HALF-YEAR ACADEMIC PROGRESS REPORT

April 2012 - September 2012

This report marks the initiation of several new scientific activities at the Caesarea Edmond Benjamin de Rothschild Institute (CRI) at the University of Haifa under the renewed support of the Rothschild Caesarea Foundation. We welcome these new projects along with our successful on-going program.

The CRI workshops and other events sponsored during this period were well received by researchers in a diverse set of areas. We thank all those involved in their success.

1. WORKSHOPS, CONFERENCES, TALKS, SYMPOSIA, SEMINARS and COLLOQUIA

(i) The 12th Haifa Workshop on Interdisciplinary Applications of Graphs, Combinatorics and Algorithms – a pre-WG workshop on “Intersection Graphs”

June 24-25, 2012
Organized by Martin Golumbic, Juraj Stacho and Bernard Ries at CRI, University of Haifa

- **Martin Golumbic, Elad Cohen (University of Haifa)**
  The elusive nature of intersecting paths on a grid: A survey on EPG graphs

- **Steven Chaplick (Wilfrid Laurier University, Canada)**
  Edge intersection graphs of L-shaped paths in grids

- **Anne Berry (Université Blaise Pascal, France)**
  Intersection graphs of the atoms by clique separator decomposition

- **Marc Demange (ESSEC Business School, France)**
  About intersection graphs of cosets in a group: Connectivity and recognition

- **Flavia Bonomo (Universidad de Buenos Aires, Argentine)**
  Characterization of classical graph classes by weighted clique graphs

- **Arman Boyaci (Bougazicci University, Turkey)**
  A generalization of interval Graphs - ENPT graphs

- **Yahav Nussbaum (Tel Aviv University, Israel)**
  Isomorphism of graph classes related to the circular-ones property

(ii) Research Workshop on Ubiquitous User Modeling (U2M’2012) – State-of-the-art and current challenges

June 25-28, 2012
Organized by Tsvi Kuflik, CRI, University of Haifa; with support from the Israel Science Foundation

In today's world, computer systems are part of almost every service we receive; we either interact directly with them (as in: ATMs, movies/transportation tickets purchasing kiosks, medical
information kiosks, etc.) or they operate in the background (e.g., food ordering, medical treatment, flight boarding, shopping, etc.). Such services have the potential to be personalized to users' preferences and needs in ways that will make them more friendly and useful. However, in order to do that, knowledge about the target user is required. Asking users each time for their preferences and needs can be time consuming for the user, inefficient and irritating. Beyond that, services are delivered everywhere and in changing environments; this means that the context varies too (with/without internet connectivity, local/abroad, etc.).

Recent developments in technology (e.g., ubiquity of smart mobile devices) and social trends (e.g., online social networking) bring us closer to ubiquitous personalization, a situation where no matter where we go we will be able to receive services tailored to our personal preferences. In order to make ubiquitous personalization available to the masses, researchers need to draw upon knowledge that is multidisciplinary. Future personalized ubiquitous solutions need to address topics such as: communication interfaces, user interfaces, ubiquitous user modeling, lifelong user modeling and more.

This workshop brought together researchers, graduate students and industry people in the area of ubiquitous user modeling (and related areas). The workshop became an opportunity for researchers to share and collaborate on ideas related to ubiquitous user modeling, lifelong user modeling, personalization and other related topics. It was also a great occasion for graduate students to present their work, get feedback, learn and meet leading researchers in this area. The program consisted of the following presentations:

- **Towards Lifelong User Modeling**  
  Judy Kay (University of Sydney, Australia)

- **Component Based User Modeling**  
  Eyal Dim (University of Haifa, Israel)

- **Social Web Based User Data Analytics**  
  Geert-Jan Houben, Jasper Oosterman (TU Delft, The Netherlands)

- **User Modeling In Recommender Systems, Cross Domain User Modeling**  
  Bracha Shapira, Guy Shani (Ben Gurion University of the Negev, Israel)

