# "Your PhD Could Serve as the Most Potent Intellectual Exercise, Fuelling Your Entire Career's Journey"

**Ahmed Salhin**

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**Abstract** In our interview with Ahmed Salhin, he shares his journey from modelling investor behaviour to developing machine learning (ML) solutions. Ahmed valued the analytical aspects of his PhD and focused his career plans on deployable machine learning. He acquired broader software skills through collaborations and experience. A rewarding aspect of Ahmed's work is uncovering meaningful insights through data science, as well as the constant learning inherent in this rapidly evolving field. However, he notes that dealing with messy, uncooperative data can be frustrating. Ahmed credits his PhD with instilling the advanced technical skills necessary to work through these challenges and develop effective machine learning solutions. To help determine if data science is a good career fit, he suggests reflecting on one's curiosity, passion for problem-solving, collaborative spirit, and communication abilities. Ahmed advises preparing for post-PhD life early, expanding your network, and embracing the PhD journey.

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## Chris: Can you introduce yourself and tell me a bit about your current position?

Ahmed: I am Ahmed Salhin. Currently I work as a principal data scientist at Sage AI focusing on building machine learning solutions that integrate with Sage's business management applications. The Sage AI team is a cross-functional team building the future of cloud business management by using artificial intelligence to turbocharge our users' productivity. We build capabilities to help businesses make better decisions through data-powered insights.

## What was the focus of your PhD?

I completed my PhD research on behavioural finance at what is now called Edinburgh Business School at Heriot Watt University in 2017. The research focused on modelling the relationship between investor sentiment, managerial sentiment, and stock market prices. It included developing predictive models of stock prices using risk as well as quantified behavioural factors.

## As you were finishing your PhD, what were you thinking about your career plans?

I enjoyed the empirical part of my PhD research where I built and utilised a mix of econometrics, machine learning, and programming skills. That led me to focus my career in the area of data science, particularly, deployable machine learning.

## How did you choose this as your career focus?

Upon completing my PhD, I found myself in the midst of the increasing popularity of the data science field. My active involvement in managing an R programming language user group throughout my doctoral studies had already provided me with valuable exposure to this arena. It was also through engaging in numerous industry events and making connections with professionals in the sector helped solidify my intention to become a data scientist. I became increasingly certain that data science was the perfect pathway through which I could utilise my technical skills and contribute meaningfully to software development.

## How have your career plans changed as you've continued on to your current position?

Initially, my primary objective was to develop machine learning models that would provide meaningful benefits to users. However, at that time, I lacked the necessary experience in deploying these models effectively to enable users to reap their full value. Over time, as I acquired the skills required to deploy machine learning solutions at a larger scale, I found myself becoming more involved in the entire workflow, from ideation to deployment, and even maintenance of machine learning solutions.

## How did you go about acquiring these skills, and knowing what skills you needed?

I acquired these skills through a strong drive to understand the complete process of deploying a machine learning service. Along the way, I encountered both failures and successes, but eventually everything fell into place. I later collaborated with machine learning engineers and software engineers, actively engaging with them to expand my knowledge, improve my skills, and gain practical experience. This collaborative effort significantly bolstered the development of my data science and machine learning applications, making them more resilient and adaptable to different scenarios.

## Can you tell us a bit about what day-to-day life is like in your current position?

A bit of a cliche but true; no day is exactly the same as another. It mainly depends on the stage of the project. If we are talking about the majority of days, it will start checking GitHub and Slack to catch up on what has been happening overnight by other team members in different time zones, prioritise or continue on a task I started before, launch JupyterHub and code. The day will involve meeting stakeholders, reviewing other people's work and getting up to date with what has been happening in the AI community.

I would say that meetings take about 20% of my time, fortunately. The rest of the day is very focused on thinking, coding and closing off tickets I created to break down the task at hand.

## What do you like most about your work?

Seeing models I contributed to being used and making a positive impact on customers' work and life. One of the most fascinating aspects of data science is the ability to uncover patterns and trends that may not be immediately apparent. The enjoyment of uncovering those patterns is enormous. I could be the first one to see and discover interesting facts about the data and the behaviour it represents. This is very rewarding.

Another aspect I enjoy most about my work is the continuous learning. The field of data science is constantly evolving and there is rarely a day passing by without learning something new. That ranges from new methods, techniques, advancement, code, reading an article, and more.

