

Curriculum Vitae: Ran Ettinger

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Education

2001-2006 DPhil¹ thesis submitted September 2006, currently under examination, University of Oxford, United Kingdom.

1993-1999 BSc in Mathematics and Computer Science (Summa Cum Laude), Ben-Gurion University, Beer Sheva, Israel.

Employment in Software R&D

2002 Intern in the Jackpot Project, Sun Labs, Mountain View, California.

- R&D of a compiler-based refactoring framework for Java.

1998-2001 Team Leader in the R&D department of an innovative software reengineering tools provider, Intercomp, Herzliya, Israel.

- Design and implementation of an object-oriented source-to-source compiler for turning Cobol programs into Java, written in C++.
- Leading the development of an object-mining reengineering IDE.
- Research and development of algorithms in the fields of static program analysis, design recovery (to UML), and code generation (Java, XML).

1991-1995 Programmer in the software maintenance and further development team of the special science and engineering unit of the Israeli Air-Force.

- Working on a real-time, embedded, multi-tasking & 3-dimensional graphics system, written in C, Fortran, and a number of assembly languages.

¹Doctorate of Philosophy, Oxford's version of a PhD.

Research

As a programmer and programming researcher, I am devoted to playing a part in turning our young engineering practice of software development and maintenance into a mature discipline. Making a significant contribution in this endeavor is my long-term career ambition.

As a research student in Oege de Moor's Programming Tools Group, at Oxford, I have investigated how program slicing and related control- and data-flow analysis techniques can assist in building automatic tools for refactoring.

Following my first year at Oxford, I spent a five months internship at Sun Labs, working with James Gosling and the Jackpot Project on a lightweight framework for Java refactoring, based on the javac compiler's internals. We demonstrated the results in the exhibitions of *OOPSLA '02*. Subsequently, Tom Ball rewrote Jackpot and made it available as an open source reengineering module in the NetBeans IDE.

Back in Oxford, I co-supervised Mathieu Verbaere's MSc project, during which he has developed a slicing tool for a small subset of Java, plugged into Eclipse. Based on that slicer, I have developed a prototype tool, extending Eclipse's refactoring tools to support slice-extraction. This work has been published in a paper titled "Untangling: a Slice Extraction Refactoring", in *AOSD'04*.

Following a personal invitation of De Moor to demonstrate our tool to Bill Gates, Verbaere has returned to Oxford to work on a Microsoft funded doctorate on scripting refactorings. Our first report on his experimental language, "JunGL: a Scripting Language for Refactoring", has appeared in *ICSE'06*.

My DPhil thesis, titled *Refactoring via Program Slicing and Sliding*, develops a theoretical framework for slicing-based behaviour-preserving transformations of existing code. It provides a provably correct slicing algorithm and applies it in solving generalisations of the method-extraction refactoring problem. The solution takes the form of a novel family of highly non-trivial transformations, called program sliding. Finally, the thesis outlines the application of sliding to known refactorings, making them automatable for the first time.

As a result, tools for slicing and sliding are expected to become integral members of future environments for software development and maintenance. Making this vision come true — through development of tools, publication and promotion of existing results and further challenges, participation in ongoing research and/or programming education — is my short-to-medium-term ambition.

Teaching

2002-2005 Class Tutor in the Oxford University Computing Laboratory.

- Courses on Formal Program Design (I and II), Procedural Programming, Data Structures and Algorithms (I and II), Object-Oriented Programming (II).

2002-2005 Teaching Assistant in Oxford University's Software Engineering Programme.

- Courses on Object-Orientation, Object-Oriented Programming, Design Patterns, Distributed Objects.

2001 Project Supervisor in an advanced workshop of the School of Computer Science, Tel Aviv University, Israel.

- Leading an Object Mining Workshop based on Intercomp's technology, and co-supervising its final project.

2000-2001 Lecturer in the IDF School of Computing Professions, Israel.

- Courses on Java and C++ for professional programmers.

1997-1998 Lecturer in IBM Academy's programming courses, Israel.

- Courses of Introduction to Computing, C++, Visual Basic.

1996-1997 Teaching Assistant in a Fortran-90 programming course given to engineering students of Ben-Gurion University, Israel.

Publications

1. Ran Ettinger. *Refactoring via Program Slicing and Sliding*. DPhil thesis, University of Oxford, United Kingdom, 2006. Currently under examination; submitted version available on http://progttools.comlab.ox.ac.uk/members/rani/sliding_thesis_esub101006.pdf.
2. Ran Ettinger and Mathieu Verbaere. Untangling: a Slice Extraction Refactoring. In *AOSD '04: Proceedings of the 3rd International Conference on Aspect-Oriented Software Development*, pages 93–101, New York, NY, USA, 2004. ACM Press.
3. Mathieu Verbaere, Ran Ettinger, and Oege de Moor. JunGL: a Scripting Language for Refactoring. In Dieter Rombach and Mary Lou Soffa, editors, *ICSE'06: Proceedings of the 28th International Conference on Software Engineering*, pages 172–181, New York, NY, USA, 2006. ACM Press.