A. BIOGRAPHICAL INFORMATION

1. **Personal**

Michelle Wahl Craig
3284 Credit Heights Drive
Mississauga ON L5C 2L7
phone: 905–276–0157

Department of Computer Science
10 King's College Road
Toronto ON M5S 3G4
phone: 416–946–8488

2. **Degrees**

M.Sc. Computer Science 1989–1991. University of Toronto.
Thesis: Lossless Image Compression Using Connectionist Networks.
Supervisor: Prof. Geoffrey Hinton.

BASc. Systems Design Engineering 1985–1989. University of Waterloo.
Specialization: Mathematics

3. **Employment**

Fall 1990–present: Associate Professor, Teaching Stream, University of Toronto
Primarily responsible for the planning and delivery of undergraduate courses on St. George campus including the supervision of teaching assistants.

4. **Honours** Queen Elizabeth II's Diamond Jubilee Medal, 2012

5. **Professional Affiliations and Activities**

B. ACADEMIC HISTORY

6. A. **Research Endeavours**

- **Evaluation of the Online Delivery of CS1**
  We are currently collecting data for the comparision of an online and face-to-face delivery of our introductory programming course.
- **Profiling the experience of students who choose not to complete first year computer science**
  We have conducted semi-structured interviews of 18 students who dropped CS1 in the last year.
- **The Effects of Context in Problem Descriptions for Novice Programmers**
  Together with local and international colleagues (from and ITiCSE working group), I am studying the effects of including context in programming problem descriptions used in assignments and exercises for beginning programmers.
- **Using Exam Wrappers in Programming Courses**
  Exam wrappers are supplementary questions given to students with the return of marked tests. We are studying their effectiveness in studies at the University of Calgary (first-year non-majors fall 2015) and at the University of Toronto (first-year CS majors, spring 2016).

B. **Research Awards** during preceding 5 years

CS4HS Grant $ 15, 000 Google, April 2011 - March 2012 co-recipient with Steve Engels
To run a professional development program for high school CS teachers

CS4HS Grant $ 12, 000 Google, April 2012 - March 2013 co-recipient with Andrew Petersen
To run a second year of the CS4HS program this time on the UTM Campus.

Ontario Online (Ministry of Training Colleges and Universities) $ 75, 000 May - September 2015 co-recipient with Andrew Petersen
To develop five online modules for teaching C and Systems Programming.

Teaching Stream Pedagogical Research Grant $ 675 September 2015 - April 2016
To investigate the use of wrappers in first-year computer science classes.

C. SCHOLARLY AND PROFESSIONAL WORK

7. **Refereed Publications**

A. Articles

- Michelle Craig: "Facilitated Student Discussions for Evaluating Teaching" *SIGCSE Bulletin: Proceedings of the 38th SIGCSE Technical Symposium on Computer Science Education* Volume 39, Number 1, March 2007. 5 pages
- Steve Engels, Vivek Lakshmanan and Michelle Craig: "Plagiarism Detection Using Feature-Based Neural Networks" *SIGCSE Bulletin: Proceedings of the 38th SIGCSE Technical Symposium on Computer Science Education* Volume 39, Number 1, March 2007. 5 pages
- Michelle Craig and Diane Horton: "Gr8 Designs for Gr8 Girls: a Middle-school Program and its Evaluation" *SIGCSE Bulletin: Proceedings of the 40th SIGCSE Technical Symposium on Computer Science Education* Volume 41, Number 1, March 2009. 5 pages
- Michelle Craig, Diane Horton, and Francois Pitt. "Forming Reasonably Optimal Groups: (FROG)" *Proceedings of the 16th ACM International Conference on Supporting Group Work (GROUP '10)* November 2010. 10 pages
- Andrew Petersen, Michelle Craig, and Daniel Zingaro. "Reviewing CS1 Exam Question Content" *Proceedings of the 42nd ACM SIGCSE Technical Symposium on Computer Science Education* March 2011. 6 pages
- Eleni Stroulia, Ken Bauer, Michelle Craig, Karen Reid and Greg Wilson. "Teaching Distributed Software Engineering with UCOSP: The Undergraduate Capstone Open-Source Project" *ACM International Conference of Software Engineering* May 2011. 6 pages
- Daniel Zingaro, Andrew Petersen and Michelle Craig. "Stepping Up to Integrative Questions on CS1 Exams" *Proceedings of the 43rd ACM SIGCSE Technical Symposium on Computer Science Education* March 2012. 6 pages
- Michelle Craig, Sarah Petersen and Andrew Petersen. "Following a Thread: Knitting Patterns and Program Tracing" *Proceedings of the 43rd ACM SIGCSE Technical Symposium on Computer Science Education* March 2012. 6 pages
- Elizabeth Patitsas, Michelle Craig, and Steve Easterbrook. "Comparing and contrasting different algorithms leads to increased student learning." *Proceedings of the ninth annual international*