- **User Control and Privacy in Ubiquitous User Models**  
  Alfred Kobsa (The University California, Irvine, CA, USA), Ran Wolff (The University of Haifa, Israel)

- **Cross-System Personalization In E-Learning**  
  Peter Brusilovsky (University of Pittsburgh, USA)

- **User Modeling In Recommender Social Aspects**  
  Ido Guy (IBM HRL, Israel)

- **Mobile Personalization and Context Awareness**  
  Shlomo Berkovksy (NICTA, Australia)

- **Infrastructure For Ubiquitous User Modeling**  
  Bob Kummerfeld (University of Sydney, Australia), Tsvika Kuflik (University of Haifa, Israel)

- **Semantic User Modeling With Linked Open Data and GUMO**  
  Dominikus Heckmann (DFKI, Germany)
• **Graph Based User Modeling**  
  Amit Tiroshi (University of Haifa, Israel)

• **Personalizing The User Interface**  
  Aaron Quigley (University of St. Andrews, UK)

• **Personalized Interaction With Large Displays**  
  Keith Cheverst (Lancaster University, UK), Joel Lanir, Inna Belinky (University of Haifa, Israel)

(iii) **38th International Workshop on Graph Theoretic Concepts in Computer Science**  
Organized by Martin Golumbic, Avivit Levy, Gila Morgenstern and Michal Stern  
June 26-28, 2012, Ramat Rachel

This annual European workshop series, aims of at uniting theory and practice by demonstrating how Graph-Theoretic concepts can be applied to various areas in Computer Science, or by extracting new problems from applications. It was held for the first time in Israel this year, organized and sponsored by CRI-Haifa, and held at Ramat Rachel. The goal of WG2012 was to present recent research results and to identify and explore directions of future research. The conference is traditionally well-balanced with respect to established researchers and young scientists. The proceedings will be published in the LNCS series of Springer-Verlag.

Papers describe original results on all aspects of graph-theoretic concepts in Computer Science, e.g. structural graph theory, sequential, parallel, randomized, parameterized, and distributed graph and network algorithms and their complexity, graph grammars and graph rewriting systems, graph-based modeling, graph-drawing and layout, random graphs, diagram methods, and support of these concepts by suitable implementations. The scope of WG includes all applications of graph-theoretic concepts in Computer Science, including data structures, databases, programming languages, computational geometry, tools for software construction, communications, computing on the web, models of the web and scale-free networks, mobile computing, concurrency, computer architectures, VLSI, artificial intelligence, graphics, CAD, operations research, and pattern recognition.

(iv) "On geometry of the known protein structure universe and a of knowledge based potential for protein structure prediction"

*Peter Rogen (Technical University of Denmark)*  
May 24, 2012

This guest lecture was hosted at CRI by Dr. Rachel Kolodny of the computer science department. It focused on mathematical attempts to bring classification of protein native structures from relative comparison to known examples to absolute description of each structure - one step up the scientific evolutionary ladder.

In the talk, some of the reduced mathematical representations of protein backbones were introduced with a focus on structural descriptors and on how to use them to give the best possible pseudo metric on the space of all known protein folds. Ongoing projects were described to optimize a smooth knowledge based potential for gradient based protein structure refinement.
Stringology 2012

Organized by Amihood Amir (Bar-Ilan), Gad M. Landau (Haifa), Moshe Lewenstein (Bar-Ilan), Ely Porat (Bar-Ilan)

June 3 – Thursday, June 7, 2012, at the Canaan Spa Hotel, Safed, Israel.

The workshop included talks by researchers from Israel and abroad on “Stringology” topics of interest, including pattern matching algorithms, algorithms for computational biology, data compression, data structures and other applications of pattern matching algorithms. This is one the active areas of research at CRI. The following talks were given:

- **Succinct Indices for Range Queries with applications to Orthogonal Range Maxima**
  Rajeev Raman [Joint work with Arash Farzan and Ian Munro.]

