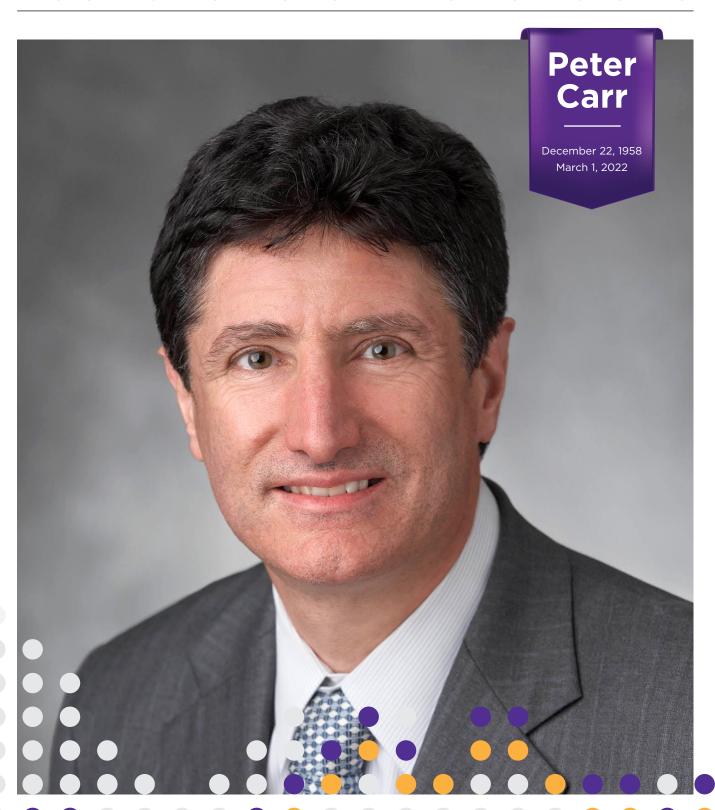
THE OFFICIAL NEWSLETTER OF THE NYU TANDON DEPARTMENT OF FINANCE AND RISK ENGINEERING





### Letter From the Interim Department Chair: Barry Blecherman

Hi, and thank you for reading this "letter from the interim chair." In this note, I will try to inform you without boring you – please forgive me if I go astray from this goal, as I am a newbie at being the interim chair. This is my first Catching FiRE note and as I will explain below, this is also my last such note.

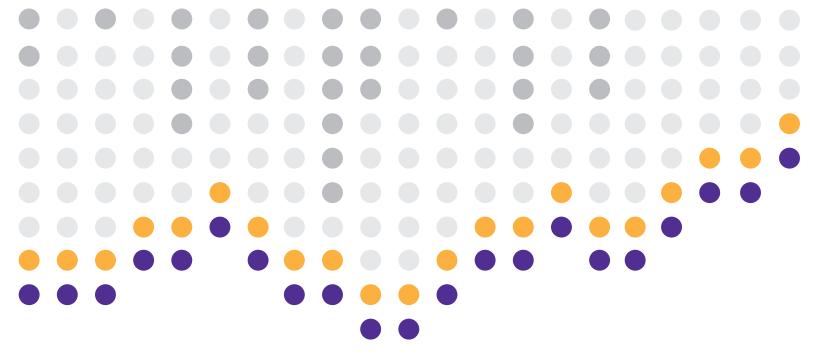
The fall semester is the start of the academic year, and with this new beginning comes new, exciting things for FRE. On behalf of the FRE faculty and staff, I would like to welcome two new full-time employees to our departmental family! Industry Assistant Professor Amine Aboussalah joins us in August. Professor Aboussalah recently completed his doctoral work in areas of machine learning applied to financial engineering; he will teach two sections of our core ML course in MS Financial Engineering this fall and continue his

research agenda with many new potential colleagues inside our department and throughout NYU Tandon and all of NYU. Marissa Alonzo is our new Program Coordinator. She recently graduated with honors from New York University Steinhardt with a BS in Applied Psychology, with experience in operations and research roles in higher education. Marissa is already coming up to speed in areas that will help make our faculty's experiences and student's time with us smoother and more enjoyable. Both Amine and Marissa are very welcome additions to our team – please make sure to stop by and introduce yourselves to them on campus!

As I write this in late June, our new student cohort is already engaged in their online bootcamps. While there are still some uncertainties due to COVID about who will be able to arrive here in August, we expect to return to our steady-state number of 140 to 150 new students of the highest caliber on earth. We also believe that we will continue to maintain the gender equity we achieved in 2021 with our incoming student cohort for August 2022. We are seeing an increasing number of Tandon's top undergraduate students join us this year as part of the school's BS/MS Program. We were latecomers to this idea but over the past few years, our participation in this program has grown rapidly. Interest in our undergraduate courses also continues to grow among Tandon students and, more broadly, NYU students. We are offering six undergraduate courses in the fall for the first time ever.

I'm also very proud of my colleagues and staff for bringing together the first Peter Carr Memorial Conference in such a professional, successful, friendly, and intellectually rigorous manner. The PCMC featured some amazing talks and heartfelt reflections on our collaborations and personal interactions with Professor Carr. This brings my letter to the inevitable sad remarks that must be made – we all miss Peter so much. We remain in a state of loss. Peter was electric, brilliant, kind, and funny. He was taken from his family, friends, coauthors, and from us far too soon in life. We miss him constantly. He serves as our inspiration to do the best we can for our students, our school, our field, and the world. I'm sure that he is proud of us – our task is to remain on the path that earned his trust and pride.

As I stated earlier, this will be my only note in Catching FiRE as interim department chair. Being the department chair is demanding. I'll be handing these tasks over to Professor David Shimko for the fall 2022 semester, and he will hand them over to Professor Agnes Tourin for the spring 2023 semester. All three of us are dedicated to the success of our department, school, and students just as Peter was. From me, from them, and from the department staff, I wish all of you a healthy, and prosperous fall semester.



## Good News: New Hires in FRE



The FRE Department would like to welcome MARISSA ALONZO as the new Program Coordinator. She began her role in mid-June. Previously, Marissa worked in operations and research roles in higher education. She recently graduated with honors from New York University with a BS in Applied Psychology. As a recipient of numerous academic and professional awards for service and leadership, Marissa values service and equity in higher education. Join us in welcoming Marissa to our team.



AMINE MOHAMED ABOUSSALAH, who is defending his Ph.D. dissertation in Artificial Intelligence and Operations Research at the University of Toronto in July 2022, joins the FRE Department this fall. He is interested in the development of new artificial intelligence and quantum computing algorithms for real-world applications. His thesis topic is "Exploiting structure in real-world reinforcement learning problems for financial applications." The goal is to use the financial application domain as a challenging real-world environment in which to advance reinforcement learning. Professor Aboussalah's thesis research is about improving reinforcement learning algorithms by exploiting topological properties (symmetries) of dynamical systems with time-series data. He is also interested in econophysics problems which involve using quantum field theory and quantum computing to study financial networks and systemic risk. He enjoys applying theoretical mathematical concepts such as information geometry to develop new decision-making algorithms for a variety of practical real-world applications. Stop by the office to say hello to Amine and sign up for his Machine Learning course this fall.



