FUTURE CAS FELLOWS

Interview with CAS President Frank Chang

By Jack Richards, ACAS

I had the opportunity to interview the new CAS President, Frank Chang, FCAS, while attending the 2023 Annual Meeting in Los Angeles. Chang and I discussed developments in the CAS Admissions Transformation Plan (ATP) and expectations for future changes to the CAS examination and credentialing process, diverging experiences and pathways between CAS candidates and candidates pursuing other actuarial credentials, and the CAS's commitment to strengthening DEI in our profession, among other topics.

Coming out of the interview, I was impressed by Chang's commitment to expanding the breadth of the actuarial profession and his insistence that this expansion is supported by a growing and more diverse candidate pipeline.

Both Chang and I encourage candidates to share your feedback on all things CAS with the Candidate Advocate Working Group at cawg@casact.org.

A few key excerpts from the interview are included below. An extended version of the interview, which has been edited for clarity, is available in the online publication of Future Fellows on the CAS website.

JR: We are three years into delivering on the CAS Strategic Plan. From your perspective, where has the CAS succeeded over the past few years, and where is there still work to be done?

FC: I would say we've succeeded really well in Building Skills for the Future. There's been a lot of work on the ATP all the way back to the

The author, left, with CAS President Frank Chang.

beginning of 2021 when Exam IFM was sunset and we had to add Data and Insurance Series Course (DISC) Introduction to Data Analytics into the pathway in six months. Additionally, the recent introduction of 15-minute exam breaks has been beneficial to candidates, and we're excited about the launch of the Property and Casualty Predictive Analytics (PCPA) requirement.

Considering the other pillars, Diversifying the Pipeline — we can do more work there. I've seen promising numbers in our candidate pipeline in 2022. I would really love to see 2023 be a fantastic year, even better than 2022. We have a lot more work to do with outreach — starting at the

CAWG 2023 Year in Review

By Mindy Moss, FCAS, CAWG Volunteer Chair, and Stephanie Litrenta, CAE, CAWG Staff Chair

As we come to the end of 2023, the Candidate Advocate Working Group (CAWG) wanted to reflect on what our amazing group of volunteers has accomplished.

Several CAWG members were in the spotlight this year. Celeste Bremen, FCAS, was featured during Insurance Careers Month where she discussed her current role helping price risks for companies that are rolling out new clean energy technologies. Daniel Drabik, ACAS, was in the video the CAS released when they announced the new property and casualty predictive analytics (PCPA) requirement. Finally, Ildiko Ban, FCAS, and Laura Hemmer, FCAS, were awarded the New Members Award and the Above and Beyond Achievement Award, respectively, for their outstanding contributions to the CAWG.

One of the main goals of the CAWG is to be the voice of the candidates. Throughout the year, we provided the candidate perspective to the CAS on topics of importance. For example, the CAWG provided tangible feedback on the PCPA pilot, helping to determine the name and timing. We also relied on our Quick Response Team to review candidate-facing communications from the CAS. This team identified questions that candidates might have from the communications, in addition to providing feedback from the candidate perspective. We look forward to continuing this important work in the future!

We spent some time this year thinking about the candidate landing page on the CAS website and how we wanted to use the page. The team decided this should be a navigation tool to answer common questions candidates may have. We're pleased to share the updated webpage, and we would love to hear your ideas for what else you would like to see on this page!

A big thank you to all of the active candidates who took part in our 2023 Candidate Survey. This survey, which is conducted every two years, is a valuable opportunity for all candidates to have the CAWG and the CAS to hear your voice. Your feedback helps us understand the current cohort of candidates, so we can best serve you. Our team will be working through the results over the coming months.

We are excited to start the new year strong with our annual meeting where we'll plan for the year ahead and welcome our new members and candidate representatives.

