

AARMS Detailed Report on  
The 38<sup>th</sup> Science Atlantic Math, Stats and CS Conference - MSCS 2015  
held at Acadia University on October 23-24, 2015.

### **1) A description of the event and the activities that made it up**

The 38<sup>th</sup> Atlantic Universities Mathematics, Statistics and Computer Science conference (MCSC) is an annual Science Atlantic conference. This year the major sponsor was the Atlantic Association for Research in the Mathematical Sciences (AARMS). The conference was held at Acadia University, Wolfville, October 23-24.

The conference brings together undergraduates, graduate students and faculty members from regional universities and industry along with keynote speakers in Math, Statistics and Computer Science to share knowledge on the latest in research and education in these disciplines. The conference venue is also used as the location for the Atlantic Regional Mathematics Competition as well as the ACM Atlantic Regional Computer Programming Competition. Teams from most Atlantic Universities will be present to compete for the opportunity to move on to the next round of competitions.

Website: <https://scienceatlantic.ca/ocs/index.php/mscs/MSCS2015>

### **2) The number of participants, broken down into two categories: regional, and national/international.**

The Conference attracted 199 participants: 143 students (at least nine of which were grad students) and 56 general registrants (which included at least one research associate). 18 teams competed in the ACM ICPC programming competition and 10 teams competed in the mathematics problem solving competition. Most participants were regional. We had two national speakers.

### **3) Details of any resulting publications (conference proceedings, etc).**

The 40 research talks at the conference included three “Advanced Research Computing” talks, three “Applications” talks, 15 mathematics talks, eight computer science talks, and nine statistics talks. Of the contributed talks, there were 3 faculty, 9 graduate students, 1 research associate and 24 undergraduate talks.

Each keynote was given 1 hour unopposed in the schedule. All but one contributed talk was given 20 minutes. To the best extent possible, sessions were divided into math, stats and CS, although there were some special sessions (e.g., ACENET advanced research computing with one statistics and two mathematics talks), and some mixed sessions.

ACENET provided funding for the conference, and had an opportunity to speak at the start of the session. The ACENET session featured three students who were ACENET fellows.

The conference schedule of talks, abstracts, and other details can be found in the conference booklet that can be found [here](#).

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#### **4) Scientific Highlights**

There were a number of excellent talks by undergraduate and graduate students from universities in Atlantic Canada. Please see the prize winners listed below.

The invited speakers in Mathematics, Statistics, and Computer Science, respectively, were:

Field Lecture: **Edward Susko**, Dalhousie University.

Phylogenic Estimation and Inference.

Blundon Lecture: **David Nacin**, William Patterson University.

James Joseph Sylvester on the 150th Anniversary of His Four Point Problem.

Sedgewick Lecture: **Holger Hoos**, University of British Columbia.

From Programs to Program Spaces: Leveraging Machine Learning and Optimisation for Automated Algorithm Design.

On October 25 a session on fractals, entitled "Exploring Fractals: Topology, Dimension and Invariant Measures" was held.

#### **5) A full income and expenditure account.**

Please see the attached Science Atlantic Financial Report.

#### **6) Any other notable information - and any photos if you have them.**

The following are the various prize winners from the conference

##### **ACM Intercollegiate Programming Contest**

First place (Mount Allison University)

Prizes: \$100/person

William Fiset, Thomas Lidbetter, Micah Stairs

Second place (University of New Brunswick, Fredericton)

Prizes: \$75/person

Raphael Beaulieu, James Harris, Vlad Marica

Third place (Dalhousie University)

Prizes: \$50/person

Matthew Farrell, Salman Mohammed, David Zorychta

##### **Science Atlantic Mathematics Competition**

First place (Memorial University)

Prizes: \$100/person, Maple swag, Maple licenses

Noah MacAulay, Michael Sullivan

Second place (University of New Brunswick, Fredericton)

Prizes: \$75/person, Complex Variables by Zill and Shanahan

Brandon Doherty, Jack O'Connor

Third place (Dalhousie University)

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Prizes: \$50/person, Complex Variables by Zill and Shanahan  
Shael Brown, Jingwei Li

### **Best Oral Presentation (Computer Science)**

First place: Yong Hong Chen, Acadia University

Android App for Crop Yield Estimation Using Machine Learning Methods

Prize: \$100

Second place: Jason Wuertz, University of Prince Edward Island

Multiplayer Online Battle Arenas as a Platform for Human-Computer Interaction  
Research