### Be an FRE VIP

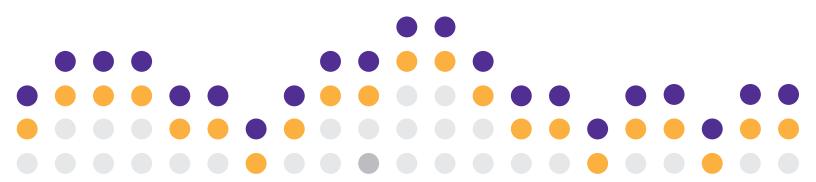
Tandon students will attest that they accomplish a lot over the course of a single semester. It can be hard, however, to move on from an exciting topic or favorite professor once the semester is over. What if there were a way to work on a real-world project so big and so important that it spanned almost your entire degree program?

At Tandon, students have the chance to find out, thanks to the Vertically Integrated Projects (VIP) Program. VIP was created so that learning isn't fragmented into years, semesters, or class

periods, and scholarship isn't slotted into rigid disciplinary silos. It aims to encourage the type of long-term, in-depth learning that keeps students engaged and improves career preparation.

FRE is proud to announce that the department is now home to two new projects aimed specifically at graduate students: Merger & Acquisition Outcome Prediction and Active Portfolio Management with Machine Learning and Time Series Forecasting.

APPLICATIONS ARE NOW BEING ACCEPTED FOR THESE EXCITING, HANDS-ON OPPORTUNITIES.



# BQE Lecture Series Renamed and Returns In-Person this Fall

After two years of online BQE lectures, in-person talks will resume in September 2022. The impressive lineup will showcase top-level financial engineers from around the world. The kickoff lecture is scheduled for Thursday, September 22 with Dilip Madan, who was named the 2021 IAQF/Northfield Financial Engineer of the Year.

In recognition of the late Peter Carr, the lecture series was renamed in his memory. The BQE Lecture Series is now known as the "The Peter Carr BQE Seminar Series." See page 20 for the fall seminar schedule.

# FRE Students Placed in Top 10% at the Chicago Mercantile Competition (CME)

Each year the Chicago Mercantile Exchange sponsors a one-month futures trading competition open to teams of five students from accredited colleges and universities in Asia, Europe, and the Americas. Last fall, the Finance and Risk Engineering Department entered three teams of MS degree students coached by Professor Ron Slivka as Faculty Advisor and ably assisted by Zahra Patterson as Competition Administrator.

The FRE Department regularly participates in similar competitions giving students practical trading experience that is both outside the classroom and outside the textbook. In each of the prior six years, NYU teams in an array of related trading competitions have won national first-place honors.

At the October-end completion of this year's CME University Trading Challenge two NYU Teams placed in the top 25% of 386 registered teams. The NYU Team named TradeEasy, led by Team Captain Jingzhao Zhang, placed in the top 10% of all competitors measured by final trading profits. Other TradeEasy Team members included Yuhan Xu, Xiaolan Yan, Wenyi Huang, and Lukuan Wang.

# CONGRATULATIONS TO ALL FRE TEAMS. THE FRE DEPARTMENT IS PROUD OF YOUR PERFORMANCE!

# Agnes Tourin Selected to Serve on the NYU Presidential Search Committee



Industry Associate
Professor Agnes Tourin
will serve as a member
of the NYU Presidential
Search Committee,
chaired by William R.
Berkeley, the Chairdesignate of the Board

of Trustees. The selection of a president is one of the most important decisions an institution of higher learning can make in influencing its direction.

# Writing Good Stuff (Again) on the Topic of "Simplified Option Price Derivations"



Option pricing has proved to be a complex topic for finance students, since it requires knowledge of stochastic calculus and differential equations. Professor

David Shimko has just published a lead article in the *Journal of Derivatives*, showing that the famous option pricing models of Bachelier and Black-Merton-Scholes can be derived in a simple economic model requiring nothing but college-level calculus. The model will make it easier for students to learn option pricing, and encourage the application of this new technique to solve new problems, such as nontraded option valuation, corporate liability risk management, and portfolio management strategies for funds using derivatives.

### NYU Tandon Celebrates Juneteenth

NYU Tandon joins communities around the country to recognize and celebrate Juneteenth, which marks the end of slavery in the United States. The university was closed on Monday, June 20th to celebrate this historic milestone.



# Carmen Montes De Oca Finally Takes Her Walk Across the Stage

Carmen Montes De Oca, Director of Operations, finally attended her master's degree graduation ceremony this past May. In 2020, she completed her second master's in Environmental Policy and Sustainability at the NYU Gallatin School of Individualized Study but due to COVID-19, in-person commencement ceremonies were canceled. After the long-awaited anticipation, she took her welldeserved walk across the Beacon Theater stage on May 19th. To celebrate her achievement, Carmen enjoyed an overdue vacation to Italy and Switzerland. Join us in congratulating Carmen on reaching this academic milestone.









It's relatively rare for anyone to have a scientific discovery, theory, or system named after themself, but when financial scholars study the CGMY model of pricing derivatives, the C is a tribute to Peter Carr.

Carr — whose many other honors included being named Quant of the Year by Risk Magazine and Financial Engineer of the Year by the International Association of Quantitative Finance, receiving the Cutting Edge Research Award from Wilmott Magazine, and landing on Institutional

Investor's "Tech 50" list multiple times — generated buzz when he left the corridors of power on Wall Street to chair NYU Tandon's Department of Finance and Risk Engineering (FRE) in 2016. He would, after all, be giving up an enviable job as Morgan Stanley managing director and global head of market modeling, with a

lengthy CV that also included stints as head of equity derivatives research at Banc of America and head of quant research at Bloomberg.

Still, Carr, who had been a professor at Cornell early on in his career and later taught courses at NYU Courant for over a decade, was intent on helping to train a new generation of financial professionals — those ready to meet the burgeoning global demand for machine learning expertise, able to work with sophisticated modeling and information technology, and undaunted by job descriptions that would have been unimaginable even a decade before.

Carr attracted an impressive roster of financial practitioners as faculty members to FRE, which had launched in 1995 as one of the first such programs in the nation, and he set about establishing dozens of new courses on topics like automated differentiation; machine learning; cryptocurrencies and blockchain; cloud computing; and environmental, social, and governance (ESG) investing. Those efforts had tangible results: each year the FRE program rose in the rankings compiled by respected organizations like QuantNet and the TFE Times. Not given to boasting, however, Carr sometimes dismissed that accomplishment, preferring instead to measure his success by that of his students. He admittedly had great reason for pride on that score, as FRE graduates began following in his footsteps at iconic financial institutions, pushing the boundaries of their fields, and helping keep global markets functioning.

Born in Canada to Larry and Livia Caruana, immigrants from Malta, Carr had initially become interested in finance as a newspaper delivery boy, fascinated by the fluctuating U.S.-Canada exchange rates being reported each day. He took his first formal finance course while earning a bachelor's degree in commerce at the University of Toronto, where he remained for his MBA studies. Tiring of Canada's inclement weather, he then applied to doctoral programs only in California and landed at UCLA — a

of achievements. Twenty years in industry at Morgan Stanley, Bloomberg, BOA. Seminal work on variance and volatility. Awards aplenty. Carr doesn't have to be that nice, and yet he is." (The impact he had on students, alumni, and others in his field is evidenced by the outpouring of online tributes).

