

Elad Verbin

Curriculum Vitæ

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Personal Details

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Born: December 5, 1981, in Tel-Aviv, Israel.

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Elad Verbin

Department of Computer Science,

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Israel

Education

- **2001-2007 (expected) Ph.D. in Computer Science, Tel-Aviv University**
Thesis Advisor: Prof. Haim Kaplan.
Ph.D. Dissertation: “New Results in Stringology: Compression and Genome Rearrangements”.
(2001-2004: studied concurrently with military service.)
- **1998-2000 B.Sc. in Mathematics and Computer Science Cum laude**
Tel-Aviv University

Papers

(some of these are available online, at <http://www.cs.tau.ac.il/~eladv>)

- **Counting Colors in Boxes**
Haim Kaplan, Natan Rubin, Micha Sharir and Elad Verbin
To be presented at SODA '07.
- **Compact Samples for Data Dissemination**
Tova Milo, Assaf Sagi and Elad Verbin
To be presented at ICDT '07.
- **Matrix Tightness: A Linear-Algebraic Framework for Sorting by Transpositions**
Tzvika Hartman and Elad Verbin
Proceedings of String Processing and Information Retrieval (SPIRE) 2006

- **A Simpler Analysis of Burrows-Wheeler Based Compression**
Haim Kaplan, Shir Landau and Elad Verbin
received best paper award in Combinatorial Pattern Matching (CPM) 2006.
To be published in Theoretical Computer Science, special issue on The Burrows-Wheeler Transform and its Applications (expected publication February 2007)
(preliminary version published in CPM '06)
- **Colored Intersection Searching via Sparse Rectangular Matrix Multiplication**
Haim Kaplan, Micha Sharir and Elad Verbin
Proceedings of Symposium on Computational Geometry (SoCG) 2006
- **Sorting Signed Permutations by Reversals, Revisited**
Haim Kaplan and Elad Verbin
Journal of Computer and System Sciences, Volume 70, Issue 3, May 2005, Pages 321–341
(Preliminary version published in CPM '03)
- **On the Complexity of Cell Flipping in Permutation Diagrams, and Multiprocessor Scheduling Problems**
Martin Charles Golumbic, Haim Kaplan and Elad Verbin
Discrete Mathematics, Volume 296, Issue 1, 28 June 2005, Pages 25–41
- **Between Genome Rearrangements and Delta-Matroids**
Haim Kaplan and Elad Verbin
In preparation.

Awards and Honors

- 2006 Best Paper Award in CPM '06, for the paper “A Simpler Analysis of Burrows-Wheeler Based Compression”, joint work with H. Kaplan and S. Landau.
- 2006 Deutsch Award. Awarded annually to three computer science graduate students in Tel Aviv University “whose research was singled out as outstanding”
- 2000-2003 During military service received honor as “outstanding student” awarded jointly by IDF and committee of university representatives. (Awarded to 5 soldiers a year.)
- 1999 Dean’s Honor Award, Tel-Aviv University

Employment History

- June-August 2006 **Summer intern at TTI-C (Toyota Technological Institute at Chicago)**. Worked on Learning Theory, under the supervision of Prof. Adam Kalai.
- 2003-present **Graduate Instructor (frontal teaching role):**
 - Fall semester 2006-2007 Discrete Mathematics
Workshop on Reinforcement Learning
 - Spring semester 2006 Data Structures
 - Fall semester 2005-2006 Discrete Mathematics
Student Seminar on Markov Chain Monte Carlo Algorithms
Workshop on Reinforcement Learning
 - Spring semester 2005 Data Structures
 - Fall semester 2004-2005 Discrete Mathematics
 - Summer semester 2004 Data Structures
 - Spring semester 2004 Workshop on Data Structures and Algorithms
 - Fall semester 2003-2004 Discrete Mathematics
- 2000-2003 **Military service, Ministry of Defense.**
- 1999-2000 **TA (exercise checker):**
Calculus 1, Calculus 2, Analysis of Algorithms