- **A Faster Grammar-Based Self-Index**
  Travis Gagie [Joint work with Paweł Gawrychowski, Juha Kärkkäinen, Yakov Nekrich and Simon J. Puglisi.]

- **Time-Space Trade-Offs for Longest Common Extensions**
  Benjamin Sach

- **Regular Expression Matching: History, Status, and Challenges**
  Philip Bille

- **Cache-Oblivious Implicit Predecessor Dictionaries with the Working-Set Property**
  Casper Kejlberg-Rasmussen

- **Tree Compression with Top Trees**
  Oren Weimann [Joint work with Philip Bille, Inge Li Gortz, and Gad M. Landau.]

- **Partial Persistence for Dynamic Planar Range Maxima Reporting**
  Kostas Tsakalidis [Joint work with Gerth Stølting Brodal]

- **Local Exact Pattern Matching for Non-fixed RNA Structures**
  Mika Amit [Joint work with Rolf Backofen, Steffen Heyne, Gad M. Landau, Mathias Möhl, Christina Schmiedl, Sebastian Will]

- **Detecting Approximate Periodic Patterns in Sub-Cubic Time**
  Avivit Levy (CRI, University of Haifa)

- **RNA Tree Comparisons Via Unrooted Unordered Mappings**
  Nimrod Milo [Joint work with Shay Zakov, Erez Katzenelson, Eitan Bachmat, Yefim Dinitz and Michal Ziv-Ukelson.]

- **Gene bi-targeting by viral and human miRNAs**
  Isana Veksler-Lublinsky [Joint work with Yonat Shemer-Avni, Klara Kedem and Michal Ziv-Ukelson]

- **Maximal-exponent Repeats**
  Maxime Crochemore

- **Exact Pattern Matching for RNA Structure Ensembles**
  Sebastian Will [Joint work with Mika Amit, Rolf Backofen, Steffen Heyne, Gad M. Landau, Mathias Möhl, Christina Schmiedl]

- **Recent Progress on The Multi-State Perfect Phylogeny Problem**
  Dan Gusfield [Joint work with Kristian Stevens, R. Gysel, Y. Wu, F. Lam, S. Sridhar.]

- **Local Search for String Problems: Brute Force is Essentially Optimal**
  Danny Hermelin [Joint work with Jiong Guo and Christian Komusiewicz.]

- **Online Sorted Range Reporting**
  Alex Lopez-Ortiz [Joint work with Gerth Brodal and Rolf Fagerberg.]
• **Succinct Posets**  
  Ian Munro [Joint work with Pat Nicholson.]

• **Pattern Matching in Multiple Streams**  
  Raphael Clifford [Joint work with Markus Jalsenius, Ely Porat and Benjamin Sach.]

• **Fast Arc-Annnotated Subsequence Matching in Linear Space**  
  Inge Li Gørtz [Joint work with Philip Bille.]

• **Two Dimensional Range Minimum Queries and Fibonacci Lattices**  
  Moshe Lewenstein [Joint work with Gerth Stølting Brodal, Pooya Davoodi, Rajeev Raman and Srinivas Rao.]

• **Efficient Computation of Sparse Transforms**  
  Oren Kapah [Joint work with A. Amir, E. Porat and A. Rothschild.]

• **Binary Search Trees for Compression**  
  John Iacono

• **Configurations and Minority in the String Consensus Problem**  
  Haim Paryenty [Joint work with A. Amir and L. Roditty.]

