

Victoria Sakhnini

CS Continuing Lecturer
Associate Director of Software Engineering
David R. Cheriton School of Computer Science
University of Waterloo

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CONTACT INFORMATION

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EDUCATION

Post Doctorate	University of Waterloo David R. Cheriton School of Computer Science Waterloo, ON, Canada	2010
Subject	Validation the Effectiveness of Creativity Enhancement Techniques for requirements Elicitation	
Ph.D.	Technion-Israel Institute of Technology Department of Education in Technology and Science Haifa, Israel	2006
Thesis	<i>Reducing Abstraction in High School Computer Science Education: The Case of Definition, Implementation and Use of Abstract Data Types</i> Supervisor: Prof. Orit Hazzan	
High School Teaching Certificate	Technion-Israel Institute of Technology Department of Education in Technology and Science Haifa, Israel	1993
Bachelor of Science (BSC) in Computer Science Major Minor	Technion-Israel Institute of Technology Department of Education in Technology and Science Computer science Mathematics Haifa, Israel	1993

EMPLOYMENT HISTORY

Associate Director	Software Engineering University of Waterloo	5/2019 – present
Lecturer -Faculty (Continuing Lecturer since July 2021)	University of Waterloo David R. Cheriton School of Computer Science Waterloo, ON, Canada	9/2016 – present
Instructional Support Coordinator	University of Waterloo David R. Cheriton School of Computer Science Waterloo, ON, Canada	9/2015 – 8/2016
Sessional	University of Waterloo David R. Cheriton School of Computer Science Waterloo, ON, Canada	9/2012 – 8/2015
Instructional Designer Consultant	Minden Gross LLP Toronto, ON, Canada	3/2011 – 12/2014
Lecturer, eLearning developer, and Trainer	The College of Sakhnin for Teacher Education Sakhnin, Israel	9/2006 – 6/2008
Instructor	Technion – Israel Institute of Technology Haifa, Israel	10/1999 – 7/2006
Computer Science Teacher - AP courses	Carmelite High School Haifa, Israel	9/1990 – 6/2008
Senior Assessor Computer Science AP-level exams	Ministry of Education Israel	9/2005 – 8/2008
Assessor Computer Science AP-level exams	Ministry of Education Israel	9/1994 – 8/2004

TEACHING EXPERIENCE (WATERLOO)

Term	Course	Class Size
Winter 2022	CS 116	89
Winter 2022	CS 116	49
Winter 2022	CS 116	50
Fall 2021	SE 101	149
Fall 2021	CS 241	111
Fall 2021	CS 137	149
Spring 2021	CS 240	121
Winter 2021	CS 116	93
Winter 2021	CS 116	108
Winter 2021	CS 100 (online)	247
Fall 2020	CS 137	148
Fall 2020	SE 101	148
Spring 2020	PD 10 (online)	318
Winter 2020	PD 10 (online)	329
Winter 2020	CS 445/CS 645/ECE 451	76
Fall 2019	PD 10 (online)	341
Fall 2019	SE 101	133
Spring 2019	CS 136	78
Spring 2019	CS 136	75
Spring 2019	CS 136	57
Winter 2019	CS 115	88
Winter 2019	CS 115	90
Winter 2019	CS 445/CS 645/ECE 451	58
Fall 2018	CS 116	87
Fall 2018	CS 116	86
Fall 2018	CS 116	76
Spring 2018	CS 246	66
Spring 2018	CS 246	75
Spring 2018	CS 246	71
Winter 2018	CS 116	89
Winter 2018	CS 116	90
Winter 2018	CS 445/CS 645/ECE 451	40
Fall 2017	CS 116	85
Fall 2017	CS 116	86
Fall 2017	CS 116	68
Spring 2017	CS 116	64
Spring 2017	CS 116	88
Spring 2017	CS 116	90
Winter 2017	CS 135	92
Winter 2017	CS 135	93

