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CS Associate Professor – Teaching Stream

Director of Software Engineering

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David R. Cheriton School of Computer Science, University of Waterloo

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EDUCATION

- Post Doctorate — University of Waterloo, David R. Cheriton School of Computer Science, Waterloo, ON, Canada (2010)
Subject: Validation of 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: Reducing Abstraction in High School Computer Science Education: The Case of Definition, Implementation, and Use of Abstract Data Types — Supervisor: Prof. Orit Hazzan
- Teaching Certificate — Technion-Israel Institute of Technology, Department of Education in Technology and Science, Haifa, Israel (1993)
- Bachelor of Science (BSc) in Computer Science — Technion-Israel Institute of Technology, Faculty of Computer Science, Haifa, Israel (1990)

EMPLOYMENT HISTORY

- Director — Software Engineering, University of Waterloo (5/2023 – present)
- Associate Director — Software Engineering, University of Waterloo (5/2019 – 4/2023)
- Associate Professor – Teaching Stream — University of Waterloo, David R. Cheriton School of Computer Science (9/2024 – present)
- Lecturer / Continuing Lecturer — University of Waterloo, David R. Cheriton School of Computer Science (9/2016 – 8/2024)
- Instructional Support Coordinator — University of Waterloo, David R. Cheriton School of Computer Science (9/2015 – 8/2016)
- Sessional — University of Waterloo, David R. Cheriton School of Computer Science (9/2012 – 8/2015)
- Instructional Designer Consultant — Minden Gross LLP, Toronto, ON, Canada (3/2011 – 12/2014)
- Lecturer, eLearning developer — The College of Sakhnin (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)

AWARDS AND HONOURS

- Outstanding Performance Award, 2024. David R. Cheriton School of Computer Science. University of Waterloo.
- Outstanding Performance Award, 2021. David R. Cheriton School of Computer Science. University of Waterloo.
- Top Instructors, 2013-2020. David R. Cheriton School of Computer Science. University of Waterloo.
- Permanent Excellent Instructor, 2002. Technion-Israel Institute of Technology, Haifa, Israel.
- Excellent Instructor, 2001. Technion-Israel Institute of Technology, Haifa, Israel.

TEACHING EXPERIENCE (WATERLOO)

Term	Course	Class Size
Spring 2026	CS 247 – Software Engineering Principles	145
Winter 2025	CS445/CS645/ECE451 Software Requirements Specification and Analysis	55
Fall 2024	CS137 - Programming Principles	134
Winter 2024	CS135 - Designing Functional Programs	110
Winter 2024	CS116 - Introduction to Computer Science 2	90
Fal 2023	CS137 - Programming Principles	126
Winter 2023	CS445/CS645/ECE451 Software Requirements Specification and Analysis	88
Winter 2023	CS116 - Introduction to Computer Science 2	89
Winter 2023	CS116 - Introduction to Computer Science 2	89
Fall 2022	SE101 - Introduction to Methods of Software Engineering	143
Fall 2022	CS137 - Programming Principles	144
Winter 2022	CS116 - Introduction to Computer Science 2	89
Winter 2022	CS116 - Introduction to Computer Science 2	49
Winter 2022	CS116 - Introduction to Computer Science 2	50
Fall 2021	SE101 - Introduction to Methods of Software Engineering	149
Fall 2021	CS241 – Foundations of Sequential Programs	111
Fall 2021	CS137 - Programming Principles	149
Spring 2021	CS240- Data Structures and Data Management	121

