

Interview with  
Stan Matwin

2020 Award Winners

Canadian AI  
conferences

Call for nominations

# The Herald

## The CAIAC Newsletter

The purpose of this publication is to keep you informed of the latest developments at CAIAC and in the Canadian AI community in general. We present news about recent events as well as upcoming deadlines of interest. Every issue features an interview with an eminent member of our community.

*Ce bulletin est également disponible en français.*

For more information about the Canadian Artificial Intelligence Association (CAIAC), please visit our website at <https://www.caiac.ca/>.

You can also follow us on [Twitter](#), [Facebook](#), and [LinkedIn](#)!

## CAIAC 2020 Award Recipients

At the 2020 Canadian AI conference, it was our great pleasure to give out a number of awards, including the 2020 Distinguished Service Award, that recognises an individual for his or her outstanding service to the Canadian Artificial Intelligence community. In addition, CAIAC also honoured the graduate students in AI with the best Master's and best PhD thesis, and the best paper and student paper at the Canadian AI conference.

The winners for this year are:

**Marina Sokolova**

**CAIAC Distinguished Service Award**

University of Ottawa and Institute for Big Data Analytics, Dalhousie University

**Jhonatan De Souza Oliveira**

**CAIAC Best Doctoral Dissertation Award**

University of Regina

[\*On the Development of Deep Convolutional Sum-Product Networks\*](#)

**Humza Haider**

**CAIAC Best Master's Thesis Award**

University of Alberta

[\*Individual Survival Distributions: A More Effective Tool for Survival Prediction\*](#)

**Mahdieh Abbasi, Arezoo Rajabi, Christian Gagné and Rakesh Bobba**

**Canadian AI Best Paper Award**

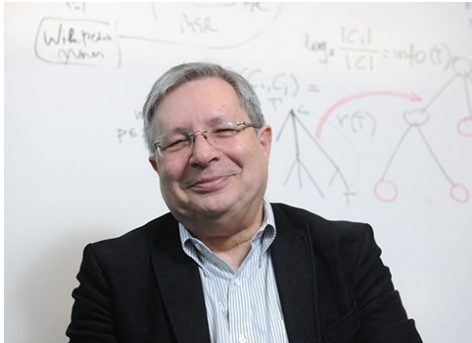
*Bobba: Toward Adversarial Robustness by Diversity in an Ensemble of Specialized Deep Neural Network*

**Xinyu Yun, Tanner Bohn and Charles Ling**

**Canadian AI Best Student Paper Award**

*A Deeper Look at Bongard Problems*

# Interview with Stan Matwin



**Professor & Director  
Institute for Big Data Analytics  
Dalhousie University**

**Winner of the  
CAIAC 2019 Lifetime Achievement Award**

**CAIAC:**

*What are your research interests?*

**Stan Matwin:**

My main research interest has been, for many years, in Machine Learning, as well as in some aspects of Natural Language Processing. Lately I have also become interested in the issues of data management, data integration and data quality as they relate to the Big Data phenomenon. As I am involved in a number of applications having to do with different aspects of oceans, I have become fascinated by oceanography and how essential it is for the global environment. Finally, for quite a while I have been interested, and still am, in the issues of privacy and Privacy Enhancement Techniques.

**CAIAC:**

*What is, in your opinion, the most important development in Artificial Intelligence that took place in recent years or is in the process of taking place?*

**Stan Matwin:**

Not surprisingly, the impressive results obtained in Machine Learning, particularly with the Deep Neural

Networks in the last 5 years or so, are a game-changer for AI. From a somewhat esoteric field, with conferences attended ten or twenty years ago by 200-300 academic researchers, Machine Learning has become a field present in the speeches of politicians and business leaders, and our conferences bring in thousands of attendees from a variety of sectors, who sometimes win their registration by lottery.

**CAIAC:**

*Why do you believe it is a significant development and what is its scope. Could you compare its projected impact to the impact that earlier advances in AI have had?*

**Stan Matwin:**

It is significant because it represents a phase transition in the quality and robustness of results, esp. when dealing with unstructured data, particularly image data (but also text data, where embeddings – word2vec and its successors - are a breakthrough which we have been pursuing since Salton ideas in 1970s). However, these deep learning advancements require huge datasets mainly available to GAFAs of the world, as well as very extensive HPC resources. While the claim that Deep Learning has removed the need for “feature engineering” is often true, esp. for image data, it has been to some extent replaced by “architecture engineering”: the skill to put together advanced Deep Learning systems from the large repositories of building blocks, and the skill to initialize enormously large “hyperparameter” spaces these architectures have.