"Working with Peter was a truly amazing experience," said Acting Department Chair and Industry Professor Barry Blecherman. "He was a world-renowned thought leader – an intellectual giant. But in FRE all of that paled when compared with the fact that Peter was a nice person. He had time for everyone. He was always smiling and laughing. He was humble and friendly and approachable. And Peter gathered to himself with other kind, empathetic, hard-working people. Our department became a family under his leadership."

"NYU's great strength rests in the excellence of its faculty, and Peter Carr, chair of Tandon's Department of Finance and Risk Engineering, exemplified this," University President Andrew Hamilton has written. "As a scholar, teacher, colleague, department chair, and business person, he was respected for



program he entered with some trepidation, since rumor had it that every doctoral candidate over the previous five years had failed a required comprehensive exam. That trepidation was unfounded: he not only passed but subsequently commenced upon a now-storied career.

At Tandon, despite the demands of chairing an important and dynamic academic department, Carr still found time to engage in his own research, and by 2022 he was ranked fourth in the world by Google Scholar in Financial Engineering citations, third in Quantitative Finance, second in Derivatives, and first in Volatility. Groups around the globe vied to secure him as a conference presenter or keynote speaker, and a single year could find him as far afield as Canada, Spain, and Australia. But while students and colleagues often marveled at his intellectual prowess and keen insight, it was his warmth, approachability, and genuinely caring nature that elicited the most admiration. A financial journalist once wrote of him, "Within a minute of speaking to Peter Carr you are put immediately at ease: despite the formidable resume and list

his dedication, his talent and great gifts, and his leadership.

NYU has lost someone not only very accomplished but also very much admired and liked. His death is a painful loss for NYU and particularly for the Tandon School, especially coming as suddenly as it has."

"It would be impossible to overstate the esteem in which Peter was held, both at our school and in the broader financial world," said Dean Jelena Kovačević. "Thanks to him, our FRE students are shaping the future of the entire financial industry, and they're doing so with the benefit of his incomparable example. While he will be deeply missed by all who worked and studied with him, his legacy will long endure here. On a personal note, I will miss him deeply, his sense of humor, our shared love of math, and his innate generosity."

The deepest sympathies of the entire Tandon community go to Peter's wife, Carol; daughter, Olivia; and his entire extended family.

#### Memories from a close colleague

I met Peter Carr in 1987. I had just started my first full-time academic job, teaching finance at the University of Southern California. Peter was in his last year of graduate school at UCLA. He had been a professional accountant for a few years before going for his Ph.D., so he was a few years older than I. While at USC, I frequented the weekly UCLA seminar series across town, at a time when so many great financial minds were there — such as Richard Roll, Michael Brennan, Eduardo Schwartz, and Francis Longstaff, to drop a few names. Berkeley was not that far away, with Hayne Leland and Mark Rubinstein in residence. Peter and I became friends quickly, and we had common interests in derivatives pricing at the time. I had recently published a paper valuing insurance contracts by integrating the Black-Scholes option pricing model. I remember one day Peter told me he thought my formula was wrong, but a month later told me I was right after all. We had a healthy and fun academic relationship.



Peter Carr (left) with David Shimko and Maggie Copeland. Photo taken in Los Angeles, Fall 1987.

I tried to get Peter to interview for an Assistant Professor position at USC in 1988, but he had other ideas. He joined Cornell upon his graduation, and I went to Wall Street a few years later. I never left derivatives, building my career in commodity finance, financial risk management, security design, credit, and corporate finance. Peter specialized in derivatives theory and trading. He had a brilliant academic beginning, publishing an eye-popping work with Robert Jarrow on local time, which was a novel way to price the extrinsic value of an option based on how much "time" the stock price spent at the exercise price of the option in a continuous-time stochastic process. This was a brilliant mathematical insight, but I would have to say the practical value was more pedagogical. Peter continued to write prolifically, contributing to not only the theory of mathematical finance but also to the practice. Demand for his insight was increasing in financial circles. Peter

started to become known in both academic and professional venues on the East Coast. We saw each other at conferences and industry dinners regularly, covering the globe.

Peter left Cornell for Wall St, but never lost the academic bug completely. He worked for hedge funds and trading companies like Susquehanna, but also held important roles managing groups of quants, at places as venerable as Morgan Stanley. He had a rare combination of academic curiosity, technical capability, personal humility, and a sincere desire to help others that made him an effective leader, an able contributor, a true collaborator, and an inspiration to many young quants. Through Peter's work, mathematicians and physicists were able to see immediately how they could apply their seemingly unrelated skills to financial problems. At NYU, Peter's ongoing work has become broader, some very applied and some very abstract. He has cultivated thankful Ph.D. students, co-authors, postdocs, and visiting faculty with a seemingly unending supply of academic energy.

Over the years I saw Peter at conferences and we kept in close touch with each others' work. When one of my consulting ventures failed, he was my first phone call. He had just joined NYU FRE as the chair. He needed someone to teach corporate finance, and I fit the bill.

At funerals I have often heard people say, "I would not be where I am were it not for the dearly beloved Mr. X." In my case, there is no truer statement I could make. Without Peter's encouragement and support, I would not be teaching at NYU Tandon. Without his excitement in converting an MBA finance course into a valuation course suitable for master's students in financial engineering, I would not have been able to create a brand new curriculum and write a book for the course. Without Peter Carr, I would not have been inspired to continue to publish new research in my 60s, a time when most academics are on to other things.

While working on my class and the book last summer, I discovered it was very difficult to teach option pricing to master's students who had never seen stochastic calculus before, and developed a new derivation that requires only college-level calculus. In disbelief, Peter asked me to prove it to him. I stood at the whiteboard outside his office and explained it... When I finished, he asked me to stop and held up his hand. After about a half-minute, he broke out in laughter, with a tear in his eye. How can it have been so easy? Why didn't we see this before? The proof remained unerased from his whiteboard for several weeks. He offered guidance and urged me to publish it immediately. The paper will likely appear this summer.

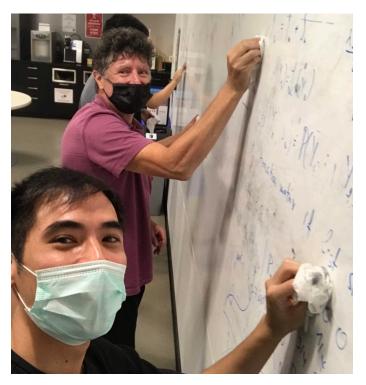
Anyway, I have proven my statement. Quod Erat
Demonstrandum. Without Peter Carr, I would not be where I
am today. I wish I could have thanked him more before he left
us. I hope we can sustain and build on his unique and profound
legacy. Now I am the one with the tear in my eye. May his
memory be a continuous blessing for all of us.

David C. Shimko,
 NYU Tandon Industry Professor of Financial Engineering

#### From A Student's Perspective

It took me a bit of time to gather my countless memories with my beloved professor, Peter Carr. He is one of the most significant persons in my life. He is like a father who provided the first light in my quantitative journey. He is a teacher, a mentor, a supporter, a neighbor, and a real-life role model. Could you imagine you would ever have a legendary financial figure who is down-to-earth, friendly, and willing to teach and support you? I am very fortunate that I once met a person like him. It is hard to picture my graduation ceremony without him standing alongside.

