ilLUminate Blog Transcript: Michael Rivera on Opportunities and Challenges of Generative AI in Business

Recorded September 19, 2024. Listen to it here.

ANNOUNCER: 00:00	This podcast is brought to you by ilLUminate, the Lehigh Business blog. To learn more, please visit us at business.lehigh.edu/news.
JACK CROFT: 00:16	Welcome. I'm Jack Croft, host of the ilLUminate podcast for Lehigh University's College of Business. Today is September 19th, 2024. And we're talking with Michael Rivera regarding generative AI in business and the upcoming 2nd Annual Philadelphia Operations and Technology Day, which will take place at Lehigh University on Friday, September 27th. Dr. Rivera is an assistant professor of Business Information Systems in the Department of Decision and Technology Analytics, or DATA, at the College of Business. His current research focuses on real-time feedback, digital transformation, and digital leadership. Thanks for joining us on ilLUminate today, Michael.
MICHAEL RIVERA: 01:03	Jack, thank you for having me. It's a real honor to be here and have the opportunity to share some professional and personal thoughts with our ilLUminate podcast listeners.
CROFT: 01:12	As a new College of Business faculty member, I think it would be helpful to start if you could just give our listeners a brief overview of the academic journey that led you here.
RIVERA: 01:22	Certainly. First, what an exciting time it is to be joining Lehigh University and the College of Business. Lehigh's reputation speaks for itself, but there's a tremendous opportunity to build on that success within the College of Business. With a visionary new dean, a strong faculty excelling in both teaching and research, talented students, and a chance to introduce innovative programs focused on industry impact and collaboration, its best days are truly ahead. My journey has been a non-traditional one. And I'm proud of that because it's so personal to me. I came from humble beginnings. And my father wanted my brother and me to do something impactful that would benefit our families, ourselves, and others. And he instilled in me the importance of setting goals, working hard, overcoming obstacles, and never giving up. My mother was a talented educator and principal in Philadelphia. And so therefore, early on, I knew I wanted to be a research professor - maybe it was in the genes, education - and I set out to do just that. But the path wasn't straight. How did I get there? Since my junior year in undergrad, I've worked full-time while pursuing my education full-time, spanning five degrees. Well, I think, if nothing else, this speaks to the transformational power that I believe comes with earning a degree. But more importantly, when you want to do something that's hard, something that might be elusive, you have to work. You have to pursue your goals with everything you've got. You have to work at a pace that exceeds others. For me to achieve it, this is what that took. So sort of focusing on this academic journey. After completing my PhD, I found myself challenged, not due to a lack of training, but because of a lack in my research focus. I had a domain. But truthfully, I didn't have a passion for it. And I struggled to see how it all fit together. I lacked clarity.
RIVERA: 03:10	Instead of trying to move directly into a research appointment, I explored other roles first. I served in various administrative positions at colleges, including two dean roles and an assistant VP of academic affairs. I engaged in industry consulting with companies like Lockheed Martin, Mars Wrigley, and American Airlines, and ventured

into tech entrepreneurship through two startups. Throughout this whole time, I taught as a teaching professor. So again, I did things simultaneously, invested and built two competencies in two streams. Eventually, things clicked. Through these experiences, success, challenges, and failures, I began to see a meaningful research pathway from start to finish. It's really the confluence of all these things that brought about clarity. They brought value in different capacities, but together, were a real catalyst. My administrative roles equipped me with the skills to manage projects and build collaborations. Consulting taught me how to interface with companies in an exploratory and curious manner. I developed a managerial voice. My work in technology entrepreneurship provided an industry perspective, grounding my research and teaching in real-world relevance. Here's what I realized. I could focus on industry problems that matter, build tools to solve them, and use that data to conduct studies that have immediate relevance. For the first time in my life, I could say that this is what I want to research and write about. Becoming a research professor in the way that I wanted with the meaning that I wanted was truly possible. I had some fabulous mentors too. Subodha Kumar from Temple University, Liangfei Qiu from the University of Florida, they taught me and helped me mature in various roles and capacities. So this non-traditional journey has shaped my research and teaching. Hard, yes. But I wouldn't trade it.