Winter 2021	CS116 - Introduction to Computer Science 2	93
Winter 2021	CS116 - Introduction to Computer Science 2	108
Winter 2021	CS100 (online) - Professional Responsibility in Computing	247
Fall 2020	CS137 - Programming Principles	148
Fall 2020	SE101 - Introduction to Methods of Software Engineering	148
Spring 2020	PD 10 (online) - Professional Responsibility in Computing	318
Winter 2020	PD 10 (online) - Professional Responsibility in Computing	329
Winter 2020	CS 445/CS 645/ECE 451 Software Requirements Specification and Analysis	76
Fall 2019	PD 10 (online) - Professional Responsibility in Computing	341
Fall 2019	SE 101 - Introduction to Methods of Software Engineering	133
Spring 2019	CS 136 - Elementary Algorithm Design and Data Abstraction	78
Spring 2019	CS 136 - Elementary Algorithm Design and Data Abstraction	75
Spring 2019	CS 136 - Elementary Algorithm Design and Data Abstraction	57
Winter 2019	CS 115 - Introduction to Computer Science 1	88
Winter 2019	CS 115 - Introduction to Computer Science 1	90
Winter 2019	CS 445/CS 645/ECE 451 Software Requirements Specification and Analysis	58
Fall 2018	CS 116 - Introduction to Computer Science 2	87
Fall 2018	CS 116 - Introduction to Computer Science 2	86
Fall 2018	CS 116 - Introduction to Computer Science 2	76
Spring 2018	CS 246 – Object-Oriented Software Development	66
Spring 2018	CS 246 – Object-Oriented Software Development	75
Spring 2018	CS 246 – Object-Oriented Software Development	71
Winter 2018	CS 116 - Introduction to Computer Science 2	89
Winter 2018	CS 116 - Introduction to Computer Science 2	90
Winter 2018	CS 445/CS 645/ECE 451 Software Requirements Specification and Analysis	40
Fall 2017	CS 116 - Introduction to Computer Science 2	85
Fall 2017	CS 116 - Introduction to Computer Science 2	86
Fall 2017	CS 116 - Introduction to Computer Science 2	68
Spring 2017	CS 116 - Introduction to Computer Science 2	64
Spring 2017	CS 116 - Introduction to Computer Science 2	88
Spring 2017	CS 116 - Introduction to Computer Science 2	90

Winter 2017	CS 135 - Designing Functional Programs	92
Winter 2017	CS 135 - Designing Functional Programs	93
Winter 2017	CS 445/CS 645/ECE 451 Software Requirements Specification and Analysis	67
Fall 2016	CS 135 - Designing Functional Programs	89
Fall 2016	CS 135 - Designing Functional Programs	85
Spring 2016	CS 446/CS 646/ECE 452 Software Requirements Specification and Analysis	44
Spring 2016	CS 446/CS 646/ECE 452 Software Requirements Specification and Analysis	60
Winter 2016	CS 445/CS 645/ECE 451 Software Requirements Specification and Analysis	74
Fall 2015	CS 115 - Introduction to Computer Science 1	108
Spring 2015	CS 116 - Introduction to Computer Science 2	85
Spring 2015	CS 116 - Introduction to Computer Science 2	80
Spring 2015	CS 116 - Introduction to Computer Science 2	63
Winter 2015	CS 136 - Elementary Algorithm Design and Data Abstraction	82
Winter 2015	CS 136 - Elementary Algorithm Design and Data Abstraction	109
Winter 2015	CS 136 - Elementary Algorithm Design and Data Abstraction	95
Fall 2014	CS 115 - Introduction to Computer Science 1	201
Fall 2014	CS 115 - Introduction to Computer Science 1	199
Fall 2014	CS 115 - Introduction to Computer Science 1	192
Spring 2014	CS 330 - Management Information Systems	97
Spring 2014	CS 330 - Management Information Systems	117
Winter 2014	CS 136 - Elementary Algorithm Design and Data Abstraction	93
Winter 2014	CS 136 - Elementary Algorithm Design and Data Abstraction	81
Fall 2013	CS 116 - Introduction to Computer Science 2	226
Fall 2013	CS 330 - Management Information Systems	101
Winter 2013	CS 115 - Introduction to Computer Science 1	97
Winter 2013	CS 115 - Introduction to Computer Science 1	93
Fall 2012	CS 115 - Introduction to Computer Science 1	48
Fall 2012	CS 115 - Introduction to Computer Science 1	46