I first met Professor Carr during the Fall semester of 2020. I was fortunate enough to join a student club connected to the MSFE program at NYU Tandon that usually had a bi-weekly meeting with him. It is common to feel yourself being nervous before introducing yourself to him, especially when you know that he is a famous person. This happened to literally everyone. The opposite happened when you started introducing yourself to him, as he had never stopped initiating a conversation with you. He was very friendly and open-minded. He was always smiling and made people laugh at his jokes. His sense of humor relaxed everyone who had a conversation with him.



Supavitch says even helping Carr clean a blackboard felt like an honor

Because of his motivation and inspiration, I got involved on a research paper with him, even though he knew that my research experience was limited back then. He dedicated himself to teaching me in a research class for more than a year. He gave that opportunity to me, to his other students, and to everyone surrounding him. His good hopes drove me and others forward. He built people up. He trained thousands of quants for the industry. His passion inspired people, and he always wanted to see you getting better. By all definitions, he was a true leader

and the one that I want to grow up to be. I could not and will never stop thinking about him during every accomplishment I make in the future.

I am very emotional about the loss, and I am sorry for everyone who shared similar experiences with me. My heart is with his family. MSFE at Tandon will never be the same, but it will keep growing. His legacy will continue, and we will make him proud.

He left on a jet plane that is never coming back again. However, I will always keep a picture of him laughing and cheering me from somewhere in a good place.

Rest In Peace Professor Peter Carr.

I am very grateful and very lucky to have met you.

You'll always be my role model.

-Supavitch Nakburee

### An Alum Remembers a Tireless Mentor

Peter was the smartest, funniest, and most supportive mentor a student could ever ask for. He showed me kindness even before I set foot in New York, when I was having problems with my scholarship for my master's, and he remained a constant source of wisdom and inspiration throughout my stay there.

During my time at Tandon, Peter was my professor for two classes and the research advisor for my capstone project. One of my favorite things that he did during our weekly meetings for my project was just sitting in complete silence whenever he encountered a difficult problem. I always relished those moments and would always think to myself: I am seeing a genius at work. He usually came out of those silences with a great insight on how to answer the problem at hand, but he also sometimes ended up unable to find a solution during our session. The next day, however, I would find an email from him very early in the morning on how to answer the question.

Even after I graduated and returned to the Philippines, Peter offered to continue to meet with me weekly to prepare for my Ph.D. applications. He set aside hundreds of hours of his time for someone who was not even his student anymore. Even though we did spend most of our time talking about research, what I will miss the most from our Zoom calls were his stories about his time in academia, working on Wall Street, interesting YouTube videos and stack exchange entries, and the latest app or gadget that he had discovered that week. I will also miss his almost encyclopedic knowledge of mathematicians. (During one of our meetings last December, he even joked that he would also like a mathematical equation in his tombstone, like Ludwig Boltzmann. I did not know that this conversation would be relevant so soon.)

Thank you so much, Peter, for helping me pursue my dreams. It is heartbreaking to think that I am starting my Ph.D. journey without getting one final piece of advice from you. I hope you are in a much better place now and that I and all your former students can make you proud. We will miss you so much.

-JP Delavin ('20)



## The Peter Carr Memorial Conference

The Peter Carr Memorial Conference will honor the life and career of Peter Carr, the beloved teacher, scholar, colleague, chair of the NYU Tandon School of Engineering's Department of Finance and Risk Engineering and member of the Board of Directors of the Society of Quantitative Analysts (SQA).





JUNE 2 - JUNE 4, 2022

**BROOKLYN, 6 METROTECH CENTER** 

Dean Jelena Kovacevic made the opening remarks at the Peter Carr Memorial Conference, which began on Friday, Jun 3, 2022 at the Pfizer Auditorium in the Dibner Building. The audience was filled with global members from the financial industry.

"Welcome to the NYU Tandon School of Engineering, and thank you all for being here to celebrate the life and work of our friend, colleague, and teacher, Peter Carr.

It's hard to know where to begin. While it may be fitting to open by extolling Peter's accomplishments, reciting a complete list of those would take much longer than one evening, but... I'd still like to name a few. I will start with his Google Scholar rankings, which as of 2022 deemed him fourth in the world in Financial Engineering citations, third in Quantitative Finance, second in Derivatives, and first in Volatility.

He was Risk Magazine's Quant of the Year, the International Association for Quantitative Finance Financial Engineer of the Year, the recipient of the Cutting Edge Research Award from Wilmott Magazine, and had multiple appearances on Institutional Investor's "Tech 50" list. Even if that was the extent of the list, he would have left a major mark on the world of

financial engineering. This is just the tip of the iceberg though, and besides, those facts and figures represent only one small part of what Peter meant to all of us.

It would be impossible, for example, to overstate what Peter meant to NYU Tandon as an institution. After all, this is someone who in 2016 gave up a leadership post as Morgan Stanley managing director and global head of market modelingwith a lengthy CV that also included stints as head of equity derivatives research at Banc of America and head of quant research at Bloomberg-in order to chair our Department of Finance and Risk Engineering. Still, Peter, who had been a professor at Cornell early on in his career and later taught courses at NYU Courant for over a decade, was intent on helping to train a brand-new generation of financial professionals — those ready to meet the burgeoning global demand for machine learning expertise, able to work with sophisticated modeling and information technology, and undaunted by job descriptions that would have been unimaginable even a decade before.

He proceeded to attract a noteworthy roster of financial practitioners as Tandon faculty members and set about establishing dozens of new courses on topics like automated differentiation; machine learning; cryptocurrencies and

blockchain; cloud computing; and environmental, social, and governance (ESG) investing. His efforts had tangible results: each year the FRE program rose in the rankings compiled by respected organizations like QuantNet and the TFE Times.

But while Peter Carr, the financial practitioner, educator, and scholar, was impressive, Peter Carr, the person, was even more so. A financial journalist once wrote about him, "Within a minute of speaking to Peter Carr you are put immediately at ease, despite the formidable resume and list of achievements. Twenty years in industry at Morgan Stanley, Bloomberg, BOA. Seminal work on variance and volatility. Awards aplenty. Carr doesn't have to be that nice, and yet he is."

**AND YET HE IS.** That sentiment could not be more true. I would be hard-pressed to think of anyone else so universally beloved and respected by everyone lucky enough to encounter him. I know we'll be hearing more on that score, as presenters share their personal thoughts about Peter and the impact he had on them and their work.

This conference, besides providing us all with a chance to share our fond memories of Peter, is meant to extend his legacy, and each presentation was specifically chosen because it has either an intellectual or personal link to his research. But when we discuss legacy, I think we can all agree that his true and enduring legacy lies with his students, who are even now shaping the future of the financial industry thanks to his example, and with the many scholars and practitioners carrying on his thought leadership and innovative ideas.

I'm grateful that we're going to be hearing from so many of you over the following two days. I know some of you have traveled far to be here. I'm grateful, as well, to the Society of Quantitative Analysts, our co-host of this event and an organization Peter was proud to serve as a member of their board. Also, special thanks to the Finance and Risk Engineering staff, who contributed long hours to this project in a time of increasing workloads.