RIVERA: 05:03

I'd like to make one last point. My academic path is also one of both mind and heart. It's driven by a desire to create and share knowledge, but also to do so in a way that puts students first. I aim to create an environment where learning thrives, supported by clear goals, in a nurturing atmosphere. For me, mind and heart are the defining hallmarks of a great professor. I've strived to grow in both areas. I'm not where I want to be yet, but this focus has fueled my passion for teaching and research.

CROFT: 05:34

Now, you'd mentioned the two tech analytics-based companies that you founded. I was wondering if you could expand a little bit about what that real industry experience brings to your teaching and your research, particularly for the students.

RIVERA: 05:52

At the College of Business, we help students become problem solvers. But even that notion has room for interpretation. It's not just any kind of problem solver. It's someone who can add value to organizations using skills and competencies that are current and industry-relevant. Companies want today's problem solved, not those of the past. These two startups that I co-founded, one was called Develap.Me, where we developed a real-time feedback app to digitize and innovate the traditional annual review process. And the other, Thinaer, which focuses on industrial IoT, Internet of Things, bringing insights to organizations that track assets and environmental conditions. My startups came from following my passions, technology and business. I've always been interested in building digital tools that enhance processes and workflows. You learn a lot when you step into the market or an industry and work directly with organizations and employees. You learn about current problems, where companies invest their resources, people, time, money, and focus, and how to satisfy industry needs with solutions that bring value. You also feel the pressure to compete, which informs strategies, decisions, and success. You learn to give customers laser focus. I realized, through doing these startups, that this needs to inform my teaching. It's critical. I need to understand what's happening in the industry right now, and bring that into my classroom because students need it. They deserve it. A beautiful thing happened in the process. I learned a lot by bringing these insights back to my classroom. I could see how students responded to real-world scenarios, which is

crucial, because today's college students are tomorrow's workforce. I observed how they learned and how I needed to teach them, what mattered to them.

RIVERA: 07:45

All students want current, relevant knowledge they want to learn today and apply tomorrow in a way that impacts their professional outcomes successfully. All of this refined my ability to create a more valuable experience for them and to give back to industry. The interplay with research is similar. I don't want to be known for writing papers that nobody reads. I've found that being involved in all phases of the research process, though challenging, is valuable in this regard. The best research drives impact. If my startup is centered on an important industry problem, that data has value and deserves to be studied. What if I can mine organizational and managerial insights through my research that impact practice? What if industry professionals read my work, perhaps even through a translated white paper, and validate its relevance? In that case, it's not just a good paper. It means I'm on the right path.

CROFT: 08:44

You've hit the ground running - starting even before you officially arrived on campus this fall - by playing a leading role in organizing the second annual Philadelphia Operations and Technology Day that's coming up - as I mentioned during the intro - on Friday, September 27th at Lehigh. So what is the focus of that day-long conference and who will be participating?

RIVERA: 09:08

Excellent. Yes. Happy to talk about it. The second annual Philadelphia Operations and Technology Day, otherwise known as Philly OTD, focuses on bringing together leading research scholars from the Philadelphia area to share insights, build community, foster new collaborations. The conference serves a dual mandate. We support academics, both faculty and PhD students, in operations management and information systems. The conference aims to highlight the advancement of new knowledge in these fields while translating those findings into actionable organizational and managerial insights. The event is made possible through Lehigh University's partnership with Temple University - and this is my previous institution that I was at before transitioning to Lehigh - as well as seven other co-organizing institutions. And we have some great partners: University of Delaware, Drexel University, Penn State University, University of Pennsylvania, University of Pittsburgh, Rutgers, and Villanova. And we are grateful for the dedication of these schools, those co-organizers, the volunteers that are part of them, because it's been a collective effort working tirelessly to bring this day to life. Lastly, I would say that Lehigh is proud to host this event. This builds on our commitment to advancing research and education and technology and analytics. And furthermore, this enables our goal to continually seek to bridge the gap between academia and industry - we want to close that gap - providing a dynamic environment where innovative ideas can thrive and have better clarity around how our research can drive impact.

CROFT: 10:52

Now, for the past several years, Lehigh's College of Business has had what's called the Year of Learning around a theme. And for the 2024-25 academic year, that theme is *Generative AI in Business: Opportunities and Challenges*. And, spoiler alert, that's also the focus of the cover story for the next issue of Lehigh Business magazine, which is out in October. I talked to you for that article and thought you had some astute insights regarding generative AI. So if you could share with our listeners your view of the role that generative AI is already playing in business and what you think are some of the main potential opportunities it presents, not just for companies and organizations, but for individuals and employees.

