

# CAS Research & Development News



*A Newsletter  
for the  
CAS Membership*



## Vice-President's Column by Vice President-R&D Avi Adler

It's time for another edition of the CAS research and development newsletter. In this edition, we will have updates from the chairs and staff who comprise CAS R&D, as well as a special report on our new Github presence by our research actuary, Brian Fannin.

As I begin my third year as VP R&D, I'd like to share with you my goals and intentions for 2020. First, to continue expanding and supporting ways to involve more people in CAS research. I am very pleased with the level of traffic we have on the CAS-research email list, together with our other communities of interest. I'd like to reinforce the idea that if sufficient interest in pursuing a research idea develops due to conversation on this, or any other, email list, the CAS is more than happy to support it by setting up a working party complete with its own email and liaison.

Next is our continued efforts to obtain real-world data for CAS research. The most recent data is often hard to obtain for a non-profit organization, as it is of value to the entities which collect it—be they aggregators or insurance companies. Recently, we have obtained a block of more recent insurance data which can be used for industry research, subject to some provisions. Please contact Brian Fannin for more information about the data and how it can be accessed.

Also, we have set up a CAS presence on Github (page 3). Working groups or individual researchers may have their work under the CAS version control umbrella, allowing them to avail themselves of crowdsourcing, should they wish.

Another area we are investigating is in obtaining digital object identifiers (DOIs) for research-related CAS publications. If we can implement this, we believe it will enhance the penetration of CAS research in the wider statistical and financial realms, as DOIs are modern-day digital addresses for publications.

An exciting opportunity for 2020 is the arrival of our new CEO, Victor Carter-Bey. I share Victor's excitement (as outlined in his recent [Roundtable post](#)) in pursuing further opportunities for innovation and efficiency within the CAS research function.

Lastly, as always, the CAS remains a member-focused and member driven organization. Your suggestions and insights are greatly appreciated and your active participation in shaping the future of CAS R&D even more so! For those of you already involved, THANK YOU! You are literally contributing to the future success of the CAS. For those of you yet to be involved, please, become involved in what-ever capacity appeals to you and have a hand in directing the CAS's focus in the coming years.

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## Committee on Reserves

CASCOR received three final papers for its 2019 non-technical call paper program. These papers were published in volume 2 of the summer E-Forum. One of the authors, Bertram Horowitz, presented his work at the CLRS alongside CASCOR committee member Chandu Patel. Bertram was awarded the prize for the best paper submitted to the call paper program.

CASCOR has now started reviewing the six

proposals received for the 2020 call paper program.

CASCOR is looking forward to the publication of its two completed contract research projects: one on machine learning in reserving and one on compartmental methods in reserving. These projects should appear at the beginning of the new year. CASCOR is preparing to oversee another contract research project, this one on individual claims reserving techniques.

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## Committee on Risk

As part of a broader effort to streamline its committee structures, the CAS vice-president of R&D and the chairpersons for Theory of Risk Committee (COTOR) and Dynamic Risk Modeling Committee (DRMC) have agreed to combine COTOR and DRMC to form a new committee called the Committee on Risk.

Combining these committees will allow for greater enrichment and productivity between the two. The use of stochastic simulation and dynamic risk

modeling was a new area of research 20-25 years ago. Today, this practice is much more embedded into P&C actuaries' everyday work. It often intersects with other research areas, like reinsurance, reserving, predictive modeling, and open source software.

The new committee had its introductory teleconference in late 2019, and is now brainstorming ideas for future projects.

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## Communities of Interest

If you've seen a bit more e-mail than usual lately, it's because we have created a single, consolidated community for members of research committees. This will serve as a single point of contact to reach CAS volunteers who are focused on research.

Have a question about semi-parametric regression, fitting models to truncated data, handling outliers, or what to do with PII? These are topics that cut across practice areas and they've been among the discussions that have emerged on [cas-research@lists.casact.org](mailto:cas-research@lists.casact.org)

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## Auto Loss Cost Trends Working Party

In 2016, the American Property Casualty Insurance Association (APCIA) sought actuarial advice from the CAS and the SOA regarding auto loss cost trends. The APCIA had been monitoring trends for some time and saw sudden spike in claims in the latter half of 2013, even though in the past there had been falling crash rates.

The Auto Loss Cost Trends Working Party was formed with intent to provide quarterly trend analysis reports using drivers who could explain the trends as well as be proxies as to what happens in auto accidents. The [first report](#) was issued in January 2018 and the [second report](#) in September 2018. The [third report](#), released in January 2020, covers data from Q1 2010 through Q2 2019. The working party evaluates congestion, collision and bodily injury severity, as well as comprehensive frequency and severity, and other unique state factors.

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## Research Grants Task Force

The [2020 Individual Grants Competition](#) is nearing the deadline for proposals very shortly. The goal of the Individual Grants Competition is to support the advancement of knowledge in actuarial science. Grants are funded through the CAS and/or the Society of Actuaries. The Research Grants Task Force determines the funding from the CAS. Information on past grants can be found on the [Individual Grants Competition](#) web site.

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## Committee on Ratemaking

The Committee on Ratemaking is chaired by Sandy Callanan and typically has teleconferences on a bi-monthly basis.

The Ratemaking Committee has two reports on Predictive Modeling in the pipeline to be published in 2020. One, by author Gary Venter, will be featured in an upcoming *E-forum*, the other, by researchers Brian Hartman and Alisa Havens, has been submitted to *Variance* for publication.

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## GitHub

In late summer 2019, the CAS created an organizational account on GitHub. What's GitHub? It's a cloud-based collaboration platform rooted in the version-control program "git". Look for code associated with *Variance* and *E-Forum* articles to begin appearing here: <https://github.com/casact>.

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## Climate Change Committee

The Actuaries' Climate Risk Index (ACRI), which is overseen in part by the Climate Change Committee and is part of the [Actuaries' Climax Index](#) (ACI), published its [preliminary findings](#) on January 1, 2020.

The ACI provides an objective indicator of the frequency of extreme weather events and the extent of sea level change for 12 regions in the United States and Canada. This index is updated four times a year. The latest [update](#) was November, 2019.

Reflecting on the results of the ACI invites us

to ask the question: Is there a statistical relationship between the weather components of the Actuaries Climate Index and damages to life and property caused by severe weather? This paper summarizes research to model this relationship.

The Actuaries Climate Risk Index (ACRI) was developed from this model. This new index, the ACRI, is intended to measure the change in damages resulting from environmental conditions in excess of those observed in the reference period, as measured by the ACI.

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## Committee on Reinsurance Research

The committee on reinsurance continues to meet regularly. Though not currently engaged with large scale research projects, they have shared several research presentations within the committee itself. The topics have ranged from cyber liability, bivariate excess loss analysis, aggregate loss modeling, and digital disruption.

The committee expects to announce a call for papers for 2020 later this year.

During their last call, the committee brainstormed about which topic they would like to tackle with a formal research project. Ideas included wildfire, credibility for excess layers, alternate data sources for loss trend estimation and the professional liability impacts of M&A activity.

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