Prize: \$75

Third place: Federico Mora, Mount Allison University

Agent-based Simulation-based optimization

Prize: \$50

### **Best Oral Presentation (Mathematics)**

First place: Hayley Tomkins, Dalhousie University

Stern polynomials and generalizations

Prize: \$100

Second place: Kody Crowell, Acadia University

Validating Tidal Models in the Bay of Fundy Using Surface Drifters

Prize: \$75

Third place: Alexandre Pepin, Universite de Moncton

An updated Lagrangian method with error estimation and adaptive remeshing for very  
large deformation elasticity problems: the three-dimensional case

Prize: \$50

### **Best Oral Presentation (Statistics)**

First place: Yinduo Ma, St. Francis Xavier University

Multiple imputation for Canadian charitable organization data

Prize: \$100

Second place: Sota Ichiba, Acadia University

An alternative method of ordered ANOVA under unequal variances

Prize: \$75

Third place: Faith Lee, Memorial University

Comparison of the logistic regression model and Cox regression model

Prize: \$50

### **Science Atlantic Communication Award**

Undergraduate: Hayley Tomkins, Dalhousie University

Stern polynomials and generalizations

Prize: \$100

Graduate: William Kidney, Mount Saint Vincent University

A Method for Estimating Parameters for GP Model Fitting

Prize: \$100

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**ACEmat Award in Computational Modeling of Materials**

Alexandre Pepin, Universit\_e de Moncton

An updated Lagrangian method with error estimation and adaptive remeshing for very large deformation elasticity problems: the three-dimensional case

Prize: \$100

**Science Atlantic Conference Mathematics, Statistics, and Computer Science  
Acadia University, 23-24 October 2015  
Budget and Financial Statement**

Completed by Darcy

Email: Darcy.Benoit@acadiau.ca

**DIRECTIONS**

- \* Remember to fill in your conference and contact info above.
- \* Fill in the grey boxes only; all other items will automatically calculate.
- \* You may modify this spreadsheet as appropriate for your conference.
- \* Please send completed report to: [conferences@scienceatlantic.ca](mailto:conferences@scienceatlantic.ca).

**Income**

<b>Registration Fees</b>						
Est # of Attendees	Actual # of Attendees	Registration Fee	Estimated	Actual		
140	113	Undergraduates @	\$35.00	\$4,900.00		\$3,955.00
		Graduate Students @	\$0.00	\$0.00		\$0.00
57	48	Faculty @	\$110.00	\$6,270.00		\$5,280.00
		Volunteers	\$0.00	\$0.00		\$0.00
5		Other (specify) @	\$0.00	\$0.00		\$0.00
<b>Subtotal</b>				<b>\$11,170.00</b>		<b>\$9,235.00</b>

**Other Participant Income (optional)**

Est # of Attendees	Actual # of Attendees	Cost per Item	Estimated	Actual	
120	100	Banquet Tickets @	\$10.00	\$1,200.00	\$1,000.00
	161	T-shirts @	\$0.00	\$0.00	\$0.00
	161	Other (specify) @	\$0.00	\$0.00	\$0.00
<b>Subtotal</b>			<b>\$1,200.00</b>	<b>\$1,000.00</b>	

**Grad Fair/Trade Show Exhibitors (optional)**

Company Name	Table Rental Fee	Estimated	Actual
	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00
<b>Subtotal</b>		<b>\$0.00</b>	<b>\$0.00</b>

**Sponsors**

Company Name	Sponsorship Level	Estimated	Received
Science Atlantic		\$3,000.00	\$0.00
AARMS		\$4,000.00	\$0.00
		\$0.00	\$0.00
		\$0.00	\$0.00
		\$0.00	\$0.00
		\$0.00	\$0.00
		\$0.00	\$0.00
		\$0.00	\$0.00
		\$0.00	\$0.00
<b>Subtotal</b>		<b>\$7,000.00</b>	<b>\$0.00</b>

**Host Institution and Science Atlantic**

	Estimated	Actual
Dean's Office (Science - \$1500, Research and Grad Studies - \$500)	\$2,000.00	\$2,000.00
Department	\$2,000.00	\$2,000.00
ACM - t-shirts for competition students	\$939.44	\$939.44
University - other	\$0.00	\$0.00
Science Atlantic - opening float	\$0.00	\$0.00
Science Atlantic contribution	\$0.00	\$0.00
Science Atlantic - student travel assistance (when conference is in NL)	\$0.00	\$0.00
<b>Subtotal</b>	<b>\$4,939.44</b>	<b>\$4,939.44</b>