It's been just three months since Peter's untimely passing, and I realize we're all still mourning him. But what a wonderful time to begin celebrating him as well-his life, his work, and, yes, his legacy. If Peter were here I can't help thinking he might be a little embarrassed about all this praise. So I'll stop now and just say: Peter, you are deeply missed by all of us, we will continue to be inspired by you, and we will never forget what a privilege it was to know you."

#### A Unique Conference Celebrates a Unique Figure in the World of Financial Engineering

The Peter Carr Memorial Conference, held at NYU Tandon in early June, highlighted the vast web of connections the pioneering financial scholar had forged.

The agenda for the Peter Carr Memorial Conference was undeniably impressive. Speaker after speaker could claim credentials from the best financial engineering programs and most iconic companies in the world. Bloomberg, Amazon, and UBS were represented, along with the University of Chicago, the University of London, and Italy's Bocconi University-and that was just the tip of the iceberg.

What was even more noteworthy than the stature of the presenters at the three-day event was the fact that each had a close professional and scholarly connection to Carr, the late chair of NYU Tandon's Department of Finance and Risk Engineering (FRE), who served as teacher, mentor, colleague, or co-author to so many. They included:

- Dilip Madan, Professor Emeritus of Mathematical Finance at the University of Maryland, Morgan Stanley consultant, 2021 IAQF Financial Engineer of the Year – and Carr's collaborator on the Carr-Madan Formula, which shows how the fast Fourier transform can be used to value options when the characteristic function of the return is known analytically, as well as the "M" in the CGMY model of pricing derivatives.
- Bruno Dupire, a Risk Magazine hall-of-famer who now serves as head of Quantitative Research at Bloomberg-a division that Carr himself once helmed. Writing about quant research at Bloomberg in the days when Carr and Dupire were both there, one financial journalist asserted: "There is no quant finance problem that this team cannot solve, and the number of innovative as well as practical implementations emerging from [them] is just astonishing. What else would one expect from such a quant dream team?"
- Hélyette Geman, a Research Professor at Johns Hopkins
   University and a Professor of Mathematical Finance at the
   University of London, who represents the "G" in the CGMY
   model of pricing derivatives and whose former students
   include such financial luminaries as Nassim Taleb.
- Liuren Wu, the Wollman Distinguished Professor of Finance at Baruch College and a frequent paper co-author of Carr on topics such as option profit, loss attribution, and pricing; static hedging of standard options; and using machine learning to predict realized variance.
- Robert Jarrow, Cornell professor, director of research at Kamakura Corporation, and recipient of Risk Magazine's Lifetime Achievement Award, who had known Carr from the time Carr was a student attending a pioneering inaugural financial engineering conference in 1989.
- Ségolène Dessertine-Panhard of Amazon Web Services, a former post-doctoral associate of Carr's who traveled all the way from Paris to participate in the conference and who asserts: "Peter quite simply changed the course of my life with his suggestion that I begin exploring cloud computing for leveraging the financial ML models I was teaching at FRE. He sparked that interest, inspired me to dig deeper, and helped shape me into the professional I am today."

Like Dessertine-Panhard, many of the speakers used the word "inspiring" in connection to their relationships with Carr. Bruno Kamdem, whose talk was entitled "Tradable Carbon Permit Auctions Under Regulation and Competition," recalled how Carr had recruited him to come teach a course focused on ESG factors-an acronym that refers to environment (encompassing a company's carbon footprint and overall sustainability efforts), social (which takes into account hiring practices, diversity, and commitment to the broader good), and governance (the ways in which the company's board and management seek to encourage positive change and stakeholder satisfaction)--sensing that with a growing number of investors around the world considering these untraditional metrics during their decision-making process, it's becoming more and more important that Tandon's financial-engineering grads have a firm grasp of the area. "The fact that Tandon now has a course on this vital topic is due to Peter," Kamdem said. "He was a visionary in many ways, and I think the department will move forward following his example. On a personal level, I'm going to continue to be inspired by not only his scholarship but his humility, generosity, and kindness."

Others were touched by Carr's consistently exhibited joie-devivre. Pasquale Cirillo of the ZHAW School of Management and Law, in Switzerland, traveled to the U.S. regularly to teach at the summer boot camps Carr arranged for his students. "We met originally through our mutual colleague Nassim Taleb, and naturally we had financial engineering in common," Cirillo recalls, "but we could just as often be found discussing where we were going to have dinner together, who made the best pizza, and our ideal meal. When you go out to eat, the friends you're with are a fundamental component, and there was no one better to be with than Peter."

Carr could, by all accounts, make even the most average work day into something special for his colleagues. "I often got to the office early to get a jumpstart on administrative work," Barry Blecherman, the interim FRE chair and a person Carr often described as his "right hand," says. "Peter would, without fail, come in excited about something, whether that was a piece of volatility research or the performance of an athlete he had watched the night before. It was a joy and a privilege to listen to him, and it always changed the tenor of my day."

Many of the more than 700 registrants to the event could probably tell similar stories of their own, and most would surely agree that the conference was a fitting tribute to a man whose life's work involved building not just financial models but bridges among people.

You can view the presentation slides here.

Recordings of the presentations can be found here.

#### Reflections about the Peter Carr Memorial Conference

I was very humbled by the invitation to present my work at the Peter Carr memorial conference. Peter is known as a brilliant scholar and a wonderful person. It was a great pleasure to hear stories about Peter from his colleagues and students. The outstanding scientific level of the presentations was corresponding to the occasion.

I met Peter at multiple scientific seminars, and he impressed me very much as a man submerged in his mathematical theories. As the organizer of Brooklyn Quant Experience seminars, Peter helped many researchers advance their work, and he contributed very much by facilitating and leading helpful discussions.

While having myself a completely different history of scientific maturation, I appreciate the rigor and mathematical beauty of Peter's works, which were critically important for my own research in the field.

Sincerely,

Pavel Levin

No question that Peter was a quantitative finance legend, but we all are missing the friend, not the scientist. The Memorial has been a special opportunity to share the sense of loneliness that his early departure left in all of us. I would like to thank the organizers and people of NYU Tandon who made this event possible. Such an emotional and intense moment of collective mourning helped all of us understand that the best way to honor Peter is to preserve his sincere desire to help others and continue his tireless effort for community building.

- Marina Di Giacinto



# Wilcott Magazine: Dilip Madan Shares his Memories of Peter Carr

In the March 2022 edition

of Wilcott Magazine, Dilip Madan reflected on his memories of Peter Carr throughout the years. In the article, "Peter Carr: A Transatlantic Tribute" Madan pays homage to his longtime friend. Madan was selected as the recipient of the 2021 IAQF/ Northfield Financial Engineer of the Year. This fall, he will present a BQE Lecture at NYU Tandon on Thursday, September 22nd. Mark your calendars.