ACM conference on International computing education research (ICER '13). August 2013. 8 pages

- Jennifer Campbell, Diane Horton, Michelle Craig, and Paul Gries. "Evaluating an inverted CS1." *Proceedings of the 45th ACM technical symposium on Computer Science Education. March 2014*. 6 pages
- Reid Holmes, Michelle Craig, Karen Reid, and Eleni Stroulia. "Lessons learned managing distributed software engineering courses." *Companion Proceedings of the 36th International Conference on Software Engineering (ICSE Companion 2014).* May 2014. 4 pages
- Diane Horton, Michelle Craig, Jennifer Campbell, Paul Gries, and Daniel Zingaro. 2014. "Comparing outcomes in inverted and traditional CS1." *Proceedings of the 2014 conference on Innovation & Technology in Computer Science Education (ITiCSE '14).* June 2014. 6 pages
- Elizabeth Patitsas, Michelle Craig, and Steve Easterbrook. "A Historical Examination of the Social Factors Affecting Female Participation in Computing." *Proceedings of the 2014 conference on Innovation & Technology in Computer Science Education (ITiCSE '14).* June 2014. 6 pages
- Diane Horton and Michelle Craig. "Drop, Fail, Pass, Continue: Persistence in CS1 and Beyond in Traditional and Inverted Delivery." *Proceedings of the 46th ACM technical symposium on Computer Science Education.* March 2015. 6 pages
- Elizabeth Patitsas, Michelle Craig, and Steve Easterbrook. "Scaling up Women in Computing Initiatives: What Can We Learn from a Public Policy Perspective?." *Proceedings of the 11th annual International Conference on International Computing Education Research (ICER '15).*August 2015. 9 pages
- Michelle Craig and Andrew Petersen. "Student Difficulties with Pointer Concepts in C." *Proceedings of the 18th Australasian Computing Education Conference.* Feb 2016. 10 pages
- Michelle Craig, Diane Horton, Daniel Zingaro and Danny Heap. "Introducing and Evaluating Exam Wrappers in CS2." *Proceedings of the 47th ACM technical symposium on Computer Science Education.* March 2016. 6 pages
- Diane Horton, Jennifer Campbell and Michelle Craig. "Online CS1: Who Enrols, Why, and How Do They Do?". *Proceedings of the 47th ACM technical symposium on Computer Science Education.* March 2016. 6 pages
- Andrew Petersen, Michelle Craig and Paul Denny. "Employing Multiple-Answer Multiple Choice Questions". To appear in *Proceedings of the 2016 conference on Innovation & Technology in Computer Science Education (ITiCSE '16).* July 2016. 2 pages
- Jennifer Campbell, Diane Horton and Michelle Craig. "Factors for Success in Online CS1". To appear in *Proceedings of the 2016 conference on Innovation & Technology in Computer Science Education (ITiCSE '16).* July 2016. 6 pages

B. Books and/or Chapters

C. Books edited

8. **Non-Refereed Publications**

Computer Studies Program Guide: Revised Curriculum 2009. Published by Toronto District School Board, 2010. 94 pages. Co-authored with 11 TDSB teachers. Contributed to entire document but responsible personally for ICS4U section (pages 52-73.)