Talks Given in Conferences and Workshops

- October 2006 String Processing and Information Retrieval (SPIRE), Glasgow, UK. Paper presented: **“Matrix Tightness: A Linear-Algebraic Framework for Sorting by Transpositions”**.
- July 2006 22nd Annual ACM Symposium on Computational Geometry (SoCG 2006), Sedona, Arizona. Paper presented: **“Colored Intersection Searching via Sparse Rectangular Matrix Multiplication”**.
- May 2006 Sixth Haifa Workshop on Interdisciplinary Applications of Graph Theory, Combinatorics and Algorithms. Lecture title: **“Colored Intersection Searching via Sparse Rectangular Matrix Multiplication”**.
- April 2005 The Second Haifa Annual International Stringology Research Workshop of the Israel Science Foundation. Lecture title: **“The Burrows-Wheeler compression algorithm is even better than what you have thought”**.
- April 2004 France-Israel Expert Workshop on Graph Classes and Algorithms. Lecture title: **“On graph sorting problems that are related to sorting by reversals”**.
- June 2003 Fourteenth Annual Symposium on Combinatorial Pattern Matching (CPM 2003), Morelia, Mexico. Paper presented: **“Efficient Data Structures and a New Randomized Approach for Sorting Signed Permutations by Reversals”**.

- June 2002 Second Haifa Workshop on Interdisciplinary Applications of Graph Theory, Combinatorics and Algorithms. Lecture title: **“Sorting Signed Permutations by Reversals, Revisited”**.

Other Conferences and Workshops Attended

- June 2006 19th Annual Conference on Learning Theory (COLT 2006), Pittsburgh, Pennsylvania
- May 2005 5th Haifa Workshop on Interdisciplinary Applications of Graph Theory, Combinatorics and Computing
- June 2004 Fifteenth Annual Symposium on Combinatorial Pattern Matching (CPM 2004), Istanbul, Turkey
- May 2004 4th Haifa Workshop on Interdisciplinary Applications of Graph Theory, Combinatorics and Algorithms
- May 2003 3rd Haifa Workshop on Interdisciplinary Applications of Graph Theory, Combinatorics and Algorithms

Other Talks Given

- Tel Aviv University Algorithms and Data Structures Seminar, **“Algebraic Algorithms for Matching Problems”**, November 2006
- Columbia CS Theory Seminar, **“Colored Intersection Searching \approx Matrix Multiplication”**, September 2006
- Berkeley Theory Lunch, **“Colored Intersection Searching \approx Matrix Multiplication”**, August 2006
- Microsoft Silicone Valley, **“BWT-Based Compression”**, August 2006
- IBM Almaden, **“BWT-Based Compression”**, August 2006
- TTI-C show-and-tell series, **“BWT-Based Compression”**, August 2006
- Tel Aviv University Algorithms and Data Structures Seminar, **“On BWT-based compression”**, May 2006
- Tel Aviv University Geometry Seminar, **“Colored Intersection Searching via Sparse Rectangular Matrix Multiplication”**, March 2006
- Tel Aviv University Algorithms and Data Structures Seminar, **“Colored Intersection Searching via Sparse Rectangular Matrix Multiplication”**, January 2006
- Weizmann Institute Graduate Students’ Theory Seminar, **“Markov-Chain Monte-Carlo (MCMC) Methods in Theoretical Computer Science: An overview”**, December 2005

- Bar-Ilan University Combinatorial Pattern Matching Seminar, “**On BWT-based compression and Text Indexing**”, 2005
- Asaf Nachmias’ Graduate Student Seminar, Tel-Aviv University, “**Graph Decompositions: Modular Decomposition, Split Decomposition, and others**”, March 2004
- Uri Zwick’s Algorithms Seminar, Tel-Aviv University, “**One-Dimensional Range Searching**”, 2004
- Ron Shamir’s Computational Biology Seminar, Tel-Aviv University, “**A Randomized Approach for Sorting Signed Permutations by Reversals**”, May 2002

Professional Activity

- Reviewer for STOC, FOCS, SODA, CPM, WABI, ALENEX and ESA, as well as numerous journals.

References

References are available by request.