

FALL 2018 EDITION

Actuarial Science Club
**Alumni
Newsletter**



ILLINOIS

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Event Page

Company Presentations

- ALLSTATE
- SAMMONS FINANCIAL GROUP
- STATE FARM
- MERCER
- WILLIS TOWERS WATSON
- OLD REPUBLIC INSURANCE
- MILLIMAN
- CNA INSURANCE
- DELOITTE CONSULTING
- AMERICAN FAMILY INSURANCE
- OLIVER WYMAN
- AON
- RGA REINSURANCE GROUP
- COUNTRY FINANCIAL

Fall Events

- KICKOFF MEETING
- RESUME WORKSHOP
- ELEVATOR PITCH WORKSHOP
- MEET THE FIRMS
- APARTMENT CRAWL
- INTERVIEW WORKSHOP
- TOWN HALL
- FALL BAR CRAWL
- EXAM SEASON KICKOFF
- GRAD STUDENT DINNER AT GOLDEN HARBOR
- BARN DANCE
- CLUB DINNER AT JOE'S
- DUNKIN' DONUTS FUNDRAISER
- ICE SKATING
- LUNCH WITH THE PROFESSORS AT MANDARIN WOK

Spring Events

- ALUMNI SEMINARS
- CAS PRESIDENT-ELECT TALK
- CHICAGO AND ST. LOUIS COMPANY FIELD TRIPS
- COMMUNICATION WORKSHOP SERIES
- INSURTECH AND ACTUARIAL MODERNIZATION SYMPOSIUM
- IRISK LAB SYMPOSIUM
- SPRING BANQUET
- SPRING FORMAL



Illinois Risk Lab

Written by Klara Buysse

The Illinois Risk Lab (I-Risk Lab) has its roots in the Undergraduate Research Program in Risk and Actuarial Science, which was sponsored from 2014 to 2017 by the Society of Actuaries. For many students, their undergraduate years will be the last opportunity to be exposed to academic research prior to entering the corporate or consulting workforce. Therefore, a program was developed for our students to experience the process of conducting research, and to develop their "out-of-the-box" thinking.

While the SOA sponsored program drew to a close, its success carried on with the launch of the Illinois Risk Lab in August 2018. The I-Risk Lab now has an expanded mandate to be the clearing house for all risk-focused education and research activities with student engagement. The lab is open to both undergraduate and graduate students from all backgrounds.

The Illinois Risk Lab is intended to facilitate integration of discovery-based learning experience with state-of-the-art academic and practical research in all areas of Risk Analysis and Advanced Analytics



IRisk
Illinois Risk Lab

The Illinois Risk Lab consists of 3 different pillars:

Research Projects:

the I-Risk Lab is intended to facilitate integration of discovery-based learning experience with state-of-the-art academic and practical research in all areas of risk analysis and advanced analytics. Faculty and students collaborate to solve business-oriented research problems. Students will work on their research, communication and presentation skills.

Seminars:

the I-Risk Lab hosts seminars throughout the year featuring leading experts in the fields of actuarial science, finance and risk management to educate students about industry trends. These seminars also give the opportunity to students to engage with the speaker.

Mini-symposium:

the I-Risk Lab will host a mini-symposium in Chicago on May 16, 2019 to showcase its research findings as well as to provide a venue for exchanging research ideas with academics and practitioners in the actuarial and financial services community. Students that did a research project in the I-Risk Lab will participate in a poster session at the mini-symposium to present their project.

Illinois Risk Lab

(continued)

Current Projects

Northwestern Mutual: evaluating fixed income portfolio management

Evaluating the performance of an active manager in institutional fixed income portfolios is often challenging due to the necessary customization of issuance-based benchmarks to meet specific investment objectives. These constraints can be related to risk limits including factors such as aggregate credit quality, issuer concentration, or asset type.

The I-Risk Lab is seeking to produce a better representation of the investment opportunity set a manager has available based upon various portfolio management constraints and the investment process employed.

Visualization of Sample Recycling Methods for Nested Stochastic Modeling

As more regulatory reporting requirements in the regulatory regimes around the world move towards dependence on stochastic approaches, insurance companies are experiencing increasing difficulty with detailed forecasting and more accurate valuation and risk assessment based on Monte Carlo simulations.

The I-Risk Lab will provide a visualization of sample recycling methods and make the new technology accessible to practitioners. The research team is expected to make a YouTube video to illustrate the technology.

