Emanuel G. Noik

Synopsys, Inc.	Email:	noik@synopsys.com
700 East Middlefield Road	Tel:	(415) 694-4175
Mountain View, CA	Fax:	(415) 694-4128
USA 94043-4033	WWW:	http://www.cs.toronto.edu/~noik

Areas of Specialization: visualization, graph layout, user interfaces, databases.

Citizenship: Canadian citizen and United States permanent resident.

Education:

Ph.D. in computer science, University of Toronto, Toronto, ON, Canada, April 1996. Thesis title: *Dynamic Fisheye Views: Combining Dynamic Queries and Mapping with Database Views.* Supervisor: A.O. Mendelzon.

M.Sc. in computer science, University of British Columbia, Vancouver, BC, Canada, 1990. Thesis title: *Automating the generation of interactive applications.* Supervisor: D. Lowe.

B.Math. in computer science, honours cooperative programme, University of Waterloo, Waterloo, ON, Canada, 1988.

Awards and Scholarships:

Best PhD Paper, IBM Canada Centre for Advanced Studies Conference (CASCON), 1993.

PhD Fellowship, IBM Canada Centre for Advanced Studies (CAS), 1992–93.

PhD Scholarship, Canadian Natural Sciences and Engineering Research Council (NSERC), 1991–92.

PhD Fellowship, IBM Canada Centre for Advanced Studies (CAS), 1991–92.

PhD Scholarship, Canadian Natural Sciences and Engineering Research Council (NSERC), 1990–91.

Graduate Fellowship, University of British Columbia, 1990.

Outstanding Work Term Report, University of Waterloo, 1987.

Class Valedictorian, Fellowes H.S., Pembroke, ON, Canada, 1983.

Professional Experience: (details on page 2)

Senior R&D Engineer, Synopsys, Inc., 1996–present.

Research Fellow, ITRC, University of Toronto, 1995–96.

Programmer, Department of Computer Science, University of Toronto, 1991–1995.

Software Consultant, International Time Recorder Company, 1994.

PhD Fellow, IBM Canada Centre for Advanced Studies (CAS), 1991–93.

Research Assistant, Department of Computer Science, University of British Columbia, 1989–90.

Teaching Assistant, Department of Computer Science, University of British Columbia, 1988–89.

Coop Student, IBM Canada Limited, 1984–87.

Summer Student, Atomic Energy of Canada Limited (AECL), 1983.

Professional Experience in Detail

Senior R&D Engineer, Synopsys, Inc., Mountain View, CA, USA 94043-4033. As a member of the R&D data visualization team, design and implement novel data/software visualization techniques which are incorporated into an existing suite of tools to aid VLSI designers in the creation of a variety of modern VLSI computer chips. 04/96–present.

Research Fellow, ITRC, University of Toronto, ON, Canada, M5S 1A4. As a member of the Multimedia Document Development Project, applied novel graph visualization techniques to aid distributed document exploration (*i.e.,* World-Wide Web browsing). More specifically, generalized and integrated the notion of fisheye view into an interactive-filtering dynamic-mapping visualization environment. 07/95–03/96.

Programmer, Dept. of Computer Science, University of Toronto, ON, Canada, M5S 1A4. Implemented a variety of graph layout algorithms and related tools (graph layout engine, layout server, graph editor, integrated facility for encoding and evaluating presentation emphasis algorithms) (40k LOC in C++ on Sun and IBM Unix workstations); currently used by a number of research groups. 01/91–06/95.

Software Consultant, International Time Recorder Company, Toronto, ON, Canada. Developed serial communications software for exchanging data between Unix workstations and electronic time and attendance clocks (5k LOC in C); currently used in over 400 large Canadian department stores. 01–03/94.

PhD Fellow, IBM Centre for Advanced Studies (CAS), Toronto, ON, Canada. Developed graph visualization techniques and layout algorithms for software engineering and network management domains. Implemented portions of a 3D stereoscopic graph browser (5k LOC in C++ and SGI GL). 1991–93.

Research Assistant, Dept. of Computer Science, University of British Columbia, Vancouver, BC, Canada. Developed tools for creating interactive applications for the Laboratory of Computation Vision. Implemented a generator (NAAG) that created X Windows programs from abstract specifications (12k LOC in C, lex, yacc), and a vision/image processing and application (10k LOC in NAAG, C). 05/89–08/90.

Teaching Assistant, Dept. of Computer Science, University of British Columbia, Vancouver, B.C., Canada. Provided supplementary lectures, prepared problems, graded homework, and assisted in the grading of exams, for first year programming and fourth year computer architecture courses. 09/88–04/89.

Coop Student, IBM Canada Limited, Toronto, ON, Canada.

- *Communications and Connectivity.* Used the theory and techniques of finite automata, logic programming, and server/client models to create tools (with PL/1, 370 macro assembler, and REXX) for building IBM SNA-based distributed communication systems, and implemented a significant component of the SNA/OSI data-link control layer. 09–12/87.
- *Image Application Development.* Performed formal software testing, and designed test strategies; implemented a sample image processing application that was shipped with an official product; and, contributed towards several AI-based software engineering tools. 01–05/87.
- *Industrial/Engineering and Scientific.* Designed and implemented an IBM PC-based bridge between a Numerical Control Mill and a host CAD/CAM application, which enabled engineers to directly machine parts from CAD model data. The system contained a graphical user interface with a preview facility which simulated the machining process. Demonstrated this system at the 1986 Canadian National CAD/CAM and Robotics Show. 05–08/86.
- *Billing and Contracts.* Automated the Project Change Request Tracking and Reporting cycle by developing an ISPF/REXX-based host system (on-line multi-user database), and instructed employees in the use of various applications software. 09–12/85.