Winter 2017	CS 445/CS 645/ECE 451	67
Fall 2016	CS 135	89
Fall 2016	CS 135	85
Spring 2016	CS 446/CS 646/ECE 452	44
Spring 2016	CS 446/CS 646/ECE 452	60
Winter 2016	CS 445/CS 645/ECE 451	74
Fall 2015	CS 115	108
Spring 2015	CS 116	85
Spring 2015	CS 116	80
Spring 2015	CS 116	63
Winter 2015	CS 136	82
Winter 2015	CS 136	109
Winter 2015	CS 136	95
Fall 2014	CS 115	201
Fall 2014	CS 115	199
Fall 2014	CS 115	192
Spring 2014	CS 330	97
Spring 2014	CS 330	117
Winter 2014	CS 136	93
Winter 2014	CS 136	81
Fall 2013	CS 116	226
Fall 2013	CS 330	101
Winter 2013	CS 115	97
Winter 2013	CS 115	93
Fall 2012	CS 115	48
Fall 2012	CS 115	46

Course Calendar Descriptions (Waterloo)

CS 115 Introduction to Computer Science 1

An introduction to the fundamentals of computer science through the application of elementary programming patterns in the functional style of programming. Function definition and application. Tracing via substitution. Design, testing, and documentation. Recursive data definitions. Lists and trees. Functional and data abstraction.

CS 116 Introduction to Computer Science 2

This course builds on the techniques and patterns learned in CS 115 while making the transition to use of an imperative language. Generative and structural recursion. Mutation (assignment) and its role in an imperative language. Primitive types and basic I/O. Sequencing, selection, looping. Function definition and use. File and console I/O. Issues in computer science.

CS 135 Designing Functional Programs

An introduction to the fundamentals of computer science through the application of elementary programming patterns in the functional style of programming. Syntax and semantics of a functional programming language. Tracing via substitution. Design, testing, and documentation. Linear and nonlinear data structures. Recursive data definitions. Abstraction and encapsulation. Generative and structural recursion. Historical context.

CS 136 Elementary Algorithm Design and Data Abstraction

This course builds on the techniques and patterns learned in CS 135 while making the transition to use an imperative language. It introduces the design and analysis of algorithms, the management of information, and the programming mechanisms and methodologies required in implementations. Topics discussed include iterative and recursive sorting algorithms; lists, stacks, queues, trees, and their application; abstract data types and their implementations.

CS 137 Programming Principles

Review of fundamental programming concepts and their application. Procedures and parameter passing. Arrays and structures. Recursion. Sorting. Pointers and simple dynamic structures. Space and time analysis of designs. Design methodologies.

CS 240 Data Structures and Data Management

Introduction to widely used and effective methods of data organization, focusing on data structures, their algorithms, and the performance of these algorithms. Specific topics include priority queues, sorting, dictionaries, data structures for text processing.

CS 241 Foundations of Sequential Programs

The relationship between high-level languages and the computer architecture that underlies their implementation, including basic machine architecture, assemblers, specification and translation of programming languages, linkers and loaders, block-structured languages, parameter passing mechanisms, and comparison of programming languages.

CS 246 Object-Oriented Software Development

Introduction to object-oriented programming and to tools and techniques for software development.

Designing, coding, debugging, testing, and documenting medium-sized programs: reading specifications and designing software to implement them; selecting appropriate data structures and control structures; writing reusable code; reusing existing code; basic performance issues; debuggers; test suites.

CS 330 Management Information Systems

An introduction to information systems and their strategic role in business. Topics include types of information systems, organizational requirements, systems development strategies, decision support systems, data and information management, and information systems management, control and implementation.

CS 445 Software Requirements Specification and Analysis

CS 645 *Introduces students to the requirements definition phase of software development. Models,*

ECE 451 *notations, and processes for software requirements identification, representation, analysis, and validation. Cost estimation from early documents and specifications.*

CS 446 Software Requirements Specification and Analysis

CS 646 *Introduces students to the design, implementation, and evolution phases of software*

ECE 452 *development. Software design processes, methods, and notation. Implementation of designs. Evolution of designs and implementations. Management of design activities.*

SE 101 Introduction to Methods of Software Engineering

An introduction to some of the basic methods and principles used by software engineers, including fundamentals of technical communication, measurement, analysis, and design. Some aspects of the software engineering profession, including standards, safety and intellectual property. Professional development including resume skills, interview skills, and preparation for co-op terms. Safety-orientation training, including WHMIS assessment, is included in this course.