Forward and backward preferences

Classical backward preferences of an investor are simply defined by a family of her value functions across states and times. Due to the backward nature, a terminal preference must be specified a priori. However, pre-specifying the future preference is actually unjustifiable in practice. To rectify this modeling drawback, a novel concept called forward preferences has been introduced in Musiela and Zariphopoulou (2008).

In this project, we study both the classical backward preferences and the recently developed forward preferences. As the first stage of this project, we aim to investigate and compare the two preferences via the closed-form representations of the preferences under the binomial market model.

This project is done in collaboration with the Illinois Geometry Lab.

Option-Implied indicators for market stress

Stock and index options are traded on the financial market and their prices are determined by supply and demand. These prices are publicly available and are forward-looking: they contain information about the aggregate view of the market about the future dynamics of the financial market. The Volatility Index (VIX) is the market barometer for volatility and is calculated continuously during the trading day by the CBOE. The Herd Behavior Index (HIX) is a recently developed measure for the degree of co-movement between stocks. High levels for the HIX correspond with a market where stocks are moving strongly together. Currently, up-to-date levels for the HIX are not available. In this project we will develop an online tool which calculates the HIX in real time during the trading day. This requires building a web scraping tool for option data after which the data is used as input in the HIX calculations.

The I-Risk Lab will produce a tool that extracts data from the internet and is then able to calculate the HIX.

Illinois Risk Lab

(continued)

Written by Wilson Phurwo

A Student's Perspective

As part of the I-Risk Lab, I created an educational video to explain a “Sample Recycling Method” for students and practitioners. The Sample Recycling Method was explored and supervised by Professor Runhuan Feng, Haoen Cui, and Peng Li and is meant to speed up stochastic processes.

This method aims to decrease the computation time of stochastic processes, such as the nested Monte Carlo simulations. In brief, Monte Carlo simulations calculate multiple different scenarios to examine what the possible outcomes are. The number of scenarios increase exponentially, and it becomes significantly more time-consuming to compute. However, some practitioners may not have sufficient resources to perform such a computation. Techniques to speed up this process have been used in many distinct areas, such as finance, engineering, law, and insurance. However, these techniques require the development of a functional relationship between risk factors and target features which can be very costly. The Sample Recycling Method uses a different strategy by recycling a limited set of scenarios.

It took my team nearly one semester to produce and publish our video on YouTube. The most challenging part was to come up with digestible content that is accessible to as large of an audience as possible. We successfully delivered a simple example of how the Sample Recycling Method can be applied to a real-world situation. We explained how payoffs of crops can be evaluated according to the weather condition of the subsequent days using both a nested Monte Carlo simulation and the Sample Recycling Method. The purpose was to compare both procedures and demonstrate that they return the same answer. For a larger number of scenarios and more complex situations, the Sample Recycling Method becomes inaccurate, but it still takes less time to evaluate than a nested Monte Carlo simulation. This limitation can also be reduced by using more scenarios as a reference set.

The publication of our video on Illinois Risk Lab’s YouTube channel was one of my proudest achievements. This one-semester project was not easy, but my team managed to deliver an excellent product within the given timeline. In May 2019, we will attend the Risk Analytics Mini-Symposium at the Illini Center in Chicago to present our work. All in all, through this project, I learned how to better communicate and work with a diverse team. I also managed to acclimate myself with more complex mathematics which will help me prepare for more challenging projects in the future. Studying at the University of Illinois has opened my mind widely, and I look forward to more exciting opportunities that Illinois has to offer.

Illinois Risk Lab

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Faculty Research Expertise

Klara Buysse, MS

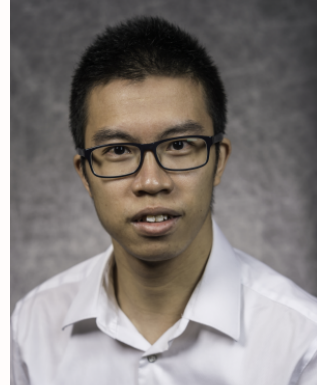
Quantitative studies in risk management; market consistent valuation, liability adequacy test



Klara Buysse

Alfred Chong, PhD, ASA

Optimal insurance, investment strategies, stochastic control



Alfred Chong

Daniel Linders, PhD

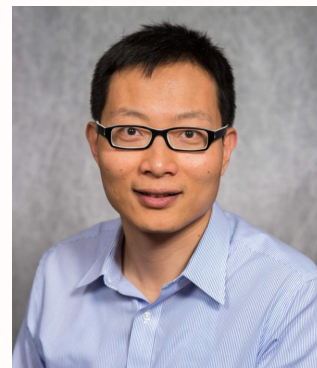
Quantitative finance, pricing and evaluation of investment-combined insurance