RIVERA: 11:43   The theme is a timely one. Generative AI is making a significant impact across various industries, transforming how businesses operate and innovate. And anecdotally, we can all recognize that. One of the most immediate roles it plays is in automating routine tasks, which allows organizations to allocate their human resources to more creative functions. So this not only boosts efficiency, but also fosters a more innovative culture within the company. GenAI also offers tremendous opportunities for personalized customer experiences. By analyzing vast amounts of data, these systems can generate tailored content, recommendations, and even products that closely match individual preferences. This level of customization can enhance customer satisfaction, drive loyalty, two outcomes organizations hope to achieve. I'll highlight an opportunity for the organization and the individual, just to get a little bit more specific. On an organizational level, GenAI can streamline processes such as product design, marketing strategies, and even decision-making. For instance, it can rapidly prototype new products or simulate market scenarios, giving businesses a competitive edge by accelerating the time-to-market for new innovations. For individuals, especially those in the workforce, GenAI presents an opportunity to augment their skills. Instead of seeing AI as a replacement, it can be viewed as a powerful tool that enhances one's capabilities, whether that's automating repetitive tasks, providing new insights through the data that they're analyzing, or even assisting in creative endeavors like content creation or design. However, with these opportunities come challenges, ethical considerations, the need for transparency, the potential for job displacement. It's clear, organizations and individuals alike must navigate through these complexities thoughtfully to really harness the full potential.

CROFT: 13:47   That gets us to the potential challenges. Or actually, it's probably just challenges because they're no longer potential. What are some of the greatest challenges? And I know this is a big topic because you kind of outlined several of the main things I think a lot of people are talking about now and looking at. But what are some of the main ones that are facing companies and employees with generative AI now?

RIVERA: 14:14   Yeah. So I mean, we've talked about some of the upsides. Let's consider some of the challenges that require focus and working through. One of the most foremost concerns is ethical implications. Generative AI can create content, it can make decisions, it can automate processes. This raises questions about transparency, accountability, and bias. And so as an example, if an AI system generates biased outputs due to flawed training data, it can lead to unfair or discriminatory practices. This affects customers and employees. Companies need to ensure that their AI systems are not only effective, working, but are also ethical and transparent in their operations. There's a couple more challenges I could highlight. There's a challenge of integrating AI into existing business processes. Implementing GenAI solutions can be complex and requires not just technical adjustments, but also changes on the human side, like organizational, culture, and ways of working. Companies need to ensure that their employees understand how these tools work effectively, and that the AI systems are aligned with the company's goals. Alignment is important. For employees, that's the challenge of job displacement and the potential need for reskilling. As AI automates routine tasks, roles may become obsolete. This can trigger workforce reductions or shifts in job functions. This creates a pressing need for employees to adapt and acquire new skills, continually upskilling, that complement AI technologies. And so companies need to recognize that upskilling and retraining programs are

necessary to help their workforce transition into roles where human skills like creativity, problem solving, emotional intelligence are paramount.

RIVERA: 16:12

And lastly - I think that this is important on the business side - there's a risk of overreliance on AI. If companies rely too heavily on AI-generated insights or decisions, they may lose that human element that is crucial for nuanced judgment and creativity. Leveraging AI might help drive best practices, which is good, but a key strategy businesses employ is through differentiation. They don't want to lose this. They don't want to do the same things that everyone else is doing because they're using the same system with the same trained data. Striking the right balance between leveraging AI and maintaining human oversight is really key to navigating these challenges I mentioned.

CROFT: 17:00

One of the things that a lot of people are trying to work through now is how generative AI has altered the interaction between humans and machines. And you touched on that with your last answer there about the human side and what humans bring to the equation. So just to talk about that a little, what is it about us, as human beings, that protects us against the robots or the machines taking over the world as some people fear?