9. **Manuscripts/Publications in Preparation**

10. **Papers Presented at Meetings and Symposia**

A. Panels

- Nick Parlante, Julie Zelenski, Keith Schwarz, Dave Feinberg, Michelle Craig, Stuart Hansen, Michael Scott, and David J. Malan. "Nifty Assignments." *Proceedings of the 42nd ACM SIGCSE Technical Symposium on Computer Science Education* March 2011. 2 pages
- Michelle Craig, Ted Kirkpatrick, Shealen Clare, and Amgine Saewyc. 2012. "Undergraduate Capstone open-source projects." *Proceedings of the Seventeenth Western Canadian Conference on Computing Education* May 2012. 2 pages
- Nick Parlante, Julie Zelenski, Michelle Craig, John DeNero, Mark Guzdial, David J. Malan, Aditi Muralidharan, Eric Roberts, and Kevin Wayne. 2013. "Nifty assignments." *Proceeding of the 44th ACM technical symposium on Computer Science Education* March 2013. 2 pages

B. Poster Presentations

- Elizabeth Patitsas, Michelle Craig, and Steve Easterbrook. 2013. "On the countably many misconceptions about #hashtables." *Proceedings of the 44th ACM technical symposium on Computer Science Education* March 2013.
- Diane Horton, Michelle Craig. 2014. "Who Drops CS1?" *Proceeding of the 45th ACM technical symposium on Computer Science Education* March 2014.
- Daniel Marchena Parreira, Andrew Petersen, and Michelle Craig. 2015. "PCRS-C: Helping Students Learn C." *Proceedings of the 2015 ACM Conference on Innovation and Technology in Computer Science Education (ITiCSE '15).* July 2015.

11. **Invited Lectures**

Take Your Daughters and Sons to Work Day (2003). Keynote speaker for St. George Campus Event.

Computer Science Department, University of Witwatersrand, Johannesburg South Africa, (2006) *"What's exciting in Undergraduate CS Education"*

Association of Computer Science Educators (ACSE) Conference Toronto (2007) *"An Introduction to Python"*

Teaching and Learning Symposium University of Toronto (2007) *"Facilitated Student Discussions for Evaluating Teaching. "*

Educational Computing Organization of Ontario 2008: Inspire, Connect and Teach, Toronto (2008) *"Gr8 Designs for Gr8 Girls: An Activity Day That Works."*

CS Teachers Resource Day (2009) Toronto District School Board. Keynote speaker, *Why Computer Science?"*

Department of Computer Science, University of Calgary (2015). *Reflecting on Test Performance: Which Exam Wrappers are Effective?*

Department of Computer Science, Eastern Institute of Technology, Auckland, New Zealand (2016) *Lessons Learned from Supervising Student Projects.*

D. LIST OF COURSES (in preceding 5 years)

12. A. **Undergraduate courses taught**

CSC 108H Introduction to Computer Programming
3 sections Fall 2013
2 sections Fall 2012, course coordinator
2 sections Fall 2011, course coordinator
1 section Fall 2010

CSC 120H Computer Science for the Sciences
Spring 2011

CSC 490H Capstone in Computer Science Education
Spring 2011, new course

CSC 49xH Computer Science Implementation Projects
Supervised small groups of students to develop software for real clients or work on a research project. This has happened every term. Students and projects listed in section D.

CSC 209H Software Tools and Systems Programming
2 sections Spring 2016
Fall 2015
Fall 2014
Spring 2013
Spring 2012

CSC 263H Data Structures and Algorithms.
2 sections Spring 2015

B. **Theses supervised**

- Elizabeth Patitsas, MSc. *Comparing and Contrasting Different Algorithms Leads to Increased Student Learning*. July 2012 - Jan 2014. Co-supervisor.

C. **Undergraduate students supervised** (in preceding 10 years)

- Elaine Huynh **Work Study Research Project Assistant** Sept 2015 - April 2016.
- Felipe Orozco, Elaine Huynh, Natalie Dunbar, Jiana Javier, Asher Minden-Webb, Julianna Paprikas, Martin Petkov **Developers for Ontario Online PCRS-C Project**. May-Sept 2015.
- Daniel Marchena Parreira **PCRS-C (Programming Course Resource System - C language)**. May 2014-May 2015. Co-supervised with Andrew Petersen.
- Stacey Oue and Leila Chan Currie **TDPT (Technology-Driven Performance Tracking**. Sept 2013-April 2014. A system for varsity athletes and coaches to store and view their strength and conditioning training results.
- David Li, Fiona Tran and Andre Pinto **FROG: Forming Reasonable Optimal Groups**. Summer 2010. Co-supervised with Diane Horton & Francois Pitt.
- Jiaqi Han **FROG**. May-Dec 2009. Co-supervised
- Ray Zhang, Teren Teh and Lenny Han **FROG**. Jan-April 2009. Co-supervised
- Johan Harjano **FROG**. Sept-Dec 2009. co-supervised
- Irfan Shaikh, Yi Xu and Simon Elliot **Work Study Projects on CS Outreach**. Sept 2008 - March 2009.