Daniel Linders

Runhuan Feng, PhD, FSA, CERA

Risk analytics, pension and retirement planning, market innovation in FinTech and InsurTech



Runhuan Feng

Get Involved

If you are interested in partnering with the I-Risk Lab to solve one of your business challenges, please contact:

Runhuan Feng

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Klara Buysse

I-Risk Lab Coordinator
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InsureTech and Actuarial Modernization Symposium

Written by Kara Wong

In March 2019, the Actuarial Science Club anticipates to host an Actuarial Modernization Symposium, akin to a TED-Talk series focused on industry-wide trends followed by a networking session. With an influential speaker series, we hope this event will demystify what the key drivers of change within the industry are.

The Actuarial Modernization Symposium brings students to the forefront of industry-wide trends within actuarial science. We envision this symposium to shed light on data science, automation, and insurtech to broaden actuarial science students' scope of the industry's future. This is an opportunity not only for students to expand their horizons, but also for companies to build their brand by demonstrating involvement in innovative approaches in actuarial modernization. In addition, hosting this event aligns with our mission in being current with emerging trends within the actuarial industry.

If you are interested in participating in the symposium, please contact Titan Wibowo at president@asc-illinois.com for more information.



Workshops

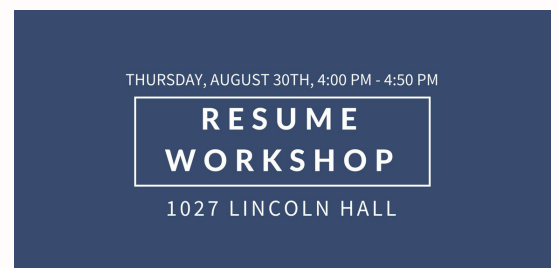
Written by Kara Wong

The Actuarial Science Club prides itself in its ability to provide resources for students to develop their professionalism, communication skills, and understanding of actuarial fields. To achieve this goal, we host workshops throughout the school year to help aspiring actuaries rise to their potential.

This fall, we hosted a Career Workshop Series that includes a resume workshop, an elevator pitch workshop, and an interview workshop. These workshops are specifically tailored to actuarial science majors, so students are best prepared to succeed and present themselves professionally during our annual Meet the Firms event and interviews.

In the spring, we plan to host workshops on: communication and public speaking, succeeding in internships, different actuarial practices, and other various workshops held by company representatives and alumni. We hope to inspire students to go beyond the typical content that is taught in the classroom. Our vision with workshops is to provide a comprehensive resource for students to expand their skill sets in areas valuable to the actuarial profession.

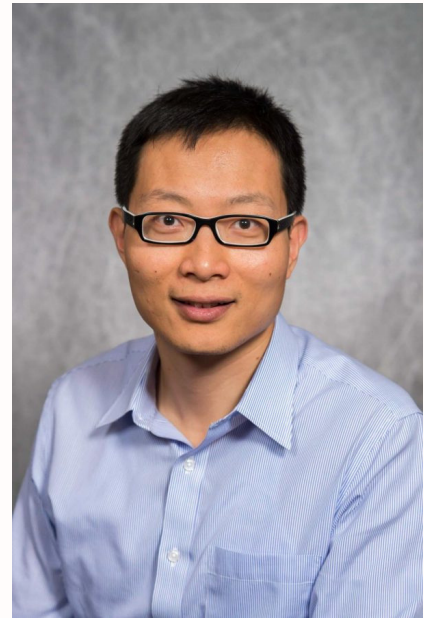
Our mission through our workshops is to help students gain a better understanding of the actuarial industry and develop the necessary skills to smoothly transition into an internship or job position.



Interview with Professor Feng

Written by Michelle Liu

Runhuan Feng, FSA, CERA, is an Associate Professor, the Director of Actuarial Science, the State Farm Companies Foundation Scholar in Actuarial Science and a Helen Corley Petit Professorial Scholar at the University of Illinois. He has published extensively on developing new techniques for computations of risk metrics for investment-combined insurance products.



Why did you choose to major in Actuarial Science?

I did my undergraduate program at Nankai University in China, which was home to the first Actuarial Science program in the country. I first chose insurance because it was a booming industry at the time, which caused me to become more aware of the quantitative nature of Actuarial Science. This caused me to become more interested in the subject, and I began taking exams shortly after. In a way, I sort of got into this major by accident.