We wish you a happy and healthy 2024! **f**

AI's Impact on Actuarial Methods and Its Transformative Potential

By Daniel Drabik, CAWG Candidate Representative

Milton Friedman, a distinguished economist and statistician, who was honored with the Nobel Memorial Prize in Economic Sciences in 1976, once famously said, "They [actuarial exams] are about the hardest examinations in the world, as anybody will tell you, in mathematics. I failed some and passed some." Indeed, actuarial science has long been associated with complexity and rigorous mathematical analysis. Actuaries play a vital role in the insurance industry, estimating risks and managing financial outcomes, earning admiration and recognition from many stakeholders. Corporate entities like Uber, Lyft, Hertz, Google, Capital One and Expedia increasingly seek CAS members for their adeptness in technical training, business acumen and expertise in risk management (CAS, "Tesla CEO Touts Need For "Revolutionary Actuaries"). Notably, in 2020, the CEO of Tesla conveyed his high regard for the actuarial profession, emphasizing their mathematical prowess and expressing a desire for innovative actuaries. The potential of artificial intelligence (AI) to revolutionize conventional actuarial techniques stems from its capacity to harness extensive and detailed datasets. Traditional actuarial methods have served the industry well for decades, and AI appears to be a natural next step, offering innovative ways to enhance actuarial practices and improve the precision of risk assessment.

Len Llaguno, FCAS, of KYROS Insights, serves as an excellent example of this. He has shared how traditional actuarial practices, rooted in methodologies established decades ago, have primarily relied on overarching performance metrics and that these approaches frequently face challenges in adapting to the increasing complexities of insurance data and the surging need for detailed insights. To illustrate, the traditional reserving process primarily deals with aggregated claim data through well-established methods such as the chain ladder technique. He makes a noteworthy observation that, despite the availability of extensive data related to individual claims, the chain ladder often remains underutilized in the systematic estimation of ultimate losses and highlights how leveraging machine learning techniques presents as a readily available means to unlock untapped advantages of this data, potentially resulting in more accurate reserve estimates.

Notably, neural networks, which draw inspiration from the structural design of the human brain, play a pivotal role in this transformation. While they may appear as a novel concept, neural networks share fundamental mathematical principles with generalized linear models. Neural networks find applications in tasks such as claims forecasting, where they scrutinize historical claims data to unveil trends and forecast future claims volumes. Moreover, they empower insurers to gain deeper insights into customer behavior, facilitating the development of personalized insurance products and pricing strategies.

The influx of granular data not only enriches data analysis but extends to the pricing of insurance products. Initiatives like the CAS Hacktuary Challenge have spotlighted the inventiveness of actuarial professionals in crafting innovative risk engineering solutions tailored to the evolving landscape. For instance, "Risky Router" by Caesar Balona, a winning entry in the challenge, enables users to input their starting and destination points to obtain a dynamic risk assessment of their chosen driving route. Real-time factors such as weather conditions, time of day, vehicle age and driver impairment status are considered to provide a comprehensive risk estimate. Another innovative entry, "Consumer Vehicle Toolkit" by Michaël Bordeleau-Tassile, aids users in comparing insurance costs for different cars based on various factors like make, model and color. It also offers insights into areas with the highest likelihood of vehicle collision and theft in Toronto and Montréal, factoring in variables such as the time of year, time of day and road conditions (CAS, "CAS Announces Winners of $15,000 Hacktuary Challenge").

The impact of AI on actuarial science extends beyond data analysis; it encompasses predictive modeling. AI-driven actuarial methodologies deliver real-time answers and insights. This dynamic adaptability empowers insurers to make more informed decisions, a crucial aspect in an industry where agility is of paramount importance. The amalgamation of AI and actuarial techniques signifies a substantial leap forward, enhancing the industry's risk management capabilities and adaptability in an ever-evolving landscape, ultimately leading to improved financial outcomes. Overall, the integration of AI into actuarial methodologies represents more than a technological upgrade; it signifies a paradigm shift. Embracing AI as a potent tool in actuarial science promises greater accuracy, data-driven insights and a more agile response to the challenges of the modern world. As the insurance industry continues to evolve, AI stands ready to complement and elevate actuarial practices, ushering in a new era of risk assessment and management. **f**

Practical Professionalism

By Mindy Moss, FCAS, CAWG Volunteer Chair

For our final installment of the Practical Professionalism series, we're going to look at the following hypothetical scenario:

An actuarial analyst creates and documents a model to be used for pricing and then rotates to another department. They are extremely busy in their new role when the pricing team begins to file the new pricing model they created. Despite having documented the model, the pricing team has numerous questions and reaches out to the actuary. The analyst, being too busy with work on their new team, tells pricing that answers to their questions can be found in the documentation without confirming that this is true.