Read more at:

https://wilmott.com/peter-carr-a-transatlantic-tribute/

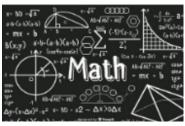
Other Wilmott tributes:

https://wilmott.com/peter-carr-1958-2022/ https://wilmott.com/peter-carr-in-memoriam/

New York Times Tribute:

 $\frac{https://www.legacy.com/us/obituaries/nytimes/name/peter-carr-obituary?id=33517554}{}$ 

#### **Peter's Favorite Things**



Math



The Beatles



His Tesla



**Runs in Prospect Park** 



Brooklyn



**Bike Riding** 



**Hoodies** 



**Toronto Maple Leafs** 



**Ted Lasso** 



**Root Beer** 



**Spicy Food** 



Snapple

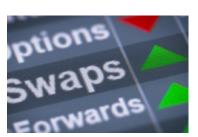


A Good Laugh

# His Family



His FRE Family



**Derivatives** 



Learning



**Tech Gadgets** 

# Personal Tributes Paid to Peter Carr

The Padlet platform was created to allow NYU Tandon staff, faculty and students to express their heartfelt reflections about our boss, department chair, mentor, advisor and friend. Peter's sudden passing has left a void in our lives, department and the world. These tributes are reminders of just how special he was to us and how fortunate we were to have known Peter.

#### You Are Still With Us

While I will miss our professional conversations and your ever insightful comments, I know your presence will endure in the reflections of all those whose lives you have touched and that is comforting to so many who have valued your friendship and advice. Rest well good colleague.

-Ron Slivka



#### **He Now Lives in our Hearts**

Peter became an angel and continued his great career in heaven.

It was like yesterday that we took his advanced courses, attended the <u>seminars</u> he held and listened to his cutting-edge thoughts.

Peter did so much for the FRE program and he cared about every student. When I was not sure whether to pursue a PhD. After graduation, he had a long conversation with me and encouraged me to chase my dream. Now, I'm a first year Finance PhD. student studying the fields that I love. I'm really grateful that I met such a great guide like him.

Everyone remembers Peter. He now lives in our hearts and keeps giving us power to go further.

-Boyan Han, FRE' 21

#### Where do I begin?

Peter, this is so hard! You have been an amazing boss and it's tough to imagine you not being here. What I enjoyed most about our working relationship was your trust in my capabilities. Before you arrived, I felt devalued in the FRE Department, but that changed through your strong leadership. The Department thrived because of your trust in us. It was a sheer joy being part of your dream team. You became my personal cheerleader when I graduated from NYU, worked together on the newsletter, the BQE talks, and when you announced that I would host the "Morning Toast" event. You sent a thoughtful email the next morning thanking me for stepping in at the last minute. Even with your busy schedule, you always took time to say "thank you!" In one of our last email exchanges, I asked what you needed from me for the upcoming Grad. Admissions event and you said, "Just your incredible EQ, Z!" You made us all feel special, and a part of something truly special. Your kindness went above and beyond. When you learned of my son's brutal attack, you offered to help in ways I'll never forget (tears)! Thank you, Peter, for everything. You are already missed. Your legacy will continue and the office will never be the same.

RIP - Zahra Patterson



Lunch with Staff, Faculty and Grad Students at Times Square (Carmine's). New Student Boat Ride and Hudson Yards

I first met Peter 10 years ago when a mutual friend suggested that I talk to him about an option pricing problem I was having some difficulty with. We talked over dinner, and he promptly pulled out his pen, took hold of a napkin, and drew a picture which immediately clarified my thinking. So typical of Peter!

But Peter was much, much, more than a quick study: he was a deep, polymathic, and open-minded thinker, a great listener, a ferociously quick absorber (and reexplainer) of new and unfamiliar ideas; a warm, pleasant, and engaging personality, and most importantly, an extraordinarily generous person, both with his time and with his thoughts. He had the rare ability to bring out the best in everyone he interacted with, and was very supportive of curricular experiments that departed from the mainstream, so long as our students learned something of value. Small wonder, then, that the department's ratings soared during his tenure!

The last time we talked was on a cold day in January. We shared our concerns about our elderly relatives, as well as our excitement about all the new things we were going to try in our classrooms in the Spring semester. After our meeting ended, we laughed, shook hands, and waved goodbye to each other, but the thought never crossed my mind that this would be our last laugh together. His broad smile and his outstretched hand will remain etched in my memory forever.

Thank you, Peter, for everything you did, both for the department and for everyone you interacted with. You will be sorely missed.

-Thomas Philips

#### R.I.P Prof. Peter...

I can't even tell how many times you helped me, encouraged me, inspired me, just like we've been together for a long time.. I still remember you went thru my resume with your salad half finished in Tandon canteen.. you referred me to Prof. Engle's PhD course and joked "he is very very smart, don't be discouraged" with a



typical warming smile, you hugged me and said congrats in the graduation ceremony ... I still remember once you traveled to Shanghai and gave a speech in Fudan University. I was sitting downstairs and you recognized me during the Q&A session, then you walked towards me and shook my hand, just like an old friend... So many memories...!!.......Rest in peace Prof. Peter....

I still remember the first time I saw Prof.
Peter Carr was at the 2019 FRE orientation, during which he delivered a speech
like a superstar. During the 2-year FRE program, he taught the course, hosted the academic seminar, cared about the career development of alumni, connected practitioners with students, etc. To make a long story short: he was such a good mentor that every student liked him.

He also helped me a lot. Before the start of the first semester, I got a chance to have lunch with him and he gave me an introduction to the academic career and encouraged me to pursue the Ph.D. After that, I took his course static dynamic hedging and did the capstone project about the logistic option models with him. His insightful ideas on options and enthusiasm for math have always motivated me these years. I hope in the future we can continue his research and develop his legacy of quantitative finance and I believe that he will be happy about it.

Guangnan (Max) Yang FRE' 21



#### I Will Miss You Forever

Rest in peace, Professor Carr. I cannot even count how many times you have helped me. Without your help, I would not be able to finish my research at NYU. Without your help, I would not be able to pursue my PhD. Without your help, I would not be able to....

I still remember that you and I took the subway from Brooklyn to Manhattan for lunch. You were drawing formulas and graphs on the tissue paper we took from your office; teaching me volatility products. A lot of great memories. As Sara wrote on the Linkedin post, "We promise to make you proud".

#### **Dearly Missed**

I met Professor Carr for the first time through Professor Geman at the Eastern Conference in Mathematical Finance (ECFM) in 2017 at NYU. I met Professor Carr again at the ECMF at BU in 2019. Although highly regarded and respected in the academic and finance communities, he was approachable and amicable. He believed in people's potential, regardless of their race or color. He has made such an indelible impact on my emerging academic career.

Professor Carr was the perfect balance between high intelligence, deep wisdom, and sincere humility. The loss of Professor Carr is terribly sad and is leaving a big hole almost impossible to fill. I pray that God brings comfort to his wife and children (Psalm 68:19, 20). I pray that God remembers Professor Peter Carr for what he has done for a better humankind (Nehemiah 5:19).