## And what do you like least about your work?

What I like least about my work is when I encounter challenges with the data. In many cases, the data does not align or cooperate as expected, and this can be quite frustrating. However, I choose to view these challenges as opportunities for growth and improvement. When faced with difficult data, I see it as a personal challenge to find ways to make it work and behave according to our needs. It requires additional effort and problem-solving skills, but ultimately overcoming these challenges can be rewarding. So, while it may not be my favourite aspect of the work, I see it as an opportunity to learn and refine my abilities.

## How do you think having a PhD has helped you succeed in your current position?

My PhD helped me develop advanced technical skills that support me every day I work as a data scientist. The extensive coursework and research of my PhD programs provided a deep understanding of advanced topics in statistics, mathematics, computer science, economics, and finance. This comprehensive knowledge base proves to be immensely valuable when tackling complex projects. Developing machine learning applications involves encountering numerous challenges, each demanding a combination of this acquired knowledge and skill. It allows me to identify the root of the challenge and subsequently apply the most effective approach to address it. This integration of knowledge and skill significantly contributes to overcoming obstacles and achieving successful outcomes in ML application development.

I also benefited more from the specialisation in finance where it makes me a domain expert when dealing with projects that consume financial data or support users who consume it.

## If someone currently finishing their PhD was considering a position similar to yours, how might they decide if it would be a good fit?

I would say ask yourself these four questions:

1. Do I enjoy solving technical problems using data?
2. Am I curious about what is under the hood of techniques and methods I use and what the data is trying to say?
3. Do I enjoy collaborating with people in solving a problem?
4. Can I simplify my findings and communicate them in an effective way?

If the answer to those questions is yes, most probably you would be a very good fit to consider data science as a career.

## If someone was interested in pursuing a similar career path, what would you suggest they do to better prepare themselves?

Start by having confidence in what you have achieved so far during your PhD. You then need to start thinking about collaboration, collaboration, collaboration. If you felt lonely during your PhD, it is the time to go and find small projects where you collaborate with other people on a data science problem. Kaggle, a data science competitions platform, is a good example of where you can meet like-minded people who are also looking for people to collaborate with to solve a challenge.

Your technical, alongside collaboration, skills will be the core capability you need to start your career in data science. Everything else you need will flow naturally.

## A lot of people like academia because they feel it gives them an opportunity to work on a topic that they deeply care about. Do you think this is also true in your current position?

Not always. This may be a disadvantage to work on the data science field within the business community compared to academia. The reason I say 'not always' is that you might land a career in the industry where you continue what you have been doing in academia but with the purpose of supporting the business achieving its objectives. These kinds of opportunities are much fewer than working on projects that you do not necessarily care deeply about, especially when the number of data science projects being developed at businesses is enormous.

In short, you would be lucky to work in the 'area/field' you are passionate about. You would be extremely lucky if you work on a specific 'topic' you deeply care about.

## Another reason many like academia is that they feel it provides them with more freedom than they think they would get in other positions. How much freedom do you feel you have to work on what you think is interesting?

It depends on the type of freedom we are talking about. In terms of time flexibility, I would vote for industry every single time. It could be my only experience with it, but academia has that fake sense of flexibility where you end up working on research, exam script marking, and course work preparation on your weekend or at 2 am during week time.

If we are talking about flexibility of choosing the topic you want to work on, I do agree that academia has that advantage compared to the industry setup.

## Have you thought about returning to academia?

Not really. I am still passionate about doing research about behavioural finance but nothing prevents me from doing so outside academia apart from finding the time. I miss many aspects of academia though, for example, debating and collaborating with academics on a challenging topic.

## Based on your journey, what advice or suggestions do you want to pass on to someone who's currently finishing their PhD?

Spare the time to prepare for what comes next after PhD. You will find it very challenging if you give yourself the time to cool down after finishing the PhD before you start firing up the engine to prepare for the next move. Widen your network and reach out to people who can support you in landing the career you are interested in. Look for someone who can become your mentor, they will save you a great deal of time finding the right path and help you navigate the challenges and obstacles that you may encounter along the way.

## Is there anything else you'd like to tell someone reading this interview?

If you are reading this while you aren't yet close to finishing your PhD, please enjoy the journey. While enjoying it, remember that the process of pursuing a PhD is not just about getting the degree, but also about developing skills that you can utilise and transfer to other domains. Your PhD could serve as the most potent intellectual exercise, fuelling your entire career's journey. So, while you work towards completing your PhD, be sure to savour the learning experiences, celebrate your successes (no matter how small), widen your personal network, and embrace the challenges as opportunities for growth.

**Thank you for your advice, Ahmed!**