What are the professional duties of this person if they are an actuarial candidate? Are there differences if the person has an ACAS or FCAS?

Candidates are required to abide by the Code of Professional Ethics for Candidates, and in the *Code*, **Rule 3** may apply to this situation, which states:

An actuarial candidate shall perform actuarial services with courtesy and professional respect and shall cooperate with others in the principal's interest.

In this scenario, the principal would be the company that the actuary works for, and while they are doing work for the principal in their new role, it would be in the principal's best interest for them to also help pricing with the model. Even if the answers to the questions are in the documentation, it is not clear enough for the pricing team to find the answers on their own, and the actuary should take the time to help them.

CAS members must adhere to the Code of Professional Conduct. **Precept 10** in the code is equivalent to Rule 3 above, and therefore also applies in this situation.

In addition to violating Rule 3 and Precept 10, I would also argue that the actuary is violating **Rule 1** of the Code of Professional Ethics for Candidates:

An actuarial candidate shall act honestly, with integrity and competence, to uphold the reputation of the actuarial profession.

The application of this rule to our hypothetical situation falls into a grey area, but I believe that not attempting to answer questions on prior work product would be considered working without high levels of integrity. This is also the same verbiage of **Precept 1** in the CAS Code of Professional Conduct that applies to members of the CAS.

Precept 3 of the Code of Conduct requires CAS members to follow all applicable standards of practice. In terms of ASOPs (Actuarial Standards of Practice) that may apply in this situation if the work is U.S. based, all actuaries involved in this scenario need to abide by ASOP 56, "Modeling." The actuary who created the model and corresponding documentation, needed to follow **3.7 Documentation** which states:

The actuary should consider preparing and retaining documentation to support compliance with the requirements of section 3 and the disclosure requirements of section 4. If preparing documentation, the actuary should prepare such documentation in a form such that another actuary qualified in the same practice area could assess the reasonableness of the actuary's work.

There is not enough information in our scenario to know if this was followed, but it's good to keep it in mind.

In addition, the actuaries using the model need to abide by ASOP 56 section **3.4 Reliance on Models Developed by Others**:

If the actuary relies on a model designed, developed or modified by others, such as a vendor or colleague, and the actuary has a limited ability either to obtain information about the model or to understand the underlying workings of the model, the actuary should disclose the extent of such reliance. In addition, the actuary should make a reasonable attempt to have a basic understanding of the model....

In this scenario, it seems as if the actuaries using the model are doing their due diligence to understand the model and how it was built. By reading the documentation and asking additional questions, they are following ASOP 56. Note: While this article talks about ASOP 56, other ASOPs could apply.

This type of hypothetical situation likely arises frequently, with rotations to other teams (or even someone leaving for a new company). It would be wise to always remember that, whether you are a candidate or a member of the CAS, there are professionalism standards that you must adhere to. **f**_f

Benefits and Experiences of Working in Nontraditional Actuarial Roles

By Dallin Biorn, CAWG Candidate Representative

In the property and casualty industry, there are certain roles that are more common for CAS students and credentialed actuaries. It is very common, especially early in a P&C actuarial career, to work in some capacity with pricing or reserving. Many students out of college find their first job or internship completing rate reviews and filings for a P&C insurance company. It's a great way to gain an early understanding of what the actuarial profession will entail, but it isn't the only route. Nontraditional roles can provide alternative means to jump-start an actuarial career or allow an experienced actuary the ability to flex unique skills and try something new.

Very early in my career, I was offered the opportunity to spend time working in a role doing more complex statistical analyses. It was still at an insurance company, but I worked closely with the claims department utilizing statistical methods in R and Python to create models, such as Gaussian GLMs and SARIMA time series. The uses for the models included predicting the number of catastrophe claims that would require an independent adjuster, identifying inaccurate payment behavior of internal claims adjusters and providing inputs needed for new claims department initiatives' cost benefit analyses. There were also ample opportunities to master other critical analytical skillsets, such as SQL, data exploration and management, and various data visualization tools (e.g., Tableau).