ADDITIONAL TEACHING EXPERIENCE

- The College of Sakhnin for Teacher Education, Sakhnin, Israel (9/2026-6/2008):
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 development, Programming in Java, Advanced programming in Java, and Data Structures.
- Technion-Israel Institute of Technology, Haifa, Israel (9/1998-6/2006):
Conducted training classes for technology teachers for a new curriculum, software rollouts, and new teaching methods. Training included both specific technologies (e.g. Java programming, SQL, HTML) and the best approaches to delivering this educational program. Produced user documentation and training materials, developed teaching and learning modules. Researched, resolved and responded to teachers' inquiries. Performed assessments of the teachers' performance and needs and gave feedback to maintain and update the training materials.
- Technion-Israel Institute of Technology, Haifa, Israel (10/1999-6/2006):
Subjects: Teaching methods and theories, Methods and strategies for teaching Computer Science in high schools
- Carmelite High School, Haifa, Israel (9/1990-6/2008):
Planned, developed, reviewed, and revised learning modules, projects and assignments.
Subjects (AP Courses): Website development, Programming in Java, Advanced programming in Java, and Data structures.

NON-TEACHING EXPERIENCE

- Minden Gross LLP, Toronto, Canada (9/2010-8/2012):
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 (5/2010-8/2016):
Validation of the Effectiveness of Creativity Enhancement Techniques for Requirements Elicitation. The role was to develop complex algorithms and code in Java for a software tool that helps present requirements artifacts in a concise, prioritized manner. Also utilized PHP and NetBeans in a Windows environment.
- The College of Sakhnin for Teacher Education, Israel (9/2006-6/2008):
E-Learning developer and trainer. Provided course development, developed and customized content, interactive activities and assessments. Customized training sites handling the administration of user access permissions. LMS was utilized for uploading of current course materials as well as for uploading of user exercises as per course requirements.
- Ministry of Education, Israel:
Assessor - Computer Science AP-level exams (9/1994-9/2004).
Senior Assessor - Computer Science AP-level exams (9/2005-6/2008).

SERVICE TO THE UNIVERSITY

- Director of Software Engineering: S23–Present
- Associate Director of Software Engineering: S19–W23
- Peer Evaluation: F19–S23
- UREG: F17–S18
- WICS: W17–S23

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 throughout my university education for the Master's and the Ph.D. at the Technion-Israel Institute of Technology, Haifa, Israel. Therefore, I did not qualify for any scholarship.

PROFESSIONAL DEVELOPMENT

- PD – PEng 12 hours – 2025
- WHMIS – S25
- Workplace Violence & Harassment Awareness – S25
- Advanced AI for Everyone – W25
- PD – PEng 12 hours – 2024
- Cyber Awareness Essentials – S24
- Cyber Awareness for Knowledge Workers – S24
- Cyber Security for Researchers – S24
- Accessibility Training – F19
- Sexual Violence Awareness – W18

- Open Educational Practices – S16
- Supervisor Orientation – W16
- WHMIS – W16
- Accessibility Training – S15
- Workplace Violence Awareness – S15
- Employment Safety Orientation – S15