- *Information Network Services.* Using the Application System (AS) 4GL, developed applications that analyzed marketing data and produced essential reports. Gave customer/executive demonstrations, and was an assistant instructor for customer and internal courses. 01–05/85.
- *Application Development Programming.* As one of two key developers, developed a prototype PC-based image editor. Working with researchers from the IBM T.J. Watson Research Center, gained valuable experience in image processing and graphical user interfaces. 05–09/84.

Summer Student, Atomic Energy of Canada Limited (AECL), Chalk River Nuclear Laboratories, Chalk River, ON, Canada. For my excellent performance in high school, I was rewarded the lucrative and intellectually challenging summer student position of *decontamination operator*. On the brighter side, at least this experience reinforced my belief in the value of higher education. Besides, I did finally stop glowing after two or three years. 06–08/83.

Refereed Journal Publications

1. *Architecture and Applications of the Hy+ Visualization System.* M.P. Consens, F. Ch. Eigler, M.Z. Hasan, A.O. Mendelzon, E.G. Noik, A.G. Ryman, D. Vista. In *IBM Systems Journal,* Vol. 33, No. 3, pp. 458–476.

Refereed Conference Publications

2. *Browsing Local and Global Information* M.Z. Hasan, G. Golovchinsky, E.G. Noik, N. Charoenkitkarn, M. Chignell, A.O. Mendelzon, D.K. Modjeska. In *CASCON '95:* 1995 IBM Canada Centre for Advanced Studies Conference, November 7–9, 1995, Toronto, Ontario, Canada.
3. *Encoding Presentation Emphasis Algorithms for Graphs.* E.G. Noik. In *GD'94:* the 1994 DIMACS Workshop on Graph Drawing, Springer Verlag Lecture Notes in Computer Science Series No. 489, pp. 428–435, Princeton, New Jersey, USA. [42 of 80 paper submissions accepted.]
4. *A Space of Presentation Emphasis Techniques for Visualizing Graphs.* E.G. Noik. In *GI'94:* Graphics Interface 1994, pp. 225–234. May 16–20, 1994, Banff, Alberta, Canada. [24 of 55 paper submissions accepted.]
5. *Exploring Large Hyperdocuments: Fisheye Views of Nested Networks.* E.G. Noik. In *Hypertext '93:* 1993 ACM Conference on Hypertext, pp. 192–205. November 14–18, 1993, Seattle, Washington, USA. [19 of 95 paper submissions accepted.]
6. *Exploring Large Hyperdocuments: Fisheye Views of Nested Networks.* E.G. Noik. In *CASCON '93:* 1993 IBM Canada Centre for Advanced Studies Conference, pp. 661–676. October 24–28, 1993, Toronto, Ontario, Canada. [Awarded best PhD student paper prize; one of 17 of 126 paper submissions included in the technical program.]
7. *Layout-independent Fisheye Views of Nested Graphs.* E.G. Noik. In *VL '93:* 1993 IEEE Symposium on Visual Languages, pp. 336–341. August 24–27, 1993, Bergen, Norway. [51 of 75 submissions accepted.]
8. *Challenges in Graph-Based Relational Data Visualization.* E.G. Noik. In *CASCON '92:* 1992 IBM Canada Centre for Advanced Studies Conference, pp. 259–277. Canada.
9. *Reducing the Validation Task by Adding Conformance at the Implementation Level.* E.G. Noik. In *HICSS '91:* 24th Annual Hawaiian International Conference on System Sciences. January 1991, Kauai, Hawaii, USA.

Other Publications

10. *Encoding Presentation Emphasis Algorithms for Graphs.* E.G. Noik. A poster at *GD'94:* the 1994 DIMACS Workshop on Graph Drawing, Princeton, New Jersey, USA.

11. *Graphite: A Suite of Hygraph Visualization Utilities.* E.G. Noik. In *Declarative database visualization: recent papers from the Hy+/GraphLog project.* Technical Report CSRI-285, University of Toronto. July 1993, Toronto, Ontario, Canada.

12. *Automating the Generation of Interactive Applications.* E.G. Noik. Technical Report 90-21, University of British Columbia. Department of Computer Science MSc Thesis. Vancouver, British Columbia, Canada.

Reviewing Experience

I haved served as a submissions reviewer for the following international conferences and journals.

- The 1996 IEEE Information Visualization Conference (Infoviz '96)
- IEEE Transactions on Software Engineering
- International Journal of Human Computer Studies
- The 1994 DIMACS Workshop on Graph Drawing (GD '94)
- The IBM Canada Centre for Advanced Studies Conference (CASCON '94)
- The European Conference on Hypertext (ECHT '94)
- The International Workshop on Advanced Visual Interfaces (AVI '94)
- The ACM Conference on User Interface Software and Technology (UIST '91)

Other Certifications

- level three springboard diving certificate
- level one scuba diving licence
- level 2 motorcycle operators license

Interests

I have participated in several high school, community, and university music ensembles (was a section leader and soloist in school jazz band). I own and enjoy playing two saxophones and listen to a wide variety of music.

I have been a member of high school basketball and ski teams, and university table tennis clubs. As a certified springboard and scuba diver, I enjoy many water sports including sailing and windsurfing. In addition I am active in other sports including running, cycling, tennis and squash, and downhill skiing. I also take part in outdoor activities and try to make time for hiking, camping, canoeing, and rock climbing. On the cerebral side, I am also a big fan of the game of chess.

I like to travel, and have visited the United Kingdom, Scandinavia, Europe, the former USSR, North Africa, the Middle East, South America, and the islands of Hawaii. I am also fond of motorcycling and motorcycle travel (when Canadian weather permits it), and brewing beer, although I try not to enjoy these in close succession.

References

Will be furnished upon request.