- Elena Flat **TINSY: Token Identification System**. July-Dec 2007. Co-supervised with Stefan Sariou
- Matthew Basset **Foodbank Database Project**. Sept-Dec 2007.
- Natasha D'Silva and Dan D'Alimonte **ECO-COSM**. Sept-Dec 2006. Co-supervised with Vincent Robinson from UTM Geography.
- Vivek Lakshmanan **Plague Doctor**. Summer 2006. Principal supervisor was Steve Engels.
- Przemek Kowalczyk, Abdul Basid Mohmmad Yousuf, Sukhmeet Toor, Hamdan Ahmad **Compass Foodbank Database Project**.Sept 2005-May 2006. Co-supervised with Greg Wilson.
- UCOSP students from University of Toronto where I acted as the home-faculty liaison. These students were supervised by an industry mentor and I served as an academic supervisor meeting biweekly with the students.

Term	Name	Project
Jan - April 2016	Adam Wong	Jupyter Notebook
Jan - April 2016	Minh Le Hoang	ReviewBoard
Sept - Dec 2015	Yorie Nakayama	ReviewBoard
Sept - Dec 2015	Parker Mar	Blackberry
Sept - Dec 2015	Binuri Walpitagamage	MarkUs
Sept - Dec 2015	William Kwan	MarkUs
Jan - April 2015	Christopher Arnold	ReviewBoard
Jan - April 2015	Vincent Le	ReviewBoard
Jan - April 2015	Warren Merivel	Umple
Jan - April 2015	Xing Zeng	CodeIgniter
Sept - Dec 2014	Andrew Hong	ReviewBoard
Sept - Dec 2014	Francisco Canas	FreeseeR
Sept - Dec 2014	Hengwei Guo	Formulize
Sept - Dec 2014	Karin Ng	Umple
May - August 2014	Andrew Wong	Blackberry
May - August 2014	Angelo Maralit	MarkUs
May - August 2014	Peter Tran	ReviewBoard
Jan - April 2014	Zach Munro-Cape	MarkUs
Jan - April 2014	Laura Chen	FreeseeR
Jan - April 2014	Olessia Karpova	ReviewBoard
Jan - April 2014	Gabriel Luong	Open Stack
Jan - April 2014	Yelim Kim	Waterbear
Sept - Dec 2013	Franz Carlo Achacaso	Formulize
Sept - Dec 2013	Alex Tough	Blackberry PhoneGap
Sept - Dec 2013	Mary Elaine Malit	ReviewBoard
Sept - Dec 2013	Natasha Dalal	ReviewBoard

D. **Other teaching and lectures given**

Computing For Medicine (C4M)
In consultation with the Medical Faculty, I designed a four-phase program for medical students who want to learn to code. The C4M program includes a multi-session programming boot camp (phase I), 12 weeks of online coding exercises with face-to-face office hours and support (phase II), 6 monthly seminars with leading-edge research faculty and a carefully-crafted coding assignment related to

each seminar (phase III) and the possible internship in a medical research lab (phase IV). We delivered Phase I in winter 2016.

Centre for Teaching Support and Innovation (CTSI) Workshop, November 2015 *"Research Ethics: Classrooms as sites of scholarly enquiry"*

Session speaker at CTSI **Scholarship of Teaching and Learning Summer Institute**, June 2015 *"Research Ethics"*

Keynote speaker at **Grade 11 CS Visit Days**, 2012, 2013 and 2014. *"Generating a Random Story"*

Workshop for CS teachers for **Toronto District School Board**. *"Using Bioinformatics in the Computer Science Classroom"* (2012)

Summer Institute for Computer Science Educators Workshop Waterloo (2012) *"Introduction to Python"*

E. ADMINISTRATIVE POSITIONS

13. A. **Positions held and service on committees and organizations within the University**

Social Sciences, Humanities and Education Research Ethics Board Member (Dec 2012–Dec 2015)
Review delegated protocols weekly and participate in bi-monthly full panel meetings to discuss non-delegated protocols.