These nontraditional experiences afforded me the ability to put exam knowledge to practice. I was in the process of sitting for MAS-I and MAS-II and could simultaneously apply the techniques I was learning to the daily work I was completing. A complaint I heard from pricing peers was not having many chances early in their careers to apply concepts from their preliminary actuarial exams in their day-to-day responsibilities at work. Being open to less traditional roles could be your door to exploring other applications of the knowledge gained through actuarial exams.

Currently, I am working to modernize the software platforms used to conduct pricing analyses. Having working data connections between pricing, underwriting and claims is critical to insurance companies being sufficiently streamlined and capable of keeping pace with competitors. It's a role I wouldn't have landed and had success in without first gaining the experience I did in a nontraditional space.

Nontraditional roles can also help bridge data science with actuarial science. As was noted in the March 2023 *Future Fellows*, "Data science is not a threat to actuarial science, but rather an enhancement" ("Actuaries and Data Scientists: How Can We Work Together and What Can We Bring to The Table?"). The CAS website states that the 10,000-plus CAS members "are employed by insurance companies, educational institutions, ratemaking organizations, state insurance departments, the federal government and independent consulting firms." If you are seeking something nontraditional, there are plenty of roles to be found at these organizations and others. In general, the actuarial career path offers plenty of exposure to data science topics, and branching out by exploring nontraditional responsibilities will only benefit actuaries in the long run as the industry and global market become more data- and smart technology-driven. **f**

CC'ME – Casual Conversations with Meaningful Engagement!

The CAWG kicked off a new series with the goal of taking your questions and answering them in each issue. We invite you to send us your questions by emailing CAWG@casact.org. All questions will be posted anonymously and answered by members of the CAWG.

Q: When will candidates be required to take the new Property Casualty Predictive Analytics (PCPA) project as part of achieving the CAS Associate designation?

A: A group of volunteers is working through an exclusive first offering of the PCPA project, which kicked off in November 2023. The goal of the first offering is to gather statistical data on the assessments, capture feedback on the overall experience, and validate the estimated study times and project completion times. The PCPA is scheduled for an official launch in May 2024 and will be an ACAS requirement beginning November 1, 2025. All candidates and members can register to take the PCPA starting in May 2024. **f**

Interview with CAS President Frank Chang

university level, all the way to our affinity partners like the Sexuality and Gender Alliance of Actuaries (SAGAA), the International Association of Black Actuaries (IABA), the Organization of Latino Actuaries (OLA) and others.

JR: One of the keynote speakers this morning, Alex Salkever, shared insights on Generative AI and the rise of large language models as well as other analytical tools that we haven't seen in the past 5-10 years. How can the CAS support both candidates and members to be able to adapt to a changing reality?

FC: I love that question. Part of that adaptation occurs at the basic education level (the examination and admissions program) to make sure that we modernize that content. To do this, we invest in analyses like the Actuarial Professional Analysis (APA) where we ask practicing actuaries what skills are needed for actuaries now and in the future to make sure that our exam content is relevant and prepares candidates for the future.

The second part in empowering our candidates and members to adapt is continuing education like CAS meetings. At this year's Annual Meeting, we had multiple general sessions on how AI, large language models and other scientific advancements could impact the actuarial profession and the insurance industry. We curate and bring in featured speakers to help explore these new areas. At our 2023 Spring Meeting, we had a session on how to use Microsoft Copilot to assist in Python coding. These CAS meetings and webinars will always have content to make sure that we're getting relevant information and staying up to date on these developments.

JR: Can you share a bit about the Actuarial Professional Analysis for candidates who aren't familiar?

FC: The APA is broader than the former Job Task Analysis (JTA). With the JTA, we went to practicing actuaries and asked, "What are you doing? What do you need for your job?" The JTA formed the basis of the ATP.

The APA is a lot more ambitious — we're ensuring stakeholder groups such as employers, regulators, actuaries, candidates and students have a strong voice during this process. We are trying to engage with all of the stakeholders to evaluate the current and future state of what actuaries will do and what they need to support that work.

