronous and asynchronous communication. Web services are used as middleware for integrating different hardware and software, as well as the tool to model and manage the processes of processing information and enabling discussions.

Recommendation in Customer Relation Management for Pinpoint Inc. (Nov. 2006 - Nov. 2009) Pinpoint Selling (www.pinpointselling.com) of Gatineau, Quebec is interested in using a collaborative filter algorithm developed in NRC-IIT for recommending related products to customers. I am interested in using the data in the customer relation database to improve the recommendation. I plan to combine machine learning insights into the collaborative filtering algorithm.

Web Services for Online Experiment Systems (Feb. 2004 - May 2006) This is a collaborative project with Prof. Hamadou Saliah in QUAM and Prof. Ali Ghorbani in UNB. The main objective is to use Web services to support online experiments. Publications are [ITPro06], [ICWS05], [CSCWD05], [EDMEDIAa], and [iNEER05].

eConservatoire: a Music Learning Portal (May 2004 - Nov. 2006) The project of building a music learning portal developed a framework to use enterprise portal for multimedia content management. This platform is being developed in collaboration with faculty members specializing in music education at UNB, Naxos (www.naxos.com) and in IIT Ottawa. Publication is [EDMEDIA05b].

PROFESSIONAL MEMBERSHIPS

Member of ACM, IEEE and AAAI.

LANGUAGES

Fluent in English, Chinese (native speaking), intermediate level for French and German.

PUBLICATIONS

Journal Papers under Review

- IJWSR **Yuhong Yan**, Yannick Pencole, Marie-Odile Cordier and Alban Grastien, “A Model-based Approach for Diagnosing Faults in Web Service Processes”, submitted to *International Journal on Web Service Research* in January 2007.
- IJCM Daniel Lemire, Martin Brooks and **Yuhong Yan**, “An Optimal Linear Time Algorithm for Quasi-Monotonic Segmentation”. Submitted to *International Journal on Computer Mathematics* in October 2006.
- AiComm **Yuhong Yan**, “Description Language and Formal Methods for Web Service Process Modeling”, submitted to *AI Communications* in August 2006.

Journal Papers under Preparation

- AI **Yuhong Yan**, Daniel Lemire, Martin Brooks “Monotonicity Analysis in Constructing Qualitative Models from Numerical Data”, plan to submit to *Artificial Intelligence* in February 2007.

Journal Papers

- ITPro06 **Yuhong Yan**, Yong Liang, Xinge Du, Hamadou Saliah-Hasane and Ali Ghorbani, “Put Labs Online with Web Services”, *IEEE IT Professional*, p37-44, March/April 2006.
- IJPE00 **Yuhong Yan**, Torsten Kuphal, Jürgen Bode, “Application of Intelligent Agents in Project Management”, *International Journal of Production Economics*, 68, p185-197, Elsevier, 2000.
- RSI94 Yusheng Rao, Jiannan Wu, **Yuhong Yan**, Lei Qi and Yong Zhang, “Discharge mechanism of Kyoto University-type microwave plasma cathode or microwave source”, *Review of Scientific Instrument*, American Institute of Physics, April 1994.

Book Chapters

- ESC06 **Yuhong Yan**, Matthias Klein, “Web Services vs. ebXML: An Evaluation of Web Services and ebXML for e-Business Applications”, in Robin G. Qiu (Ed.), *Enterprise Service Computing: From Concept to Deployment*, Idea Group Inc., October 2006.

