Curriculum Vitae: Thomas Huining Feng

1 PERSONAL DATA

Name: Feng, Huining (a.k.a. Thomas)

Gender: Male

Citizenship: China

Date of Birth: Oct. 11, 1979

Place of Birth: Guangzhou, Guangdong, China

Mail Address: Thomas Huining Feng, 3454 Stanley Apt. 14, Montréal, QC H3A 1R8, Canada

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2 EDUCATION

M.Sc., School of Computer Science, McGill University, Montréal, Canada, June 2004. Thesis: DCharts, a formalism for modeling and simulation based design of reactive software systems

B.Sc., Department of Computer Science and Technology, Nanjing University, Nanjing, China, June 2002

3 FIELDS OF RESEARCH AND SPECIALIZATION

- Simulation and code generation of UML models (in particular, statecharts);
- Modelling and meta-modelling;
- Formal methods, model checking and model analysis;
- Parallel and distributed simulation.

4 PROJECTS

Current Projects

- **SVM (Statechart Virtual Machine)** – an interpretative simulator for DCharts. It supports distributed (Time-warp) simulation, modular communication between models (via ports), model verification and performance analysis. It is also a plugin simulator for AToM3 (A Tool for Multi-formalism and Meta-Modelling), a graphical modelling and meta-modelling environment developed in the MSDL (Modelling, Simulation and Design Lab) of McGill University.

  `http://msdl.cs.mcgill.ca/people/tfeng/?research=svm`

- **SCC (StateChart Compiler)** – a code synthesizer that generates efficient Python, C++, Java and C# code from DCharts models. It takes a series of steps to optimize and analyze the models. The generated code preserves the behavior of the original models, and it exposes a well-defined interface for reuse.

  `http://msdl.cs.mcgill.ca/people/tfeng/?research=scc`

- **Timewarp** – distributed simulation in virtual time. Due to the message delay in a network, local time of a component may conflict with the global time, which is kept in a (conceptually) central component. In case of such a conflict, the component needs to roll back to one of its previous checkpoints.

  There are two branches of this project: checkpointing based on serialization implemented in Python (mainly used in SVM) and incremental checkpointing implemented in Java and AspectJ (used in the code generated by SCC).

  `http://msdl.cs.mcgill.ca/people/tfeng/?research=timewarp`

- **SVMDCP (SVM Distributed CheckPointing)** – a set of tools to automatically add distributed incremental checkpointing and rollback support to existing Java source code. It uses JavaCC to parse and analyze the source code. AspectJ code, which handles checkpointing and rollback, is generated and woven with the old code. With this, the user can checkpoint a state of the system and roll it back to that state at a later time. It is the basis of the Timewarp simulation for the Java code of DCharts models generated by SCC.

  `http://msdl.cs.mcgill.ca/people/tfeng/?research=svmdcp`

Past Projects

- **Action Semantics** – reading project on the implementation of action semantics (a formal language for UML to specify actions) in various modelling and simulation tools such as AToM3 and SVM.

  `http://msdl.cs.mcgill.ca/people/tfeng/docs/as/`

- **MPLS (Multi-Protocol Label Switching)** – undergraduate research on a class of related technologies for the construction of high-performance network systems.

5 PUBLICATIONS

Journal Papers

[1] Thomas Huining Feng and Hans Vangheluwe. Component-based specification using discrete-event modelling, simulation, and execution. *Simulation: Transactions of the Society for Modeling and Simulation International*, November 2004. Special Issue: Component-Based Modeling and Simulation. (submitted).

Conference Papers

[1] Thomas Huining Feng and Hans Vangheluwe. Modeling and simulation based design with DCharts. In *Conference on Conceptual Modeling and Simulation (CSM2004)*, October 2004. Genoa, Italy. (submitted).

[2] Thomas Huining Feng and Hans Vangheluwe. Case study: Consistency problems in a UML model of a chat room. In *Sixth International Conference on the Unified Modelling Language (UML 2003), Workshop on Consistency Problems in UML-based Software Development II*, October 2003. San Francisco, USA. `http://msdl.cs.mcgill.ca/people/tfeng/docs/con03.pdf`.

[3] Thomas Huining Feng. A virtual machine supporting multiple statechart extensions. In A. Bruzzone and Mhamed Itmi, editors, *Summer Computer Simulation Conference (SCSC 2003), Student Workshop*, pages S147 – S166. The Society for Computer Modelling and Simulation, July 2003. Montréal, Canada. http://msdl.cs.mcgill.ca/people/tfeng/docs/svm03.pdf.

[4] Thomas Huining Feng and Qimei Chen. Analyzing an improvement of MPLS-Net structures for the decrease of dialogue transmission delay. In *IEEE International Conference on Systems, Man and Cybernetics*, volume 4, October 2002. Hammamet, Tunisia. http://msdl.cs.mcgill.ca/people/tfeng/docs/ana02.pdf.