	Estimated	Actual
<b>Total Income</b>	<b>\$24,309.44</b>	<b>\$15,174.44</b>

**Expenses**

<b>Conference Requirements</b>		
	Estimated	Actual
Meeting room rentals	\$0.00	\$0.00
Poster display boards	\$0.00	\$0.00
AV rentals/Technician	\$250.00	\$0.00
Tables and chairs	\$200.00	\$0.00
Security/Campus Poli	\$0.00	\$0.00
<b>Subtotal</b>	<b>\$450.00</b>	<b>\$0.00</b>

<b>Awards</b>		
	Estimated	Actual
Cash prizes	\$0.00	\$0.00
Certificates	\$0.00	\$0.00
Plaques	\$50.00	\$0.00
<b>Subtotal</b>	<b>\$50.00</b>	<b>\$0.00</b>

**Speaker(s)**

	Estimated	Actual
Travel - David Nacin	\$1,000.00	\$665.57
Accomm - David Nacin	\$550.00	\$258.58
Travel - Holger Hoos	\$2,000.00	\$1,656.33
Accomm - Holger Hoos	\$550.00	\$0.00
Travel - Ed Susko	\$200.00	\$64.00
Accomm - Ed Susko	\$200.00	\$132.03
Thank you gift(s)	\$300.00	\$0.00
<b>Subtotal</b>	<b>\$4,800.00</b>	<b>\$2,776.51</b>

**Delegate Travel (optional)**

	Estimated	Actual
Travel - student	\$3,000.00	\$0.00
Travel - subsidy	\$0.00	\$0.00
Busses (field t	\$0.00	\$0.00
Taxi chits	\$0.00	\$0.00
Other (specify)	\$0.00	\$50.05
<b>Subtotal</b>	<b>\$3,000.00</b>	<b>\$50.05</b>

**Administration**

	Estimated	Actual
Telephone/fa	\$0.00	\$0.00
Organizer T-sh	\$0.00	\$0.00
PayPal fees	\$200.00	\$143.97
Posters	\$50.00	\$0.00
Postage	\$0.00	\$55.58
Miscellaneous	\$0.00	\$0.00
<b>Subtotal</b>	<b>\$250.00</b>	<b>\$199.55</b>

**PR/Delegate Materials**

	Est # of Attendees	Actual # of Attendees	Cost per Piece	Estimated	Actual
Printing (program/abstracts)	170	0	\$1.50	\$255.00	\$211.50
T-shirts/bags/other ("swag")	170	0	\$6.00	\$1,020.00	\$950.23
Name tags	170	0	\$1.50	\$255.00	\$83.19
Other (specify) (banquet supplies, ACM t-sh)	0	0	\$0.00	\$0.00	\$920.47
<b>Subtotal</b>				<b>\$1,530.00</b>	<b>\$2,165.39</b>

**Meals/Refreshments**

	Est # of Attendees	Actual # of Attendees	Cost per Person	Estimated	Actual
Opening Reception/Pizza Party/Other	0	0	\$0.00	\$0.00	\$0.00
Day 1 - Nutrition Break (competition)	100	0	\$8.00	\$800.00	
Day 1 - Executive Meeting	30	0	\$10.00	\$300.00	
Day 1 - Dinner (pizza)	170	0	\$9.00	\$1,530.00	
Day 1 - Reception (after talk)	170	0	\$9.00	\$1,530.00	
Day 1 - Reception (University Club)	50	0	\$3.00	\$150.00	
Day 2 - Nutrition Breaks (2)	170	0	\$4.75	\$807.50	\$3,496.31
Day 2 - Banquet and Reception	140	0	\$43.00	\$6,020.00	\$5,400.32
	0	0	\$0.00	\$0.00	\$0.00
Meals with speakers	0	0	\$0.00	\$0.00	\$463.51
	0	0	\$0.00	\$0.00	\$0.00
	0	0	\$0.00	\$0.00	\$0.00
<b>Subtotal</b>				<b>\$11,137.50</b>	<b>\$9,360.14</b>

	Estimated	Actual
<b>Total Expenses</b>	<b>\$21,217.50</b>	<b>\$14,551.64</b>

**Summary**

	Estimated	Actual
Total income	\$24,309.44	\$15,174.44
Total expenses	\$21,217.50	\$14,551.64
Less opening float	\$0.00	\$0.00
<b>Total Profit/Loss</b>	<b>\$3,091.94</b>	<b>\$622.80</b>