**CAIAC:**

*How do you believe that this new development will change our everyday lives?*

**Stan Matwin:**

This is not entirely clear, but some developments seem around the horizon and will happen soon. One example: autonomous cars are infused with AI technologies, esp. vision and Machine Learning. We will have fully autonomous vehicles on the roads in five or most ten years. There will be tragic accidents due to technical errors, including in the “AI systems”. On balance, however, as at least 80% of the fatal road accidents are due to human error, so with autonomous vehicles many lives will be saved. At the same time, in Canada alone, driving a truck for a living is the second most frequent occupation among men (more



than 300,000 professional drivers!). What will happen to these Canadians, whose jobs we will, in a manner of speaking, eliminate? Is anyone thinking about them?

**CAIAC:**

*What part has Canada played or is currently playing in this new development?*

**Stan Matwin:**

Luckily, Canada is a world leader in Machine Learning. Deep Learning has been basically invented here. Every researcher in this field around the world knows the abbreviation CIFAR (perhaps without knowing its meaning), because of the CIFAR 100 and CIFAR 1000 datasets. This is due to the persistence of a very small core of researchers (Yoshua Bengio and Geoff Hintn, certainly), and a bit of luck and foresight on behalf of people who believed in their research (particularly CIFAR). We were also lucky to have had several other Canadian AI leaders who have built strong groups and trained large numbers of students in AI, e.g. Graeme Hirst, Janice Glasgow, or the late Nick Cercone, just to name very few – but there are many others. And thanks to strong support for our research from NSERC, some provinces (esp. Ontario and Quebec), and the federal government directly, we maintain this leadership our in AI led by groups such as MILA, Vector, Canadian labs of Google, Facebook and other global players, and also “new generation” companies such as Element AI and Imagia. Our AI scene is the envy of the world.

**CAIAC:**

*What advice would you give to young graduate student who are interested in AI?*

**Stan Matwin:**

My advice to students who are thinking about or have already started working on AI would be to really focus on fundamentals, which to me are questions that are at the intersection of AI and mathematics. You of course will have to learn programming languages and systems that we are all so excited about today, but they will completely change many times during your professional lives. The foundations, however, will remain. Particularly, math – probability, calculus, but also advanced algebra – will play the key role. Also issues of decidability, complexity, but looked through the lens of distributed computing. Another important

skill, I believe, will be what I’d call “applied ethics”: the ability to look at the ethical aspects and give the students the tools to analyse a system or a solution from the fairness and equity point of view. To do that, I think that you need some training in philosophy, but also in general methods of scientific problem solving. Finally, try to learn fundamentals of neuroscience, and also early child developmental psychology, which may well be a model for the Machine Learning system in the years to come.

**Biography:**

Dr. Stan Matwin Dr. Stan Matwin is a Full Professor and Canada Research Chair at Dalhousie University, as well as a Distinguished Professor at the University of Ottawa. Stan did his M.Sc. and PhD at the University of Warsaw.

Stan’s research interests are in machine learning, data Mining, Text Mining, and Data Privacy. In particular, he is known for starting the fertile field of ML from imbalanced data.

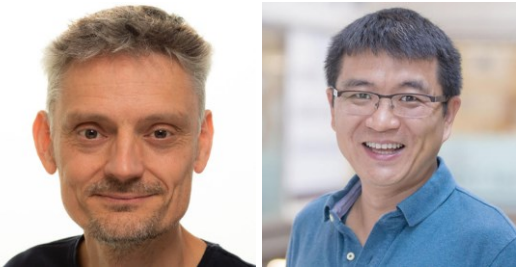
Dr. Matwin’s research contributions are significant with almost 10,000 citations of his papers. Best Paper Awards at CASCON 2017, and CASCON 10 year Most Influential Paper in 2011. He is involved in so many international research committees, advisory board and panels in big data, machine learning and IA, and in particular he is member of the Board of Directors and of the Executive of CsCan-InfoCan.