-Bruno G. Kamdem

#### I Will Miss You and Promise to Make You Proud

I am a student of Peter. I first knew him even before I came to the United States. I took a MIT OCW course of Mathematics Finance in 2015 and Peter was a guest speaker of this course. Although the content of this course was very complicated, Peter explained it in a very simple and easy way to understand, which surprised me a lot. The first time I had a face to face talk with Peter was in a Morgan Stanley Campus Event. I did not have confidence in my tech skills and asked lots of questions about the quant summer internship program and Peter encouraged me to have a try. The first time I had a deep conversion with Peter was after he became the Dept. Chair of NYU Tandon MFE. Peter collected lots of feedback from current students and he promised our program will become better. Then in the next semester, Peter brought lots of very senior people into our program as adjunct professor. I learnt many hands-on quantitative skills from them, which helped me find a full time job in NYC. Moreover, the rank of our program has changed from No.16 to No.7 in recent 5 years, which made every alumni very proud of it. I kept in touch with Peter after I graduated and almost saw him every week in Brooklyn Quant Experience (BQE) before the pandemic. One time he invited me to YASO TANGBAO for dinner after BQE. I showed him the correct progress to eat this special Chinese food. Peter asked about my experiences in preparing for a quant interview and he told me these experiences should be very helpful for incoming students. Peter is a legend in the quant realm. I benefited a lot from him. I not only gained academic skills but also learnt to be nice and share my knowledge with others. He will impact all my life."Peter, I will miss you and promise to make you proud. "

-RIP - Weiyu Wan FRE '17



#### Irreplaceable

I can't express how sad I am at losing Peter. Peter never wavered in his kindness, laughter and enthusiasm, particularly for mathematics. As an academic, he made several seminal contributions to mathematical finance.

The man was ineffably tied to the mathematics. Once, in a meeting with a human resources person at a major bank, Peter explained how our approach to compensation was just tensor analysis. However, like the famous physicist Richard Feynman, Peter believed that if you can't explain something simply, you don't understand it. He frequently eschewed Ito stochastic calculus, the type of graduate level math in which he was an expert, for what he called the discrete Ito calculus which involves only high school level mathematics.

However, Peter went beyond mathematics in how warm, generous and gregarious he was. He was the epitome of what Malcolm Gladwell called a connector in bringing together members of the mathematical finance community from all over the world, of all ages and of all ethnicities. He helped so many people in their careers. I can't begin to count the number of ways in which helped me. The warmth of his friendship was immeasurable. I consider myself lucky to have known him.

Physicists say that if the universe is expanding, the laws of physics can not be reversed. Peter Carr expanded our universe. Peter Carr can not be replaced.

-Kevin Atteson

#### In Loving Memory of Professor Carr

Professor Peter Carr was a mentor, a friend, and someone whom I could always rely on. He had a vast expanse of knowledge and had a heart full of kindness. He was an inspiration to me and speaking with him brought out the best in me. It has been a honor to have known him these past 3 years. He will be deeply remembered by all of us.

-Vibhor Chandra Gupta MFE '23

## The FRE program won't be where it is today without Prof. Carr

I came to NYU for my second masters degree just because I knew the program will one day be No. 1 due to you behind the helm.

You will be sorely sorely missed, RIP

- Stephen Lin FRE '22

There aren't enough words to express the gratitude that I have for being fortunate enough to have been your colleague. I have never had a better cheerleader, or someone who believed in my worth and capabilities as you did. Your kindness, your generosity, and your warmth have affected me deeply, and you will never be forgotten. It will be hard to come into the office every day, and to see your door and realize that we won't see you come in, to hear your genuine delight in seeing us day to day, or to hear your wonderment at getting one of your myriad electronic devices to work. I hope that we will be able to keep advancing your work moving forward, and maintain your legacy within the department. We will work our hardest to keep your spirit and the culture you instilled in our department alive and well. Thank you for everything Peter... I will miss you dearly.

-James Tien



#### Huge loss for NYU and the whole finance world

I first took Derivatives class taught by Peter at Cornell Business School back in the 1990's as an undergrad. When I came to his office hours, he joked that he should go to the bar with me so he won't get carded - I was underage but looked older, while he looked ridiculously young. I saw him last shortly after he came to Tandon when he was soliciting feedback from my some of the FRE alums (which I am). I reminded him of the story and we had a few laughs. He was not just a stalwart in the quant finance community, but a truly nice and kind person. So sad to see him gone. RIP.

-Igor Tsukerman FRE '06

#### I Will Miss You Every Day

Peter,

You're the best supervisor I've ever had. I always knew that you heard me and would thoughtfully consider anything I'd say. You treated me with respect and kindness. You spent decades building a career that would have justified you having a large ego -- but you were always humble. Whenever I think about you the image I hold of you in my mind is one where you are smiling or laughing. Working with you was so easy, so joyous.

-Barry Blecherman



Rest peacefully, Peter. You made an everlasting impact on everyone you met. I am so happy I joined the department 3 years ago and had an opportunity to get to know you. You are so kind, so caring, and will be deeply missed. We feel your loss but we will continue to make you proud. Thank you for everything.

Peter was by far the nicest person I have ever met and he wanted to see everyone succeed. A real gem.

-Jen Novicki



#### **Forever in our Thoughts**

Thank you for everything, Peter. Thank you for encouraging my PhD research, for advising my career choice, for the amazing opportunity to be a part of the FRE community, and most importantly, for always being supportive of me.

I feel tremendously fortunate to have met you, you've had a huge impact on my life, your passing is extremely hard for everyone. I will forever remember your smile, your kindness, and your encouragement. Rest in peace, my mentor and friend.

-Jeff Wang

### A Rare Combination of Scholar and Leader

It was a pleasure to work with Peter because he valued good thinking and good teaching and was an excellent judge of both. He was a great listener, an efficient decision-maker, and a person of great integrity. He brought out the best in me. A fantastic leader who would have undoubtedly led FRE to be the number one program in the world. I am sad to lose him and will miss him dearly.

-Dan Gode



Rest in peace. Professor Carr. All this came so fast that it seems unbelievable to me! Back in 2017, I reached out to you on Linkedin, you answered my message and gave me courage and a chance to enter the quant finance field. You are so kind, so amiable and humorous, I am grateful and really appreciate your help, your kindness and your spirit to knowledge that inspires us. I haven't contacted you for more than a year, since I wish I could come to New York to visit you face to face and show my gratitude, but I can't imagine I have no chance to do that. I miss you and cherish the memory of all of you. May you rest in peace.

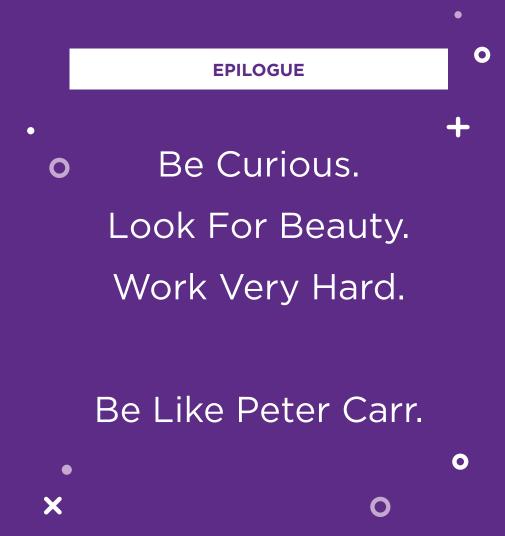
#### He Listened to the Alums

Peter had ears to listen, eyes looking for quality, and the ability to shape the world around him for the better. Shortly after becoming Chair at the NYU program Dr Carr hosted several rounds of discussions with alumni of the program. This is when I first met him in person. I won't soon forget how intently he listened to students. He was absolutely intent on leading the program to new heights - and he absolutely delivered (in research, rankings, and in career outcomes for graduates). I'll not soon forget the kindness of his brilliant wife who offered us hungry graduates tasty cheeses while we all reminisced and brainstormed with Professor Carr about innovations in the field. I will always remember Professor Carr as a dedicated and generous professional interested in raising the next generation of Financial Engineers as best possible. Ein großzügiger und weiser Vater des Financial Engineering.