RIVERA: 17:37

Yeah. I mean, I think it comes, in sort of what I said, in highlighting maybe a very nuanced point. Humans have judgment, and we have creativity. Those are some of our special abilities that give us an advantage. They bring something new and novel to the equation of making decisions, creating strategy, achieving goals. Our opportunity is around finding a way that we can do what we do best, and utilize systems that can complement that. And so there again, striking the balance, finding the right balance between those two is so important. I will also say it's hard because we have jobs, we have lives, we become used to how we work and how we do things. Making this transition requires that we engage with the change management process and figure out how to shift things like culture, how to adapt in terms of ways of working. These aren't easy. All of us that have worked in organizations know that making change transitions can be just as hard sometimes as the technical system ones, but are critical to the overall success.

CROFT: 19:04

You talked about how generative AI is already changing how business works and kind of the direction it's going in. And the College of Business, obviously, is training the next generation of employees for all of these companies. So what is it that students at not just Lehigh, but obviously, all other universities and colleges, what do they need to know about generative AI? And what are some of the key opportunities they should be looking at in terms of their education?

RIVERA: 19:44

I'm living this right now, along with all other professors at colleges and universities. GenAI presents a wealth of opportunities for students at Lehigh and elsewhere. And I would say one of the most significant advantages is the ability to enhance learning and creativity. These AI-powered tools can do so much. They can generate personalized study materials such as summaries, practice questions, and interactive simulations that are tailored to individual learning styles and needs. And this allows students to engage with complex concepts more effectively at their own pace, which makes their learning more accessible and enjoyable. Maybe another thing on the plus side for students is that GenAI provides an opportunity around skill development. As generative AI continues to transform industries, students who become more proficient in using these technologies will gain a competitive advantage in the market.

The workforce needs them. They're not ubiquitous. They're not uniform throughout the workforce now. By learning how to work with these tools, whether it's data analysis, content creation, coding assistance, or even research, they develop valuable skills that are increasingly in demand across various fields. And this proficiency not only makes them more attractive to potential employers but also equips them to lead AI-driven innovation in their future careers. It's a competency they can start building now and continue building in the future. Maybe just a last point on this. GenAI offers opportunities for creativity and entrepreneurship.

RIVERA: 21:35   Students interested in a wider range of fields like design, media, business can leverage AI to create new products, develop innovative marketing strategies, or prototype entrepreneurial ideas. For example, AI can help generate design concepts, create marketing content, or model business scenarios. And all of these can help students bring their creative visions to life with greater speed and efficiency.

CROFT: 22:04   Now, on the flip side of that, just as we talked about with companies and employees, is the potential pitfalls for students using generative AI. And I think a lot of the initial discussion, when it first hit in academic circles, was this kind of tense hand-wringing over, "Oh, they're just going to have GenAI writing all of their papers and doing everything." And that does seem to have subsided substantially, I think. And instead, we're kind of looking at, OK, what are the real kind of practical things that students need to know about, as you mentioned, even for employees, in the present as well as the future, not overrelying on GenAI, and recognizing what it's really good at doing and the things it's not so good at doing, at least at this stage?

RIVERA: 23:02   Yeah. So happy to elaborate a bit. I mean, the pitfalls are there. So I guess the question is, "What are they?" One of the most pressing concerns is the risk of overreliance on AI tools. And this is similar to a challenge that I mentioned earlier for businesses, but slightly different. For example, students might become dependent on AI for tasks like writing, solving problems, generating ideas. And this can undermine critical thinking and creativity. When your AI is in the cloud and your reliance on it is too heavy, it gives the "OMG, the internet is down" a whole new meaning. If students rely too much on AI-generated content, they may miss out on deep learning, that struggle, that evolution that comes with grappling with complex concepts and developing their skills through practice and application. Maybe another issue challenge is one of academic integrity. You kind of highlighted this, but as a professor, I'm thinking about it, I'm struggling with it. Many, at all institutions, are working through some of these issues right now. I mean, we know GenAI can produce sophisticated written work, code. I mean, it can create artwork. And this sets up the scenario where it makes it easier for students to submit AI-generated content as their own. And this raises an ethical question around originality and the value of their educational experience. And so I know that universities are working to address these concerns by maybe setting policies, starting to establish syllabus guidelines on the appropriate use of AI in academic work, and understanding the importance of students developing their own knowledge and abilities.