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(vi) **Participation to Conferences: Neuro-computation Laboratory** (Prof. Larry Manevitz)

• **IAAI 2012 Symposium, Ashkelon**  
  Wednesday, February 22, 2012  
  **Hananel Hazan and Larry M. Manevitz**, University of Haifa  
  Topological Choices, Sliding Thresholds, and STDP Learning Variants  
  **Zohar Eviatar, Hananel Hazan, Larry Manevitz, Orna Peleg and Rom Timor**,  
  University of Haifa  
  Disambiguation during silent reading

• **CONAS 2012 open workshop on ”Cognitive Dynamics in Neural Systems: Mathematical and Computational Modeling”, Lyon, France, March 29-30, 2012**  
  **Hananel Hazan and Larry M. Manevitz**  
  Poster: Sliding Thresholds, STDP Learning Variants and Topological Choices Improve Reservoir Computing Appropriate For Spatio-Temporal Pattern Recognition

• **CS Colloquium University of Haifa**, June 6, Wednesday  
  **Hananel Hazan**  
  Stability and topology in reservoir computing

• **Machine Learning Seminar 2012, IBM Research - Haifa, Israel, October 14, 2012**  
  **Hananel Hazan, Dan Hilu, Larry Manevitz and Shimon Sapir**  
  Poster: Early Diagnosis of Parkinson’s Disease via Machine Learning on Speech Data

• **IEEEI – 2012 27th Convention of Electrical and Electronics Engineers in Israel, Eilat, November 14-17, 2012**  
  **Hananel Hazan, Alex Frid and Larry Manevitz**  
  Temporal Pattern Recognition via Temporal Networks of Temporal Neurons  
  **Dan Hilu, Hananel Hazan, Larry Manevitz, Shimon Sapir and Lorraine O.Ramig**  
  (University of Colorado at Boulder and National Center for Voice and Speech Boulder)
Using Machine learning to Identify Patients with Parkinson Disease

(vii) A Toast of Appreciation to Lorenzo Dellai, President of the Provence of Trento, Italy
Sunday June 3, 2012
On the occasion of his receiving an Honorary Doctorate from the University of Haifa

This event was attended by the participants in the Trento-Haifa collaboration projects, both students and faculty members. These projects were carried out over a period of seven years, and have spawned a large number of new external research grants at CRI.

(viii) Invited Talks by the Director, Prof. Martin Golumbic

Prof. Martin Golumbic was an academic visitor at the Laboratoire d’Informatique, de Modélisation et d’Optimisation des Systèmes (LIMOS) at the Université Blaise Pascal, Clermont Ferrand, France (July 9-13, 2012) and gave a research colloquium on Graph Sandwich Problems. This was followed by a two day research visit by Prof. Golumbic to the University of Montpellier.

Prof. Golumbic attended the kickoff meeting of the EIT-Italy Labs part of the European Institute of Technology, (April 17-19, 2012). He also participated in Board of Directors Meetings for Trento-RISE.

2. EDUCATION

(i) CRI provided the support for a new course during the second semester:
Information Visualization by Dr. Joel Lanir

Information visualization is a topic that deals with the use of various graphical methods to help people present and analyze information. The goal of visualization is uncovering the basic underlying structure of large or abstract data sets using a visual representation that uses the advanced processing abilities of the human perceptual system. The goals of the course are: to learn the basic principles of information visualization; various visualization techniques; learn to evaluate the use of software systems and websites using visual elements and to learn tools that would help implement various visualization techniques.

(ii) The Computer Science Colloquia Series meets weekly on Wednesdays. The following lectures were given during the spring semester.

- Amitabh Trehan, (Technion)
  Distributed Algorithms for Self-healing Networks
- Orr Dunkelman, (University of Haifa)
  Minimalism in Cryptography: The Even-Mansour Scheme Revisited
- Hananel Hazan, (University of Haifa, CRI)
  Stability and topology in reservoir computing
- Itai Dinur, (Weizmann Institute)
  Improved Algorithms for Composite Problems
• Nati Linial, (Hebrew University)
  What are the high-dimensional analogs of regular graphs?
• Michael Langberg, (The Open University)
  A Unified Framework for Approximating and Clustering Data
• Rina Dechter, (University of California, Irvine)
  Principles of Reasoning with Graphical Models
• Shiri Chechik, (Weizmann Institute)
  Fully Dynamic Approximate Distance Oracles for Planar Graphs via Forbidden-Set Distance Labels
• Julia M. Taylor, (Purdue University)
  Towards Computing With Humor: Dream or Nightmare?
• Michael Dinitz, (Weizmann Institute)
  Approximation Algorithms for Graph Spanners