What do you find most interesting about the subject?

I enjoy the quantitative modeling aspect of the business problems. Insurance specifically is interesting because of the long-term nature of its liabilities. There is more statistical analysis and long-term projections involved, which allows you to use many interesting mathematical techniques and technical skills to solve problems arising from the industry.

What do you wish to highlight from your research experiences?

I have done a lot of work on equity-linked insurance. This is a type of insurance that involves both traditional life insurance and investment features. This was a relatively new territory of research at the time, which meant you could not solely rely on traditional actuarial techniques. The product structures and features were quite innovative and fundamentally different from traditional products, which gave me the chance to push the boundaries of actuarial knowledge and research and contribute to the understanding of the science behind the insurance business.

Why did you choose UIUC?

I have always known that Illinois had one of the most reputable actuarial science programs in the country as a Center of Actuarial Excellence. I have always been very impressed by the program, and I wanted to join and become a part of it. I believed that I would be able to utilize my strengths and knowledge to educate the next generation of actuaries, while also pursuing research at the same time. I have now been at the university for five years and have been the program director for three years.

What responsibilities do you have as the Director of Actuarial Science?

The fundamental role as the director is to advocate for the best interest of the program. I have been pushing to receive more resources for the program as well as helping to establish our new graduate program in Actuarial Science and Risk Management. For the Predictive Analytics and Risk Management program, we are collaborating with the Statistics and Finance Departments to incorporate more business-oriented courses into the curriculum. Although, our first priority will always be to develop the research capabilities of our undergraduate students by integrating our research opportunities with a traditional undergraduate education.

Interview with Professor Feng

(continued)

How do you wish to see the Actuarial Science program grow in the future?

I hope to revise the current curriculum in order to help students focus on data analytics applications to risk management management problems. Our students should have broad skill sets that can be transferable to professions beyond the insurance industry. We must teach students how to think and apply their skills in a broader context, which is the purpose of the new Actuarial Science and Risk Management curriculum. It has a more organized structure that develops courses in both traditional and non-traditional subject topics.

What is your teaching philosophy? What do you expect out of your students?

I want students to know how to think instead of merely knowing how to apply basic formulas. It is most important to understand the underlying theories of these formulas as opposed to the pure memorization of them as students will be able to develop solutions that go beyond what they have seen in their textbooks. We should train students to become problem solvers instead of test-takers.

What interactions do you wish to create between current students and alumni?

We want to develop stronger ties to corporate partners and alumni in order to help our current students find better career opportunities. We are currently working with a partner institute in China to create an international executive development program, which will hopefully expand to other countries. We want to pair students with executive members from certain companies for mentorship to learn more about the globally expanding insurance industry. As a long-term goal, we hope to develop a more structured co-op program to alternate work and study terms for students. We would partner with companies to offer a rotational program of sorts, but it will take time to cultivate relationships with these companies.

Do you have any advice for current students?

My advice is to always be open-minded about your career options. Because of the continuous changes and developments that occur in the insurance industry, it is important to focus on skills and accomplishments that go beyond the amount of exams you have passed. Students should focus on developing technical and communication skills that will help them lead successful careers in the future.

Do you have any greetings or remarks for our alumni?

We want to foster connections with our alumni, and we hope our alumni can help current students understand the industry better by sharing their personal experiences and career path. We hope to bring their professional expertise back to campus by inviting them as guest lecturers to share their research experiences and opportunities. In the following year, we will be hosting a risk analytics symposium to bring together practitioners, academics, and students to discuss industry trends, while simultaneously raising awareness for research capabilities of the actuarial science community.



Alumni Award

Written by Michelle Liu

Jonathan Ankney **BS Finance and Actuarial Science 1996**

Jonathan Ankney currently serves as Human Capital COO at Deloitte Consulting LLP and is accountable for the financial and operational performance of a \$1.2 billion annual revenue offering portfolio. Along with 20 years of consulting experience and 3 years of insurance industry experience, he is an associate of the Casualty Actuarial Society and a member of the American Academy of Actuaries.



His client industry focus has primarily been in the insurance and reinsurance sectors, but he has also served self-insured corporations in the manufacturing, consumer products, retail, and services sectors. More specifically, he has exceptional experience in the areas of property and casualty loss reserving, asbestos, warranty, due diligence, regulatory support, litigation support, predictive modeling, management consulting, practice management, financial forecasting, and training design, development, and delivery.