ADDITIONAL TEACHING EXPERIENCE

- . The College of Sakhnin for Teacher Education:
Designed, developed and managed a detailed teaching plan. Analyzed feedback to fine tune teaching plans. Provided teaching materials to all students and conducted post-course evaluation.
Subjects: Teaching methods and theories, Methods and strategies for teaching Computer Science for high school, Automata and Computer Theory, Theory of Computability, Databases (SQL), Website developing, Programming in Java, Advanced programming in Java, and Data Structures.
- . Technion-Israel Institute of Technology, Haifa, Israel:
Conducted training classes for technology teachers for a new curriculum, software rollouts, and new teaching methods. Training included both training in specific technologies (i.e., Java programming, SQL, HTML) as well as the best approaches to providing this education program. Produced user documentation and training materials, developed teaching and learning modules. Researched, resolved and responded to teachers' inquiries. Performed assessments of the teachers' performances and needs, and gave feedback to maintain and update the training materials.
- . Technion-Israel Institute of Technology, Haifa, Israel:
Subjects: Teaching methods and theories, Methods and strategies for teaching Computer Science in high schools
- . Carmelite High School, Haifa, Israel:
Planned, developed, reviewed, and revised learning modules, projects and assignments.
Subjects (AP Courses): Website developing, Programming in Java, Advanced programming in Java, and Data structures.

NON-TEACHING EXPERIENCE

- . Minden Gross LLP, Toronto, Canada:
Instructional designer. Reporting to the Manager of IT, delivered IT training in one-on-one settings to lawyers and group training to assistants. Designed and delivered training courses on E-Vault solutions. Scheduled and coordinated training sessions. Produced training plan and approach, content, user documentation and other IT training materials. Application support as it relates to specific groups. Backed up the Team Lead, Application Support, and Desktop Services as required.
- . Independent Development Analyst:
Validation of the Effectiveness of Creativity Enhancement Techniques for Requirements Elicitation. Role was to develop complex algorithms and coded in Java for a software tool to aid in the presentation of requirements artifacts in a concise and prioritized manner. Also utilized PHP and NetBeans in a Windows environment.

- The College of Sakhnin for Teacher Education, Israel:
E-Learning developer and trainer. Provided course development, developed and customized content, interactive activities and assessments. Customized training sites handling administration of use access permissions. LMS was utilized for uploading of current course materials as well as for uploads of user exercises as per course requirements.
- Ministry of education, Israel:
Senior Assessor for Computer Science AP-level exams.

AWARDS AND HONOURS

- Excellent Instructor, 2001. Technion-Israel Institute of Technology, Haifa, Israel.
- Permanent Excellent Instructor, 2002. Technion-Israel Institute of Technology, Haifa, Israel.
- Top Instructors, 2013-2020. David R. Cheriton School of Computer Science. University of Waterloo.

SERVICE TO THE UNIVERSITY

- WICS : W17-S19
- UREG : F17- S18
- Peer Evaluation : F19 - S20
- Associate Director of Software Engineering: S19 - Present

PUBLICATION SERVICES [REVIEWER]

- Journal of Empirical Software Engineering (2010 –present).
- Requirements Engineering Journal (2010 –present).
- Science of Computer Programming Journal (2010 – present).
- SwSTE2014- IEEE CS International Conference on Software Science, Technology, and Engineering.
- REFSQ2013 - Empirical Track at the International working Conference on Requirements Engineering.
- SwSTE2012 - IEEE CS International Conference on Software Science, Technology, and Engineering.
- REFSQ2012 - Empirical Track at the International working Conference on Requirements Engineering.