Stan created the Institute for Big Data Analytics at Dalhousie and attracted over \$10M research funding to Dalhousie University since 2013. Over his career, he graduated 31 Ph.D., 45 M.Sc. and 16 PDFs.

Most importantly, he received the CAIAC Distinguished Service Award in 2010, was made CAIAC Fellow in 2011 and received the CAIAC Lifetime Achievement Award in 2019.

# Canadian AI'2020 Report

The 33rd Canadian Conference on Artificial Intelligence became the 1<sup>st</sup> Canadian AI conference to be held online!



**Cyril Goutte (left) and Xiaodan Zhu (right),  
Program co-chairs, Canadian AI 2020**

The conference co-chairs, **Cyril Goutte** (NRC) and **Xiaodan Zhu** (Queen's University) along with the General Chairs **Marina Sokolova** (U. of Ottawa and IBDA, Dalhousie) and **Chris Drummond** (NRC) performed a *tour de force* when they modified their plans from a regular in-person conference in Ottawa to a complete virtual conference in only a few weeks!

To maximize paper exposure, and work across 5 time zones (ADT to PDT), the conference was held as a mixture of synchronous (Zoom) and asynchronous (Web) and was livestreamed on YouTube. This would not have been possible without the crucial technical help from **Fabrizio Gotti** (U. de Montréal).

Behind the scene, the stress level was high to make sure everything worked fine, but it all worked out fantastically in the end!

Here is the summary of the conference in numbers:

- 145 papers submitted to the main conference [highest numbers since 2008]
- 31 papers accepted as long (21%) + 24 short (+17%).
- 107 PC members
- 138 registered participants! Our new record!

The main conference highlighted the following invited talks from great Canadian AI researchers: **Giuseppe Carenini** (University of British Columbia), **Pascal Poupart** (University of Waterloo), and **Csaba**

**Szepesvari** (University of Alberta), as well as a tutorial on Reinforcement Learning by **Pierre-Luc Bacon** (U. de Montreal and MILA). Many thanks to them for their time and participation in this event.

The Graduate Student Symposium was brilliantly organized and managed by **James R. Wright** (University of Alberta) and **Pooya Moradian Zadeh** (University of Windsor).



**Pooya Moradian Zadeh (left) James Wright (right),  
GSS co-chairs, Canadian AI 2020**

The GSS received 30 submissions from 9 different Canadian universities:

- 11 accepted as posters (spotlight talks),
- 8 accepted as regular papers,
- 4 regular papers published in the LNAI proceedings.

Finally, 5 presentations were organised in the Industry Track, chaired by **David Nadeau** (Innodata Labs).

If you missed the conference, no worries! The invited talks, the tutorial, the Industry track and the Award ceremony, including talks from the best papers are all available on the Canadian AI 2020 YouTube Channel:

<https://www.youtube.com/channel/UCWLERsZOSIheH1JcLa-keHw>

The organization of the conference benefited from the collaboration of many individuals. Special thanks goes to **Diana Inkpen** (U. of Ottawa), Local Chair; **Yifeng Li** (NRC), Sponsorship Chair; **Daniel L. Silver** (Acadia University) GSS Sponsorship Chair; **Marina Sokolova** (U. of Ottawa and IBDA), General co-chair; **Chris Drummond** (NRC), General co-chair.

# News about Canadian AI'2021



Preparations for the Canadian AI'2021 conference are under way. The conference will be held in Vancouver and/or online in May 2021. The conference promises to be a success given that the AI/CRV General Chair will be **Fred Popowich** (Simon Fraser University) and Program co-chairs will be **Luiza Antonie** (University of Guelph) and **Pooya Moradian Zadeh** (University of Windsor).



**Luiza Antonie (left) and Pooya Moradian Zadeh (centre) Program co-chairs, Canadian AI 2021**  
**Fred Popowich (right) AI/CRV 2021 General Chair**

As usual, in addition to the main conference, we are planning for a Graduate Student Symposium and an Industry track.

An overwhelming majority of CAIAC members and of Canadian AI participants supported moving to an open access model for our conference. As a result, the CAIAC AGM 2020 adopted a resolution to do so, and Canadian AI 2021 will be the first to adopt the open-access model.

Stay tuned for more info!