As an alumnus of the University of Illinois at Urbana-Champaign, Ankney has demonstrated a dedication to the importance of higher education as seen through his active participation on the UIUC Mathematics Development Advisory Board, UIUC Actuarial Science Advisory Board, and as a leading actuarial recruiter for Deloitte for the past 15 years.

Ankney has also been a strong advocate for the Illinois Actuarial Science Program in recent years, as he has been instrumental in organizing many alumni events including the Deloitte alumni visit and the Actuarial Science Reunion in Chicago.

Fighting Illini Football

Written by Matt Becker

It was the third season of the Coach Lovie Smith era at the University of Illinois. The Illini, still one of the youngest rosters in the country, looked to make improvements following a 2017 season that yielded a 2-10 record while going winless in the Big Ten Conference. Lovie Smith made a bold decision following the season to fire offensive coordinator Garrick McGee and hire Rod Smith from the University of Arizona. This change helped ignite the previous underperforming offensive unit. Along with the changing of offensive coordinators, the team added graduate transfer quarterback AJ Bush Jr. from Virginia Tech.

The football team doubled their win total in 2018. They recorded a 4-8 record as well as adding two conference wins. The Illini won at Rutgers by a score of 38-17 as well as on Dad's Weekend against Minnesota 55-31. The team also had close losses against South Florida at Soldier Field and on the road in the season finale against Northwestern. During the season, defensive coordinator Hardy Nickerson resigned citing health concerns. This left Lovie Smith to fill his position.

The players and coaches look to continue their improvement next season as the rebuild of Illinois football goes into its fourth year. Following the season, athletic director Josh Whitman gave Lovie Smith a two-year contract extension. The move, which received some criticism from fans, was done to continue the stability of the program. This extension does not change the contract's buyout, as well as not increasing the yearly salary. The team recently signed a class of eleven talented high school seniors. The recruiting class is highlighted by quarterback Isaiah Williams and defensive back Marquez Beason. The two are ranked in the top 10 of recruits to come to the University since 2002. Along with the addition of the high school athletes, Illinois will look to add transfers to add talent to the roster. Recently, star wide receiver Jeff Thomas announced his transfer to the University of Illinois after his sophomore year at Miami. He is currently applying for a waiver from the NCAA to play immediately next year. With other players planning to announce their transfer decisions in the coming months, the Illini look to upgrade their talent and depth at many positions. This along with the filling of several coaching vacancies have given the fanbase excitement for what the future holds.



Bars Closing

Written by Michelle Liu

Campus bars Firehaus and The Clybourne, both located on Sixth Street, were scheduled to close on September 4, 2018. Owner Scott Cochrane plans to bring the previous popularity of the two locations to another campus bar, Kam's.

Scott Cochrane, a longtime campustown bar owner, is now one of four investors who have bought out previous Kam's owner Eric Meyer. Although Firehaus and The Clybourne have closed, Cochrane has remodeled Kam's to give customers a better bar experience, while still maintaining campus traditions. He wishes to enhance Kam's ambiance by displaying photos and memorabilia that represent alumni and current students.

Cochrane has operated Firehaus for decades under various names, including the Wigwam, Round Robin, and RR Sports Grill. The Clybourne opened about 20 years ago. After the closure of these two bars, a 17-story commercial-residential tower has been planned for construction by CORE. The Champaign City Council approved two items last April that allowed for CORE, a Chicago-based firm that specializes in college-town developments, to build around and widen the space of the public alley north of Cly's. City Council documents indicate that the new high rise will take over 300,000 square feet, designating the first floor for commercial area and the upper floors for residential area.

Although Firehaus and The Clybourne remain closed for now, Cochrane intends to find future locations for one or both bars to reopen. He is looking for potential properties and may reopen the two bars under different names. Cochrane is aware that Firehaus and Cly's have been campus staples for years and wishes to maintain the campus bar traditions of Tuesday Wine Night and Wednesday Karaoke for decades to come.



Acknowledgements

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Kara Wong

Created By: Michelle Liu

Thanks for Reading!



Row 1: Casey Tan, Jaclyn Rachanski, Yi Yuan

Row 2: Sara Lagvankar, Kara Wong, Michelle Liu, Carrie Wang

Row 3: Sung Yeo, Prudhvi Kalla, Philip Song, Jesse Yan

Row 4: Spencer Zhang, Andrew Dlugos, Titan Wibowo, Vishakh Patel