(iv) Haifa Cognitive Science Forum lecture series by Wendy Sandler’s

• Shaul Markovitch, Faculty of Computer Science, Technion.
• Ayelet Landau, Ernst Strüngmann Institute (ESI) in Cooperation with Max Planck Society
  Spatial Attention: from Taxonomy to Brain Rhythms
• Anat Prior, Safra Brain Research Center, Faculty of Education, University of Haifa
  Executive Functions in Bilingualism and Second Language Acquisition
• Simone Shamay-Tsoory, Department of Psychology, University of Haifa
  A model of dissociable networks for cognitive and emotional empathy: evidence from imaging, lesion and psychiatry research

3. CRI PROJECTS

(i) Digital monitoring of older adults movement patterns during (real) museum visit

This new seed project is being carried out by Dr. Tsvi Kuflik, Dr. Maria Korman and Prof. Tamar Weiss. The objective of the research is to test the ability to retain and manipulate information in spatial working memory in healthy elderly and young museum visitors, along with measurement of orientation and locomotion profiles during real museum visit. The study takes place at the Hecht Museum, at the University of Haifa, using the PIL museum visitors guide system (Kuflik et al. 2011, developed by CRI) that involves augmenting indoor positioning with social signal processing reasoning and will be adapted for the study.

The idea is to make an educational game version of the task, similar to the difficulty that traveling salesmen have in remembering which houses they have already visited and in which of those houses they have made a successful sale. Subjects will be required to search through the spatially arranged array of target locations for tokens. The goal of the game is to find all of the tokens, which are “hidden” in the virtual chests at target locations (chests are presented on an iPod’s screen). The initial experimental system will include identification of relevant user characteristics that can be collected using the available technology followed by an initial experimental collection. This will be followed by data collection at the Hecht museum and
analysis of results and preparation of an external research proposal for a competitive research grant.

(ii) Communication and Social Participation: Collaborative Technologies for Interaction and Learning (COSPATIAL) - Final EU project review meeting (July 24-25, 2012)

Participants from the UK, Italy, and Israel met at CRI Haifa for the concluding meeting of this European Union sponsored project. The project aims at developing collaborative technologies designed to promote the learning of social competence by children who are typically developing and those with Autistic Spectrum Disorders (ASD). See, http://cospatial.fbk.eu/

Social competence is a multidimensional concept that reflects a child’s capacity to integrate behavioral, cognitive and affective skills in order to adapt flexibly to diverse social contexts and demands. The main goal of the project is to experiment with novel collaborative technologies to support the acquisition of social competence in young people. In particular, the COSPATIAL project investigates two categories of technologies for collaborative interaction that have already demonstrated their potentials as effective means for the training of social skills: (i) Collaborative Virtual Environments (VE) and (ii) Shared Active Surfaces (AS).

(iii) Kinematic strategies underlying improvement in the acquisition of a sequential finger task: An interdisciplinary research project

This new project is supported in part by CRI and headed by Dr. Maria Korman.

The focus of this research program is the study of mechanisms underlying plastic changes in human brain across the life-span, specifically, the study of neuro-behavioral constraints on procedural learning and the optimization of skill acquisition and memory consolidation processes. Skill acquisition and memory consolidation is currently a lively topic and the interest stems from intersection of memory processes with various other physiological and psychological processes, such as aging, sleep, rehabilitation, cognitive function, procedural and non-procedural expertise, etc. The project addresses the question of what are the kinematic substrates that underlie modification of a novel motor sequence representation. This is an important issue for development of new theoretical and practical-clinical frameworks that will extend the current notions of rehabilitation of motor function.