SCHOLARSHIPS AND GRANTS

- Post-doctoral Fellowship, Cheriton School of Computer Science, 2010.
University of Waterloo, Waterloo, ON, Canada
Note that I worked full time all during my university education for the Master and the Ph.D. at the Technion-Israel Institute of Technology, Haifa, Israel. Therefore, I did not need any scholarship

PROFESSIONAL DEVELOPMENT

- Accessibility Training - F19
- Sexual Violence Awareness - W18
- Open Educational Practices - S16
- Supervisor Orientation - W16
- Workplace Violence Awareness - S15

PUBLICATIONS

- Mich, L., Sakhnini, V., and Berry, D. M. (2017). Downsizing EPMcreate to Lighter Creativity Techniques for Requirements Elicitation. REFSQ Workshops 2017
- Sakhnini, V., Mich, L., and Berry, D. M. (2017). Group versus individual use of power-only EPMcreate as a creativity enhancement technique for requirements elicitation. *Empirical Software Engineering*. Volume 22, Issue 4, pp 2001-2049
- Sakhnini, V., Mich, L., and Berry, D. M. (2016). Materials for Comparing POEPMcreate, EPMcreate, and Brainstorming. Technical report, School of Computer Science, University of Waterloo. http://se.uwaterloo.ca/~ljberry/FTP_SITE/software.distribution/EPMcreateExperimentMaterials/.
- Sakhnini, V., Mich, L., and Berry, D. M. (2016). Group Versus Individual Use of an Optimized and the Full EPMcreate as Creativity Enhancement Techniques for Web Site Requirements Elicitation. Technical report, School of Computer Science, University of Waterloo. http://se.uwaterloo.ca/~ljberry/FTP_SITE/tech.reports/SakhniniMichBerryTR.pdf.
- Sakhnini, V., Mich, L., and Berry, D. M. (2013). On the Sizes of Groups Using the Full and Optimized EPMcreate Creativity Enhancement Technique for Web Site Requirements Elicitation. *CreARE workshop, REFSQ 2013*, Essen, Germany.

- Mich, L., Berry, D. M., and Sakhnini, V. (2012). Applying Creativity Techniques to Requirements Elicitation: Defining an Enhanced EPMCreate. *Empirical Research Fair, REFSQ 2012*, Essen, Germany.
- Sakhnini, V., Mich, L., and Berry, D. M. (2012). The Effectiveness of an Optimized EPMcreate as a Creativity Enhancement Technique for Website Requirements Elicitation. *Requirements Engineering Journal*, 17:3, pp. 171-186.
- Sakhnini, V., Berry, D. M., and Mich, L. (2010). Validation of the Effectiveness of an Optimized EPMcreate as an Aid for Creative Requirements Elicitation. *Proceedings of 16th International Working Conference on Requirements Engineering: Foundation for Software Quality (REFSQ)*, pp. 91-105, Essen, Germany.
- Sakhnini, V., and Hazzan, O. (2008). Reducing Abstraction in High School Computer Science Education: The Case of Definition, Implementation and Use of Abstract Data Types. *ACM Journal on Education Resources in Computing*, 8:2, pp. 5 1-5 13.
- Hazzan, O., Dubinsky, Y., Eidelman, L., Sakhnini, V., and Teif, M. (2006). Qualitative Research in Computer Science Education. *Proceedings of the 37th Technical Symposium on Computer Science Education (SIGCSE)*, Houston, Texas, USA, pp. 408-412.
- Sakhnini, V.(2005). Reducing Abstraction in High School Computer Science Education: The Case of Definition, Implementation and Use of Abstract Data Types. *PhD Thesis, Department of Education in Technology and Science, Technion-Israel Institute of Technology, Haifa, Israel.*

DELIVERED TALKS

- Title: We can hear students think... The role of "think-aloud" data in understanding learning and difficulties. (7/2008), The Department of Computer Science, University of British Columbia, Vancouver, BC, Canada.
- Title: Teamwork. (4/2011 and 4/2012), George Brown College, Toronto, ON, Canada.
- Title: Validation of the Effectiveness of an Optimized EPMcreate as an Aid for Creative Requirements Elicitation. (6/2010), REFSQ 2010, Essen, Germany.

VOLUNTEERING

- Volunteer work for BWO (Beloved Women Organization) since 2010. Helped in organizing and managing activities and events to support women through capacity-building, hands on training and leadership to help women build self-esteem and character. In September 2012 I became a Board Member of BWO, and in November 2014, a Vice Chair of BWO. Also, currently I am designing and developing a website for BWO (a long-term project).
- Volunteer work for World Vision (October 2009-April 2010). Helped in data entry, processing and managing using MS-Excel and other software tools used by World Vision.