DCS TA Coordinator (May 2013–present)
Responsible for hiring all teaching assistants for the department. This includes posting jobs, assigning positions, approving contracts, handing disputes, training, evaluations and meeting collective-agreement obligations. During this period, handled 854 contracts.

Awards Committee Member (2011–2015)

Undergraduate Committee Member (1990–2012)
Most years during this time period but not all.

CS4HS Program Co-ordinator (2011–2012)
Responsible for the design and delivery of a 5-day professional development program for Ontario high school CS teachers funded by a grant from Google. Involved registering teachers, recruiting and preparing workshop leaders, teaching a technical session, preparing evaluation materials and funder reports.Together with Andrew Petersen, submitted grant proposal to Google for CS4HS Funding for 2012 and received $12K grant for a 2012 program on the UTM campus.

Gr8 Designs for Gr8 Girls Program Co-ordinator (2007–2011)
Designed and developed this outreach program for eighth-grade girls. Received NSERC Promo-Science grant, allowing expansion to other cities. Over the five years, 1018 girls attended the program and 286 others volunteered as leaders, mentors or presenters.

School Liaison Coordinator (2006–2012)
Responsible for departmental outreach programs to high school students, public school students and their families and teachers. This includes organizing two large visit days for students, speaking at various teacher conferences and PD Day events and visits to high school classrooms.

Faculty Teaching Support (2003–2006)
This responsibility included organizing a teaching discussion group, supporting individual faculty members and facilitating student evaluation discussions in other instructors' courses. It also includes supporting stipend instructors by visiting and reporting on their lectures.

Lecturer Hiring Committee Member (2005–2006, 2006–2007)
University of Toronto Mississauga

Lecturer Hiring Committee Member (2009–2010)
University of Toronto Scarborough

Teaching Evaluation Committee (2007–2008, 2009–2010)

Evaluating the teaching of tenure-stream promotion candidates.

NSERC USRA Matching Program (2011–2012)

Open House Speaker (March 20, 2009)
Faculty of Arts and Science

Computing Insights Co-ordinator (1991–1994)
This summer program brought 60-70 high school students to the campus for three weeks for an intensive schedule of lectures, assignments and other activities.

B. **Positions held and service on committees and organizations outside the University**

UCOSP (Undergraduate Capstone Open Source Projects) Steering Committee (April 2010–present)
Reporting to the Canadian Association of Computer Science (CACS/AIC), this committee oversees the Undergraduate Capstone Open-Source Projects (UCOSP) program in which students from across Canada participate in distributed software development projects for course credit. The program has students from different universities work on open-source software development projects for course credit at their home institutions. Since 2009, the program has involved 600 students from 30 different Canadian CS undergraduate programs . Code sprints have been held at Communitech (Waterloo), Facebook (Palo Alto), Mozilla (Toronto) as well as the universities of Toronto, British Columbia, Alberta and Simon Fraser University. Industrial funds, on the order of $35,000 per year were raised for the program to fund student travel.

I chair the steering committee which is responsible for

- Recruiting schools and individual students
- Recruiting projects
- All financial aspects: budget, fundraising, expenditures
- Organizing code sprints in September and January where students travelled for 3 days of face-to-face meetings
- Monitoring student progress and reporting to home-faculty-mentors

Presented the committee report and the CACS Annual General Meetings in 2012 and 2014.

SIGCSE (Special Interest Group on Computer Science Education) Conference Program Committee 2015 Poster chair for the 2015 conference.

ITiCSE (Innovation & Technology in Computer Science Education) Conference Program Committee 2015 and 2016 Responsible for the Tips, Techniques and Courseware track of the 2015 conference

Reviewer for Communications of the ACM. (2012)

CACS/AIC Outreach Committee Chair (October 2007–May 2011)
Responsible for co-ordinated outreach efforts of the Canadian Association of Computer Science. In 2009/10, this included running the CS-Mythbusters video contest and in 2010/11 co-ordinating 25 Canadian CS departments' participation in CS Education Week.
Presented committee report at the CACS Annual General Meetings (2008 – 2011).

Computing Research Association (CRA) Undergraduate Research Awards Committee (2009)
Acted as an evaluator for the international undergraduate research award.

Computer Science Teachers Association (CSTA) Poster Committee (2008)
Developed a high school outreach poster for distribution across North America.