Successful performance of a sequential motor skill entails the correct execution of both the serial order and the timing of the individual movements. The “correct” or “optimal” temporal and spatial organization that should be achieved through training is a rather ambiguous question. It is still largely unknown how the interactions among finger movements evolve and are further refined in normal and rehabilitating persons. Dynamics of re-organization of movement sequences with multi-session training was extensively studied by our group and others using keyboard versions of finger sequence learning was extensively studied by our group and others using keyboard versions of finger sequence learning paradigms (e.g., Doyon, Korman et al. (2009); Orban et al., 2011; recent paper by Friedland & Korman), sometimes combined with other technological solutions that allow to capture the kinematics.

Primary consideration for using the keyboard is that it allows easy and accurate recording of the finger movements’ timing and thus provides a handy measure of performance on the task, or/and specific intent to study hand-keyboard interactions. However, keyboard usage for studying general questions pertaining to how people acquire novel sequential finger and hand skills has its limitations. Most importantly, keyboard constrains the dimensionality and extent
of hand and finger movements. In everyday live, beyond typing or piano playing activities, we have extremely complex and skilled spatial arrangements of hands and finger during performance of everyday skills, such as reaching, haptic exploration, object manipulation, etc. Secondly, some populations are not using keyboards at all in their everyday life. Thus, models of learning that are biased to the keyboard usage do not reflect the typical type of motor sequences that are present in their life. For these reasons in the current project we aim to adopt technological solutions that will allow unconstrained finger motion capturing the CyberGlove.

(iv) Molecular mechanisms underlying Spalax tolerance to cancer: Critical experiments and computer-assisted transcriptome analysis

This new project is supported in part by CRI and headed by Dr. Imad Shams and Prof. Avraham Korol.

Cancer continues to be the leading cause of death in Israel as in other developed countries (1), in spite of intensive efforts to develop new drugs and new technologies to control the disease. In recent decades, intensive efforts have been directed towards understanding the mechanisms of cancer resistance to therapy. Meanwhile, cancer cells developed a huge arsenal of adaptive capacities to avoid death such as increased efflux pumps extruding chemotherapeutic agents from the cells, or activation of survival pathways in the tumor itself [reviewed in (2)]. Hence, new anticancer approaches to treat or, more important, to prevent cancer, are the present challenge.

Animals that are originally non-susceptible to cancer present an extremely promising and important target for studying cancer resistance and should become the central bio-medical model by far more important than the traditional mouse and rat models. Blind subterranean mole rat (genus Spalax) is a rodent group living in sealed dark tunnel system, and adapted to hypoxic stress for long periods (3, 4). As a hypoxia-tolerant animal, Spalax evolved many hypoxia-adaptive mechanisms analogous to the alterations acquired by cancer cells during tumor development. During about 40 years of studies at the Institute of Evolution, involving thousands of individuals, spontaneous tumors have never been observed in this animal; even though its life span can exceed 20 years (a clear positive correlation between aging and tumor appearance is a well established phenomenon for human and many other mammals).

To verify that cancer induction is indeed inhibited in Spalax, we conducted a preliminary experiment where we treated Spalax, rats and mice with the carcinogen 3MCA. The results show that mice developed tumors within 8-10 weeks and rats after 3-4 months. In Spalax only one old (>10 years old) animal developed a tumor that was detected approximately 18 months after injection of 3-MCA; two old animals developed benign fibrosis process, and five animals didn’t develop any detectable process to date (about two years after injection) (unpublished data). In a similar experiment we treated both Spalax and the different mice strains with DMBA/TPA carcinogen. Our unambiguous findings are that only Spalax, young (1-2 years old) and old (>10 years old), did not develop tumors, while all the mice developed the expected Squamous Skin Carcinoma.