Peer Reviewed Conference Papers

- AJCAI06 Han Liang and **Yuhong Yan**, “Lazy Learning for Improving Ranking of Decision Trees”, *the 19th Australian Joint Conference on AI*, Dec. 4-6, 2006, Springer LNAI, (acceptance rate $164/689 = 23.8\%$).
- ICTAI06a Han Liang, Harry Zhang and **Yuhong Yan**, “Decision Trees for Probability Estimation: An Empirical Study”, *the 18th IEEE International Conference on Tools with Artificial Intelligence*, Nov. 13-15, 2006, Washington D.C., USA, (regular paper acceptance rate $60/240 = 25\%$).
- ICTAI06b Han Liang and **Yuhong Yan**, “Improve Decision Trees for Probability-Based Ranking for Lazy Learners”, *the 18th IEEE International Conference on Tools with Artificial Intelligence*, Nov. 13-15, 2006, Washington D.C., USA, (regular paper acceptance rate $60/240 = 25\%$).
- ICWS06 **Yuhong Yan**, Yong Liang and Han Liang, “Composing Business Processes with Partial Observable Problem Space in Web Services Environment”, *IEEE International Conference on Web Service*, Sept. 18-22, 2006, Chicago, USA, (Acceptance rate 18%).
- CAI06 Han Liang, **Yuhong Yan**, “Learning Naive Bayes Tree for Conditional Probability Estimation”, *Canadian AI Conference*, Quebec City, Quebec, 7-9 Jun., 2006, (Acceptance Rate $48/220 = 22\%$).
- ICDM05 Daniel Lemire, Martin Brooks, and **Yuhong Yan**, “An Optimal Linear Time Algorithm for Quasi-Monotonic Segmentation”, *IEEE International Conference on Data Mining*, New Orleans, Louisiana, U.S.A. 27-30 Nov. 2005, (Acceptance Rate $141/630=22\%$).

- IJCAI05 Martin Brooks, **Yuhong Yan**, Daniel Lemire, “Scale-Based Monotonicity Analysis in Qualitative Modelling with Flat Segments”, *19th International Joint Conference on Artificial Intelligence*, Edinburgh, Scotland, 30 Jul.-5 Aug, 2005, (Acceptance Rate 240/1329 = 18%).
- ECOWS05 **Yuhong Yan**, Yannick Pencole, Marie-Odile Cordier and Alban Grastien, “Monitoring Web Service Networks in a Model-based Approach”, *3rd European Conference on Web Services*, Växjö, Sweden, 14-16 Nov. 2005, (Acceptance Rate about 35%).
- ICWS05 **Yuhong Yan**, Yong Liang, Xinge Du, “Controlling Remote Instruments Using Web Services for Online Experiment Systems”, *3rd IEEE International Conference on Web Service*, Orlando, Florida, USA, 11-15 Jul. 2005, (Acceptance Rate 23%).
- CSCWD05 **Yuhong Yan**, Xinge DU, Yong Liang, “Distributed and Collaborative Environment for Online Experiment System Using Web Services”, *International Conference on CSCW in Design*, Springer LNCS3865, 24-26 May 2005, Coventry, UK, (Acceptance rate about 33%).
- EDMEDIA05a **Yuhong Yan**, Yong Liang, Xinge Du, Hamadou Saliah-Hassane, Ali Ghorbani, “Design Instrumental Web Services for Online Experiment Systems”, *Ed-Media 2005*, Montreal, Canada, 27 Jun.-2 Jul. 2005.
- iNEER05 Hamadou Saliah-Hassane, Djamal Benslimane, Ileana De La Teja, B. Fattouh, Lin Kim Do, Paquette Gilbert, Maarouf Saad, Louis Villardier, **Yuhong Yan**, “A General Framework for Web Services and Grid-Based Technologies for Online Laboratories”, *iNEER Conference for Engineering Education and Research*, Mar. 2005, Tainan, Taiwan, (*Invited Paper*).
- CSCWD01a **Yuhong Yan**, Alex Bejan, “Modeling Workflow within Distributed Systems” *The Sixth International Conference on CSCW in Design*, 12-14 Jul. 2001, London, Ontario, Canada.
- CSCWD01b **Yuhong Yan**, Zakaria Maamar, and Weiming Shen, “Integration of Workflow and Agent Technology for Business Process Management”, *The Sixth International Conference on CSCW in Design*, 12-14 Jul. 2001, London, Ontario, Canada.
- ICIPS97 Liu Ping, Hu Yongtong, **Yan Yuhong**, Zheng Danian, and Yang Shiyuan, “Using Counterproposal to Optimize Genetic Algorithm based Cooperative Negotiation”, *1997 IEEE International Conference on Intelligent Processing Systems*, Vol.1 p891-895, 28-31 Oct. 1997, Beijing, China.
- SMC97 **Yuhong Yan**, Yongtong Hu, Ping Liu, Danian Zheng, Changchao Ma, and Shiyuan Yang, “A Genetic Algorithm for Conflict Resolution in Concurrent Production Development”, *IEEE International Conference on Man System and Cybernetics*, 12-15 Oct. 1997, Orlando, USA.
- SMC96 Hu Yongtong, Liu Ping, **Yan Yuhong**, Zheng Danian, Changchao Ma, Jürgen Bode, Shouju Ren, “A multiagent System for Support of Concurrent Engineering”, *IEEE International Conference on System, Man and Cybernetics*, 14-17 Oct. 1996, Beijing, China.
- ICIS93 Yusheng Rao, Jiannan Wu, **Yuhong Yan**, Lei Qi and Yong Zhang, “Discharge Mechanism of Kyoto University-type Microwave Plasma Cathode (MPC) or Microwave Ion Source (MIS)”, *5th International Conference on Ion Sources*, 31 Aug.-4 Sept. 1993, Beijing, China.