PUBLICATIONS

- Berry, D. M., Rahman, A., Sakhnini, V., & Dhakla, A. & M., Lucena. (2005). Scope Determined (D) Versus Scope Determining (G) Requirements: A New Significant Categorization of Requirements. Manuscript submitted for publication.
- Sakhnini, V. (2025). Human-Centred AI in Undergraduate Programming Education: Pedagogical Shifts, Ethical Imperatives, and Institutional Strategies for Transformative Learning. Manuscript submitted for publication.
- Chen, H., Sakhnini, V. (2025). Make or Take: Comparing Self-Created and Instructor-Provided Cheat Sheets. Manuscript submitted for publication.
- Gao, A., & Sakhnini, V. (2025). Reducing procrastination on programming assignments via optional early feedback. arXiv. <https://arxiv.org/abs/2510.16052>
- Berry, D. M., Lucena, M., Sakhnini, V., & Dhakla, A. (2023). Scope determined (D) and scope determining (G) requirements: A new categorization of functional requirements. In REFSQ 2023.
- Mich, L., Sakhnini, V., & Berry, D. M. (2023). To group or not to group? Group sizes for requirements elicitation. *Information and Software Technology*, 160.
- Mich, L., Sakhnini, V., & Berry, D. M. (2023). To group or not to group? Group sizes for requirements elicitation. Technical Report, MSB_JSSpaper.
- Berry, D. M., Lucena, M., Sakhnini, V., & Dhakla, A. (2023). Scope determined (D) versus scope determining (G) requirements: A new significant categorization of functional requirements. Technical Report, Cheriton School of Computer Science, University of Waterloo. Retrieved from http://se.uwaterloo.ca/~dberry/FTP_SITE/tech.reports/GvsDprelimTechReport.pdf
- Mich, L., Sakhnini, V., & Berry, D. M. (2017). Downsizing EPMcreate to lighter creativity techniques for requirements elicitation. In REFSQ Workshops 2017.
- Sakhnini, V., Mich, L., & Berry, D. M. (2017). Group versus individual use of power-only EPMcreate as a creativity enhancement technique for requirements elicitation. *Empirical Software Engineering*, 22(4), 2001-2049.
- Sakhnini, V., Mich, L., & Berry, D. M. (2016). Materials for comparing POEPMcreate, EPMcreate, and brainstorming. Technical report, School of Computer Science, University of Waterloo. http://se.uwaterloo.ca/~dberry/FTP_SITE/software.distribution/EPMcreateExperimentMaterials/.
- Sakhnini, V., Mich, L., & 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/~dberry/FTP_SITE/tech.reports/SakhniniMichBerryTR.pdf.
- Sakhnini, V., Mich, L., & Berry, D. M. (2013). On the sizes of groups using the full and optimized EPMcreate creativity enhancement technique for web site requirements elicitation. In CreARE workshop, REFSQ 2013, Essen, Germany.

- Mich, L., Berry, D. M., & Sakhnini, V. (2012). Applying creativity techniques to requirements elicitation: Defining an enhanced EPMCreate. In Empirical Research Fair, REFSQ 2012, Essen, Germany.
- Sakhnini, V., Mich, L., & Berry, D. M. (2012). The effectiveness of an optimized EPMcreate as a creativity enhancement technique for website requirements elicitation. Requirements Engineering Journal, 17(3), 171-186.
- Sakhnini, V., Berry, D. M., & Mich, L. (2010). Validation of the effectiveness of an optimized EPMcreate as an aid for creative requirements elicitation. In Proceedings of 16th International Working Conference on Requirements Engineering: Foundation for Software Quality (REFSQ), 91-105, Essen, Germany.
- Sakhnini, V., & 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), 51-513.
- Hazzan, O., Dubinsky, Y., Eidelman, L., Sakhnini, V., & Teif, M. (2006). Qualitative research in computer science education. In Proceedings of the 37th Technical Symposium on Computer Science Education (SIGCSE), Houston, Texas, USA, 408-412.
- Sakhnini, V. (2005). Reducing abstraction in high school computer science education: The case of definition, implementation and use of abstract data types (Doctoral dissertation). Department of Education in Technology and Science, Technion-Israel Institute of Technology, Haifa, Israel.

Books

- Internal Textbook for CS137 course. It features a collection of uniquely designed practice problems and in-depth explanations to help students master course concepts.
<https://cs.uwaterloo.ca/~vsakhnin/CS137Textbook.html>

Unrefereed Publications

- Thinking Space blogs - <https://cs.uwaterloo.ca/~vsakhnin/Thoughts.html>

DELIVERED TALKS

- Title: Scope determined (D) and scope determining (G) requirements: A new categorization of functional requirements. REFSQ 2023. Barcelona, Spain.
- 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.
- 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.

VOLUNTEERING

- I have volunteered for BWO (Beloved Women Organization) since 2010. I help organize and manage activities and events to support women through capacity-building, hands-on training, and leadership, helping them build self-esteem and character. In September 2012, I became a Board Member of BWO and, in November 2014, a Vice Chair of BWO until 2020.
- Volunteer work for World Vision (October 2009-April 2010). Helped in data entry, processing, and management using MS Excel and other software tools used by World Vision.