Paper reviewer for ACM Special Interest Group in Computer Science Education (SIGCSE). (2007–present)

F. OTHER RELEVANT INFORMATION

1. **Co-curricular student activities**

Orientation Week Lecture, UTM, (2001)
Presented an orientation session on effective note-taking at university

Peer Mentoring Sessions for 1st year UTM CSC students, (2002)
Assisted the UTM Academic Skills Centre to provide some peer-lead study skills workshops for 1st year CSC students

CS Cohort Seminar Project at UTM, (2009 - 2011)
With Andrew Petersen, proposed a by-weekly seminar for first-year CS students at UTM. Ran a pilot program of six seminars that involved co-ordinating twelve visitors: 3 alumni, 4 upper-year CS students, 4 UTM staff (from career centre, academic skills centre and MCS) and 1 MCS lecturer. Received decanal approval to timetable and run seminars for both the first and second-year cohort in 2010–2011.
Continued the UTM Cohort Seminars with biweekly meetings for each of the first and second year classes. Acted as the faculty advisor for the second-year cohort leading the twelve 1-hour sessions this year. Hosted guest alumni speaker Craig O'Neill.

2. **Community Building Activities**

Initiated a **tri-campus CS lecturers' retreat**. Organized the inaugural meeting at UTM in 1999. This one-day professional development event is held annually hosted by different campuses. I was the organizer in 1999, 2001, 2005, 2010 and 2012.

CS Education Research **Reading Group**
Began with an informal weekly discussion group in 2004 at UTM which continued on the St. George campus in 2005. Later initiated and organized a formal weekly reading group for CS Education Research papers starting in May 2009. This group now continues to meet regularly each summer and irregularly during some fall and winter semesters.

Hosting Visitors Interested in CS Education and CS Ed Research
As part of building a CS Education Research community, I initiated and then coordinated visits to our department.

Allan Fisher	Carnegie Mellon University	2005	Distinguished Lecture Series speaker
Mark Guzdial	Georgia Institute of Technology	2010	Distinguished Lecture Series speaker
Steve Wolfman	University of British Columbia	2012	2-day visit
Ben Stephensen	University of Calgary	2013	1-day visit
Kristina von Hausswolff	University of Malmo, Sweden	2014	1-day visit

3. **Outreach Activities**

Women Creating Impact in STEM, U of T Chapter of Women in Science and Engineering (WISE), Panel participant (2016)

Peel Regional Science Fair Judge - (2002)
Take Your Kids to Work Day UTM activity leader (2008)
Take Your Kids to Work Day UTM session leader (2009)
Take our Daughters and Sons to Work Day Workshop Leader (2012)
Take your Kids to Work Day Session Workshop Leader (2014)

4. **Presentations and Workshops Given in Local Area Schools**

Appleby College	March 2004	grade 10 girls on science careers
Rich Hanson Secondary School	2004	science and tech teachers
Holy Name of Mary Secondary School	2004	guest lecture to school body
Thornlea Secondary School	May 2005	local class and webcast to area schools
The Woodlands Secondary School	April 2005	grade 12 calculus classes
Rockway Mennonite Collegiate	March 2005	grade 10 CS classes
A.Y. Jackson Secondary School	October 2006	grade 11 math classes and math club
Victoria Park Collegiate Institute	October 2006	grade 11 math classes
Alexander McKenzie High School	November 2006	Career Day Presentations
Sir Wilfred Laurier Secondary School	November 2006	grade 11 math and CS classes
Stephen Leacock Collegiate Institute	November 2006	Hosted visit to DCS of grade 12 class
Monarch Collegiate Institute	December 2006	grade 11 classes
Notre Dame High School	March 2007.	Hosted visit to campus
Springfield Public School	May & June 2006	3 visits to gifted classes
Hillcrest Public School	June 2006	focus groups on Gr8 Girls activities
Bloor Collegiate Institute	Nov 2007	CS classes
York Memorial Collegiate Institute	Jan 2008	CS lecture and general presentation
Langstaff Secondary School	April 2008	1 CS class and 3 Careers classes
Hillcrest Public School	Apr, May & Oct 2008	programming for enhanced students
St. Mary's Catholic SS	Nov 2008	engineering classes
Westacres Public School	Nov 2008	grade 5/6 activities exploring Scratch
St. Ignatius of Loyola Catholic SS	Nov 2008	grade 10, 11 and 12 CS classes
Columbia International College	Nov 2008	after-school presentation
Richview Collegiate	Nov 2008	meeting with CS teachers
Erindale Secondary School	December 2008	grade 11 programming class
Fletchers' Meadows SS	Dec 2008	CS classes and business classes
St. Francis Xavier Secondary school	Feb 2009	CS classes and engineering classes
The Woodlands School	Feb & March 2010	grade 11 and grade 12 CS classes
Sawmill Valley Public School	March 2009	grade 5/6 class exploring Scratch
St. Marguerite dYouville SS	March 2009	grade 11/12 CS class
Cardinal Leger Secondary	May 2009	grade 10, 11 and 12 CS classes
Glenforest Secondary School	November 2009	grade 11 computer science class
Hillcrest Public School	December 2009	2-day workshop for gifted students
Harbord Collegiate	January 2010	CS clases
Newtonbrook Secondary School	April 2010	grade 12 CS class
William Lyon Mackenzie CI	2011	grade 10 programming class
The Woodlands School	2011	grade 11 and 12 CS