JR: As you reflect on the ATP, what do you view as the most impactful change that will support the CAS's mission to develop actuaries of the future?

FC: I'll answer in a few parts. To begin, the CAS has made some changes to both content and delivery of exams as a result of the ATP thus far. We added the CAS DISCs and removed Exam 3F. We also moved to computer-based testing and created MAS practice exams in partnership with some vendors.

Second, removing duplicate areas and trying to reduce travel time, which I know is a big concern to candidates, is another important change. For example, some of the shifts in Exams 7, 8 and 9 aim to reduce duplication in our exam pathway.

Finally, I think enhancing the candidate experience and changing how we test are impactful changes. The 15-minute break we introduced in Fall 2023 is beneficial for candidates. And on the testing side, we're testing different question types, such as multi-select instead of multiple choice, to really help candidates assess their knowledge when they take the test. Those are the highlights for the ATP, in addition to the PCPA. You can find a full summary of the ATP timeline on the CAS website.

JR: As you enter your term as President of the CAS, what are some of the key priorities that you hope to deliver on over the next year?

FC: Most importantly, establishing a good strategic plan that everyone can drive towards. This plan will help working groups, volunteer chairs, the board of directors, CAS vice presidents and staff to align their initiatives underneath the pillars of this plan.

Second, admissions and education are a priority. Having a different view on these areas — as ATP wraps up and our APA begins, I want to look outwards internationally. The CAS has a pretty good global footprint, and there's a lot to think about as we talk to international candidates.

The final piece is to think about our pipeline more deliberately. We do think about our candidate and membership's experience, but we also need to think about employers. How do we understand both current and future employers better to get them involved and engaged? That's one of many areas we'll be focusing on.

Read the extended version of the interview in the online publication of *Future Fellows* on the CAS website. **f**f

New Practice Exam Offering for MAS-I and MAS-II

The new practice exam, which consist of new and original questions developed by The Infinite Actuary, ACTEX and Coaching Actuaries, in partnership with the CAS, launched in October 2023. Candidates can register at any time to take the four-hour practice exam, consisting of 45 new multiple-choice questions, by visiting the MAS landing pages on the CAS website. A full announcement is available on the CAS website. f f

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The Candidate Advocate Working Group Mission

The Candidate Advocate Working Group (CAWG) focuses on issues of importance to candidates who are pursuing CAS designations. It serves as a direct point of contact for candidates to engage with the CAS and admissions working groups by sharing their thoughts and feedback. The CAWG also supports candidates' career advancement by advising candidates of resources available to them. The working group utilizes various communications tools, such as the quarterly *Future Fellows* newsletter, to engage candidates and provide information on topics of importance. Candidates may contact the Candidate Advocate Working Group at CAWG@casact.org. The Casualty Actuarial Society is not responsible for statements or opinions expressed in articles, discussions or letters printed in *Future Fellows*.

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Vendor Links

STUDY AIDS AND SEMINARS

Information on study aids and seminars is provided only as a convenience to CAS candidates. The CAS takes no responsibility for the accuracy or quality of the study aids and seminar announcements attached to this notice.

Please note that the Syllabus and Examination Working Group expects candidates to read the material cited in the *Syllabus* and to use other material as a complement to the primary sources rather than a substitution for them. **f**

Actex Learning/Mad River Books Exams 1, 2, MAS-I, MAS-II, 5, 6, 7, 8, 9 & VEE	Coaching Actuaries Exams 1, 2, MAS-I, MAS-II, and VEE
The Actuarial Bookstore Exams 1, 2, MAS-I, MAS-II, 5, 6, 7, 8, 9 & VEE	Howard Mahler Exams MAS-I, MAS-II, 5 and 8
ActuarialTesting Exams 5, 6US, 9	The Infinite Actuary Exams 1, 2, MAS-I, MAS-II, 5, 6, 7, 8, 9
ASM (Actuarial Study Materials) Exams MAS-I and MAS-II	New England Actuarial Seminars VEE
BattleActs Exams 5, 6C, 6US, 7 and 8	Rising Fellow Exams 5, 7, 8 and 9 Exams 5, 6U, 7, 8 and 9