Three major sets of experiments will be conducted. We hope to find answers to the question, “what mechanisms did Spalax evolve to prevent cancer”, and shed light on the strategies used by this unique mammal to contain and neutralize the effect of aggressive carcinogens. Some of the answers we are seeking are probably hidden in fibroblasts, and in their ability to inhibit neoplastic cells via molecular mechanisms yet to be discovered.
The Human Computer Interaction (HCI) Laboratory

This new laboratory is being established by CRI and headed by Dr. Joel Lanir. Its initial projects deal with the design and evaluation of interactive computing systems for human use, combining knowledge from Computer Science, Behavioral Sciences and Design Sciences. The HCI laboratory will help promote this important area in Israel, and because of its applied nature would help strengthen the ties between industry and academia at the University of Haifa. It is co-funded by a Marie Curie personal FP7 grant awarded to Dr. Lanir, which has been running since June 2011.

The research deals with the design and evaluation of applications for large displays at the museum environment. The project examines different ways in which people might interact with multiple screens in the museum context. It examines issues of Human-Computer Interaction in the design and deployment of large screens, and issues of interaction between handheld devices and large screen, for the use of individuals and small groups.

More generally, the research to be carried out by the lab will focus on interaction in ubiquitous display environments. Public spaces as well as private spaces such as our homes are becoming equipped with more and more technology in the form of wall-mounted and projected displays, tabletop computers, various handheld devices, and various sensors that are embedded in the environment. In the office environment, smart meeting rooms with wall-mounted displays, projected displays and user’s personal devices are common. Many knowledge workers are using multi-display constellations in which a work station or laptop is connected to multiple monitors, often two or three in addition to their personal devices. Other ubiquitous display environments include our living rooms which may have a large display at the center, with other various technological devices and public spaces such as museums and halls.

4. VISITORS’ PROGRAM

CRI continues to enjoy the benefit of an active visitor program. This serves to stimulate new research, and develop new opportunities for collaborative grants. Visitors to CRI for this half-year included the following:

- **Dr. Amitava Bhattacharya**, Tata Institute for Fundamental Research, Mumbai, India, June 18-June 29, 2012.
- **Dr. Steven Chaplick**, University of Toronto, Canada, June 23, 2012- July 25, 2012.
- **Prof. Dieter Rautenbach** (Universität Ulm), June 23, 2012 – June 29, 2012.
- **Dr. Vincent Limouzy**, Université Blaise Pascal, France
- **Dr. Massimo Zancanaro**, Trento, 23/7/2012-26/7/2012.
- **Dr. Marc Demange**, ESSEC Business School, France, 23/6/2012-25/6/2012.
5. PUBLICATIONS

New Book:
CRI produced the following two volume set:


CRI researchers continue to publish research papers in the best journals and conferences. A full list for academic year 5772 will be compiled separately.

6. HELLOS and GOODBYES

Arrived:
- Naama Touitou, (Computational Linguistics Lab.)
- Petter Haugereid (Computational Linguistics Lab) from Norway
- Hjalte Vedel Vildhoj (Univ. of Denmark) (Stringology Laboratory)
- Stav Hertz (Neuro-Computational Laboratory)
- Gal Star (Neuro-Computational Laboratory)
- Dr. Irith Hartman has rejoined CRI as Research Coordinator for the period September 2012 - February 2013.

Left:
- Ido Beja, Ella Nitzan and Inna Belinky have graduated (Hecht Museum Project)
- George Karapatian, our computer technician left for America. We wish him good luck.
- Ester Kroilis (Neuro-Computational Laboratory) completed her M.Sc. with distinction.
- Dr. Joel Lanir and Dr. Oren Weiman completed their stays at CRI and have been appointed as full time faculty positions at the University. They will now become CRI affiliated senior visitors.

7. FORTHCOMING EVENTS

The Annual CRI Distinguished Lectures in Mathematics and Computer Science will be given by Prof. Bernd Sturmfels from the University of California, Berkeley on Jan 14-16 2013.

Additional guest lectures and workshops will be held in December and February.

CONCLUDING REMARKS

As this academic year closes on September 30th, we would like to express our thanks to the outgoing President of the University of Haifa, Prof. Aaron Ben Ze’ev, who has been a firm supporter of the Institute throughout his terms as Rector and then President. We wish him success in his future endeavors.

Martin Charles Golumbic