RIVERA: 25:02   And maybe just a last point, touch on something I highlighted earlier around misinformation and bias. GenAI systems are only as good as the data that they're trained on. And they can sometimes produce inaccurate or biased outputs. Students who are using these tools for learning and research have to be cautious and critical of the information they receive. They need to develop the skills to evaluate that content,

cross-check it, the facts, discern between reliable, unreliable sources. And without this critical awareness, students risk accepting flawed or biased information as truth. That can undermine so many things, their learning, and a future managerial decision that they may make in their careers.

CROFT: 25:50

All right, OK, it's crystal-ball time now. And I'm wondering, how significant a role do you see generative AI playing in business in, say, 5 or 10 years? Is it really kind of truly one of the more disruptive technologies we've seen in recent times?

RIVERA: 26:13

Yeah. So I think, wow, 5 to 10 years, I think generative AI is poised to play a transformative role in business, period, becoming an integral part of everyday operations and strategic decision-making. We're likely to see AI not just a tool for efficiency, but as a core driver of innovation across all industries. Businesses will increasingly rely on GenAI to create new products, services, and even business models. And that really pushes the boundary of what's possible. One significant area of impact will be in the automation of complex tasks. So we mentioned earlier today, AI handles many routine processes. But in the next decade, we can expect it to take on more sophisticated roles, such as generating detailed marketing analyses, developing intricate design prototypes, or crafting personalized customer experiences at scale. And this shift frees up that human talent to focus on higher-order work, strategic thinking, relationship building, areas where human intuition and emotional intelligence are critical. I think GenAI will also become more collaborative. Again, nurturing that human and machine element, but refining it and maturing it. And in these business settings, AI systems will be able to synthesize vast amounts of data to generate insights, predict trends, and even recommend strategic actions. These human-AI collaborations will lead to more informed and agile decision-making, helping organizations adapt quickly to marketing changes.

RIVERA: 28:02

So in sectors like health care, finance, and manufacturing, key industries we're often focused on, this could mean better diagnoses, smarter investment strategies, and more efficient production processes. I think GenAI will likely revolutionize personalization and the way we engage customers. I can imagine a retail experience where AI not only predicts what a customer might want, but also designs and delivers it for them. I think, in essence, to kind of sum up, generative AI will not just change how business operates, it's really going to redefine what is possible in the business world. And at Lehigh, we're training students to enter new organizations, equipping them with the skills to help these companies embrace this technology thoughtfully, and be well-positioned to innovate and thrive within our competitive landscape.

CROFT: 28:58

We're running out of time, but I would like to-- and we've covered a lot of territory, but there's obviously a lot more we could talk about. All kinds of issues we haven't gotten to yet. But I think we have plenty of time to talk about these things in the months and years to come. So I just want to offer you one opportunity, too, if there's anything that we haven't talked about that you think our listeners especially should know about generative AI.

RIVERA: 29:29

Well, maybe two quick points. Democratizing innovation, and AI is just a tool. First, one aspect we haven't touched on, but that's equally important, is the idea that GenAI is a tool that can help democratize innovation. In the past, cutting-edge technology and innovation were often confined to large organizations who were steeped with substantial resources. GenAI has the potential to change that by making powerful capabilities accessible to smaller businesses, startups, and even individual

creators. And this means that the ability to generate complex models, design those new products, or automate sophisticated processes are no longer limited to those with deep pockets. It opens up a world of possibilities for a much broader range of people and organizations to contribute to innovation and economic growth. And then just a last point. AI is just a tool. We need to remember this. And like any tool, it depends on how it's used. There's a growing conversation around the ethical use of AI, particularly in terms of bias and misinformation, privacy, as we mentioned. Organizations and individuals need to take an approach in ensuring that AI is developed and deployed responsibly. This involves not only technical solutions, like building fair algorithms, but also fostering a culture of awareness and accountability.

CROFT: 31:06   Michael, thank you so much for being with us on ilLUminate today.

RIVERA: 31:10   Thank you, Jack.

CROFT: 31:11   Michael Rivera has published several papers in Information Systems Research and presented his research at leading conferences. His teaching primarily centers on machine learning and AI strategy. This podcast is brought to you by ilLUminate, the Lehigh Business blog. To hear more podcasts featuring Lehigh Business thought leaders, please visit us at business.lehigh.edu/news. You'll also find links there to follow us on your favorite social media platforms. This is Jack Croft, host of the ilLUminate podcast. Thanks for listening.