# Call for nominations

## Best MSc Thesis and PhD Dissertation

These awards are given out to outstanding master's or doctoral research completed in a Canadian University in 2020 in the field of Artificial Intelligence. The winners will be announced at the 2021 Canadian Conference on Artificial Intelligence and will be invited to present their work at the conference. Every academic unit within a Canadian University is invited to submit one nomination to each award. Nominations must include the student's thesis or dissertation, support letters from their supervisor and the head of their academic unit, and must be done online through the CAIAC website before March 1<sup>st</sup> 2021.

## Lifetime Achievement and Distinguished Service Awards

The CAIAC Lifetime Achievement Award is the highest honour bestowed by CAIAC. It is presented to individuals who have distinguished themselves through outstanding research excellence in Artificial Intelligence during the course of their academic career. The CAIAC Distinguished Service Award is bestowed to researchers who have distinguished themselves through outstanding service to the Canadian Artificial Intelligence community during the course of their career. Nominations must include the nominee's CV and a nomination form found on CAIAC's website, and be emailed to the CAIAC secretary before 31 January 2021.

## Election Year for CAIAC

In May 2021, the positions of Secretary and Treasurer of CAIAC will become available. We hereby invite all members who wish to make nominations or to self-nominate to one of these positions to do so by 1 April 2021 via e-mail to the current Secretary of CAIAC, Denilson Barbosa [secretary@caiac.ca](mailto:secretary@caiac.ca).

# Call for papers

The 34th Canadian Conference on Artificial Intelligence (Canadian AI 2021) is now inviting papers that present original work in all areas of Artificial Intelligence, either theoretical or applied. We expressly encourage work that cuts across technical areas or applies AI techniques in the context of important domains such as e-commerce, games, healthcare, sustainability, and transportation. We also welcome the submission of position papers, which present evidence-based arguments for a particular point of view without necessarily presenting a new system.

We invite submissions of both long papers (12 pages) and short papers (6 pages). Submissions will go through a double-blind review process by Program Committee members to assess originality, significance, technical merit, and clarity of presentation. As such, submissions must be anonymized.

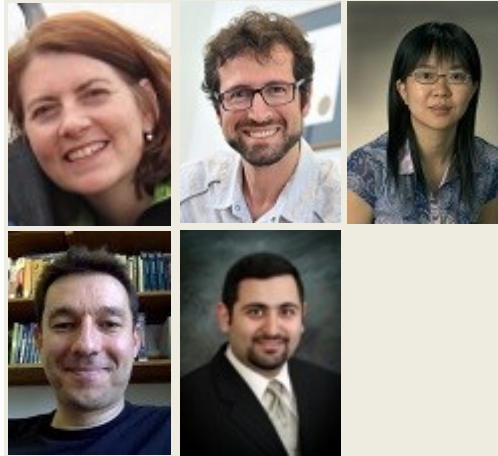
A “Best Paper Award” and a “Best Student Paper Award” will be given at the conference to the authors of each best paper, as judged by the Best Paper Award Selection Committee.

- Submission deadline: February 12th, 2021 (11:59 p.m. UTC-12)
- Author notification: March 19th, 2021
- Final papers due: April 2nd, 2021
- Main conference: May 25-28th, 2021

More information can be found on the conference website:

<https://www.caiac.ca/en/conferences/canadianai-2021/home>

## CAIAC’s Executive Committee



**President:** Leila Kosseim, Concordia University (president@caiac.ca)

**Vice-President:** Richard Khoury, Université Laval (vp@caiac.ca)

**Treasurer:** Xin Wang, University of Calgary (treasurer@caiac.ca)

**Secretary:** Denilson Barbosa, University of Alberta (secretary@caiac.ca)

**Past President:** Ziad Kobti, University of Windsor

Our purpose is to organize and sponsor a number of events. In particular, we are responsible for the Canadian AI Conference, Dissertations and Master’s Thesis awards, the Lifetime Achievement Award, and the Distinguished Service Award. We also plan new activities and services for the AI community in Canada. We operate by holding monthly (or more frequent, when needed) Skype meetings to set up events and discuss new projects. The role of the president and vice president is to oversee the proper operation of the organization. The treasurer manages CAIAC’s finances and the secretary records all internal and external communications and manages the website. If you have ideas about how to improve the services provided by CAIAC, please do not hesitate to contact us at the e-mail addresses provided above. We welcome your comments and suggestions!