5. **Workshops for High School Students Held on Campus**

Grade 11 Visit Days to our Campus
Designed a program where grade 11 CS students and their teachers visit the campus for a day filled with keynote speakers, and hands-on breakout workshops. Recruited participants and workshop leaders. Led two visit days in 2012 with 270 and 300 participants respectively. Passed leadership on to Steve Engels who used the same model and organizational structure to run six more days in 2013 and 2014. Continued to deliver keynote presentation each time as well as a breakout workshop on some offerings.

Student Mentorship Program (STEM), 2007 2-day hands-on workshop for high school students

Student Mentorship Program (STEM), 2008 2-day hands-on workshop for high school students

Canadian Association for Girls in Science (CAGIS), 2011 Scratch workshop for middle-school and elementary school girls

6. **Professional Development Activities for High School Teachers**

PD Day Workshop for CS Teachers: Toronto District School Board (TDSB) Spring 2006
Designed full day workshop on Media Computation in Python. Delivered with Paul Gries and Adam Foster

PD Day Workshop for CS Teachers (TDSB), Fall 2007
Organized and then co-led (with Paul Gries and Adam Foster) two half-day introductory Python workshops for high school CS teachers.

PD Day Workshop for CS Teachers (TDSB), Fall 2009
Organized and taught a half-day workshop on using Python for the new Ontario curriculum for grade 10-12 computer studies to Toronto District School Board (TDSB) CS teachers.

New Ontario Computer Studies Curriculum Working Group, 2009
Participated in working group with TDSB teachers to produce sample course content (outlines, plans, assignments) to cover the expectations of the new curriculum. Resulted in a published document on the implementation of the new CS curriculum.

Presented ICS4U assignment at teacher workshop at the **CEMC Summer Institute for Computer Educators**, 2009

Association of Computer Science Educators (ACSE) conference 2011
Helped organize a one-day conference for Ontario computer science teachers. Presented materials from CS4HS workshop.

CEMC (Centre for Education in Math and Computing) **Summer Conference for Computer Studies Educators, 2012** Prepared and delivered a hands-on 3.5 hour workshop, *"Introduction to Python Programming"*

7. **Teaching Support**

Formally assigned **mentoring** of teaching-stream faculty

Jennifer Campbell	Department of Computer Science, St. George campus	Jan – Apr 2004
Andrew Petersen	Department of Mathematical and Computational Sciences, UTM	2007–2008
Michael DeBragga	Robert Gillespie Academic Skills Centre, UTM	Jan – Aug, 2011

Peer-facilitated Classroom Discussions for Teaching Evaluation (2004–2014)
Designed a process where a faculty member not connected to the course, visits an undergraduate classroom to facilitate an evaluation discussion among the students and provides a written report to the instructor. Conducted over 40 visits.

8. **Curriculum Development and Teaching Innovation**
Service Learning Projects

- Compass Food bank project, Mississauga, 2005–2007
  Designed and implemented voucher-based food bank database system for The Compass.

- Sunrise Senior Living of Mississauga, 2008
  Student projects in CSC207 based on specifications of the software presented to the class by the clients.

Capstone in Computer Science Education (CSC 490) January 2011
Designed and delivered a new course that combined lectures and readings on computer science education research with practical explorations in teaching computer science.