Non-peer Reviewed Conference Papers

- EDMEDIA05b Matthias Klein, **Yuhong Yan**, Ning Wang, Liang Han, “The design of an Online Music Learning Portal”, *Ed-Media 2005*, Montreal, Canada, 27 Jun.-2 Jul. 2005.
- MBR04 **Yuhong Yan**, Daniel Lemire, and Martin Brooks, “Monotonicity Analysis for Constructing Qualitative Models”, *2004 Conference on Model-based Reasoning*, 16-18 Dec. 2004, Pavia, Italy.

Peer Reviewed Workshop Papers

- Monet04a **Yuhong Yan**, “Sensor Placement and Diagnosability Analysis at Design Stage”, *MONET Workshop on Model-Based Systems at ECAI 2004*, 22-26 Aug 2004, Valencia, Spain.

- Monet04b **Yuhong Yan**, Daniel Lemire and Martin Brooks, “Monotone Pieces Analysis for Qualitative Modeling”, *MONET Workshop on Model-Based Systems at ECAI 2004*, 22-26 Aug. 2004, Valencia, Spain.
- BASeWEB04 Yue Wang, Huajie Zhang, Bruce Spencer, **Yuhong Yan**, “Learning the Ontological Positions of Natural Language Objects”, In Proceedings of *the Business Agents and Semantic Web Workshop* at the Canadian AI Conference, p55-71, May 2004, London, Canada.
- QR03 **Yuhong Yan**, “Qualitative Model Abstraction for Diagnosis”, *the 17th Int. Workshop on Qualitative Reasoning*, 20-23 Aug. 2003, Brasilia, Brazil.
- DX03 **Yuhong Yan**, “Automatic Qualitative Model Abstraction from Numeric Simulation Model”, *the 14th International Workshop on Principles of Diagnosis*, 11-14 Jun. 2003, Washington DC, USA.
- AAMAS98 Yuhong Yan, Torsten Kuphal, Jürgen Bode, “Application of Intelligent Agents in Project Management”, *Workshop on Industrial Application* at 2nd International Conference on Autonomous Agents and Multiagent Systems, Minneapolis, 9-13 May 1998, MN, USA.
- WSPE98 Torsten Kuphal, **Yuhong Yan**, Jürgen Bode, “Application of Intelligent Agents in the Management of Virtual Projects”, *the 10th International Working Seminar on Production Economics*, 12-16 Feb. 1998, Igls, Austria.

Lecture Notes

- ICEC06 Yuhong Yan and Harold Boley, “A Tutorial on Service Oriented Architecture: (Semantic) Web Services, Business Process Modeling, Software Engineering”, at *2006 International Conference on e-Commerce*, Aug 2006, Fredericton, NB, Canada.