[5] Thomas Huining Feng and Qimei Chen. A tree view of the MPLS FEC strategy. In *International Conference on Telecommunications (ICT 2002)*, June 2002. Beijing, China.

Presentations

[1] Thomas Huining Feng and Hans Vangheluwe. Case study: Consistency problems in a UML model of a chat room, October 2003. Presented at Sixth International Conference on the Unified Modelling Language (UML 2003), San Francisco, USA. http://msdl.cs.mcgill.ca/people/tfeng/docs/uml03p.pdf.

[2] Thomas Huining Feng and Hans Vangheluwe. Component-based chat room development in SVM (Statechart Virtual Machine), October 2003. Presented at Computer Science Colloquium, Old Dominion University, Norfolk, USA. http://msdl.cs.mcgill.ca/people/tfeng/docs/odu03p.pdf.

[3] Thomas Huining Feng. SVM: A virtual machine supporting multiple statechart extensions, July 2003. Presented at Summer Computer Simulation Conference (SCSC 2003), Montréal, Canada. http://msdl.cs.mcgill.ca/people/tfeng/docs/svm03p.pdf.

Reports

[1] Thomas Huining Feng. Statechart model simulation and execution in Statechart Virtual Machine, October 2003. Research report. http://msdl.cs.mcgill.ca/people/tfeng/docs/svm/.

[2] Thomas Huining Feng. SCC (StateChart Compiler) 0.1 documentation, November 2003. Research report. http://msdl.cs.mcgill.ca/people/tfeng/docs/scc/.

[3] Thomas Huining Feng. Timewarp-enabled distributed extended statechart simulation in SVM, July 2003. Research report. http://msdl.cs.mcgill.ca/people/tfeng/docs/timewarp/.

[4] Thomas Huining Feng. Action semantics for an executable UML (COMP601 reading project), April 2003. Computer science reading project. http://msdl.cs.mcgill.ca/people/tfeng/docs/as/.

[5] Thomas Huining Feng and Shuqing Wu. Distributed recovery block, April 2003. Software Fault Tolerance course project. http://msdl.cs.mcgill.ca/people/tfeng/docs/recovery/.

6 WORK EXPERIENCE

- **Jan. 2004 to Apr. 2004**: Teaching assistant for CS762 Modelling and Simulation Based Design, taught by Prof. Hans Vangheluwe
- **Sep. 2003 to Dec. 2003**: Research assistant in the MSDL (Modelling, Simulation and Design Lab) at McGill University, headed by Prof. Hans Vangheluwe
- **Sep. 2003 to Dec. 2003**: Teaching assistant for CS522 Modelling and Simulation, taught by Prof. Hans Vangheluwe

- **Jan. 2003 to Apr. 2003**: Teaching assistant for CS360 Algorithm Design Techniques, taught by Prof. David Avis
- **Sep. 2000 to Oct. 2001**: Research assistant in MPLS (Multi-Protocol Label Switching) research group at Nanjing University, headed by Prof. Qimei Chen
- **Sep. 1999 to Jul. 2000**: Chair of CCS (Campus Computer Society) of Nanjing University
- **Sep. 1999 to Jul. 2000**: Head of computer science lab assistants, Nanjing University

7 PROGRAMMING EXPERIENCE

I am good at programming in a lot of contemporary languages such as C, C++, C#, Java, Pascal, Python, LISP, Perl, PHP, Assembly and BASIC. Currently I mostly use C++, Java and Python.

I started programming at the age of 11, and now I have a programming experience of about 14 years.

8 GRADES

- **GPA**: 3.88
- **GRE**: total 2390, verbal 790 (99%), quantitative 800 (98%), analytical 800 (99%); taken in Aug. 2001
- **AGRE (Computer Science Subject)**: 850 (93%); taken in Nov. 2001
- **TOEFL**: total 653, listening 61, grammar 68, reading 67, writing 5.0; taken in May 2001

9 FELLOWSHIPS AND AWARDS

Dean's Honour List, School of Computer Science, McGill University, Canada. 2004. (Master's thesis: DCharts, a formalism for modeling and simulation based design of reactive software systems)

Differential Fee Waiver, McGill University, Canada, 2002 – 2003

People's Honors, Nanjing University, China, 1999, 2000, 2001

First class prize, Computer Programming Contest in Academics and Science Festival, Pukou Campus, Nanjing University, China, 1999

Second class prize, National Olympics on Informatics (Computer), China, 1997

Second class prize, Guangzhou Software Design Competition, China, 1997

Third class prize, The 14th National Physics Contest, China, 1997

Second class prize, National Olympics on Informatics (Computer), China, 1996

First class prize, Informatics Contest of Guangzhou Youths, China, 1995

First class prize, Contest of Computer Program Designing in Guangzhou City, China, 1992