-Mark Weisenborn FRE '15

I will always be grateful to have had the honor of working for Peter. Not only was he the best boss, he was also kind and caring to all. He made my life better and I know he did too for so many others lucky enough to have counted him as a mentor, student, colleague or friend. He will be greatly missed but never forgotten; his legacy will live on in our hearts and minds.

Best, Carmen



### **Peter Carr Memorial Conference**





















# The Peter Carr **BQE Seminar Series**

FALL 2022 SCHEDULE ON THURSDAYS AT 6PM\* (RETURNS IN PERSON UNLESS OTHERWISE SPECIFIED)

**SEPTEMBER 22** 

Dilip Madan, University of Maryland

@ MakerSpace

**SEPTEMBER 29** 

Alexandre Pannier, Imperial College London

via Zoom

**OCTOBER 6** 

Nassim Nicholas Taleb NYU Tandon Retired Distinguished Professor, @ 370 Jay Street, Room 1201

**OCTOBER 13** 

Liuren Wu, Baruch College @ MakerSpace

**OCTOBER 20** 

Sebastien Bossu, WPI Business School and NYU Courant @ 370 Jay Street, Room 1201 **OCTOBER 27** 

Marcantonio M. Awada, Alpha Innovations

@1 MTC - Jacobs Seminar Room

**NOVEMBER 3** 

Federico Maglione, via Zoom

**NOVEMBER 10** 

Amine M. Aboussalah, **NYU Tandon** @ MakerSpace

**NOVEMBER 17** 

Luyao Zhang, Data Science Research Center at Duke Kunshan University (DKU) @ 370 Jay Street, Room 1201

**DECEMBER 1** 

Bruno Kamdem, NYU Tandon @ MakerSpace

**DECEMBER 8** 

David Shimko, NYU Tandon FRE Industry Professor @ MakerSpace

Titles and additional lectures TBA

\*Several lectures will be held on alternate days and times to accommodate our international speakers

HAVE A GREAT FALL SEMESTER!









**Business as usual:** 

# Another competition, another win for Tandon's trading teams

Browse the NYU Tandon website and you'll see numerous headlines that appear similar: "NYU Tandon Team Excels in Prestigious International Trading Competition," "FRE Trading Teams Shine in Annual University Trading Challenge," "Finance and Risk Engineering Students Excel at National Financial Trading Competition," "Tandon Team Trades with the Best of Them."

The phenomenon can't be blamed on an unimaginative headline writer. As Professor of Finance and Risk Engineering Ron Slivka, who has coached FRE's trading teams for several years, points out, the department has fielded winning teams in various competitions for the last seven years straight-and has the glass case full of trophies to prove it. "Not all competitions award trophies to their winners," says Slivka-a physicist by training and one of Wall Street's earliest quants, as those who look at financial problems via quantitative methods are now called. "But after almost every competition we participate in, we come home with bragging rights, resumeenhancing achievements, and a well-deserved sense of accomplishment."

FRE's latest triumph occurred at the Eleventh Annual Academic Affiliate Membership Student Competition.

organized by the International Association for Quantitative Finance. This year, participating teams were given a complex problem: "It is generally accepted that one cannot predict the price of an individual security, but many believe that it may be possible to predict (or determine) the 'hidden' state of the market (bear, bull, or static). There are a variety of approaches that could be used: hidden Markov models, Kalman filters, random forests, neural nets, genetic programming, etc. There is obvious value in the ability to predict (or even determine in real-time) the market state as it can inform the trade positions that one holds. Using use the daily price series of the Russell 3000, develop a technique to predict (or determine) the state of the market; bear, bull, or static and prove the validity of your approach by comparing a trading strategy based on the technique against a buy-and-hold strategy for the years 2018 to 2021."

While that challenge would be impossible for the vast majority of people, FRE students were undaunted: after submissions had gone through a blind, multilevel selection process and were reviewed by a judging panel comprised of IAQF Board Members, two of the six winning teams hailed from Tandon. While Tandon was the only program with multiple winners, that was not unusual for the school.



This was actually the third year in a row FRE had placed more than one team in the IAQF winners circle.

Team members often assert that much of the credit for their stellar performances goes to Slivka, whose experiences managing an options portfolio using an innovative mathematically sophisticated hedging strategy at JP Morgan; becoming the first Ph.D. on the trading floor at Salomon Brothers; and designing quantitative derivative solutions for a wide variety of corporations, financial institutions, and investment funds as they sought to control market risks and enhance asset returns proved to be the perfect background for coaching trading teams to victory.

He demurs. "The teams would not be able to function without program manager Zahra Patterson, and, of course, congratulations belong mainly to our bright students who work so diligently and capably," Slivka says. "I'm happy to help them excel in competitions like these, which supplement more formal class work in an important way by requiring them to think of and create solutions that are both Out-of-the-Textbook and Out-of-the-Classroom, blending theory and practice."

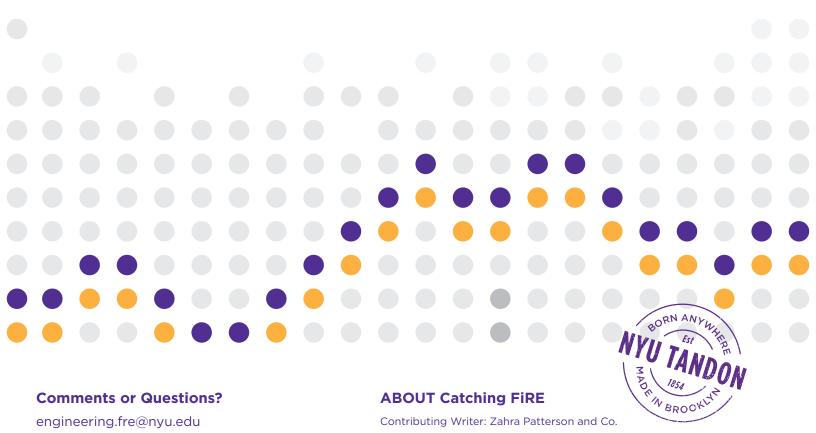
"Our late chair, Peter Carr, used to say that FRE's consistent competition performances played a significant role in raising the program's ranking, which is now near the top among U.S. universities," says acting chair Barry Blecherman, "and I





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#### **Comments or Questions?**

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engineering.nyu.edu #NYUTandonMade

#### **ABOUT Catching FiRE**

Contributing Writer: Zahra Patterson and Co. Design: NYU Tandon Marketing and Communications Office

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youtube.com/playlist?list=PLhwo5ntex8iYjSBYsgf6JL4Ue3bfFuaLI