DHAKA THURSDAY JULY 24, 2025, *SRABAN 9, 1432 BS* | A PUBLICATION OF The Daily Star

CAMPUS

SCAN THE QR CODE TO ACCESS CAMPUS ONLINE

PHOTO: PALASH KHAN

MOVIES

F1: A thrilling lap that doesn't always stick on provisional pole

MYNUL KARIM

F1: The Movie blends real-life F1 spectacle with cinematic drama. But while the engines scream and the visuals dazzle, *F1* doesn't always find the right gear when it comes to storytelling depth and plays it too safe.

F1 follows the journey of seasoned former F1 driver Sonny Hayes, played by Brad Pitt, who returns to the grid to mentor a young rookie and help a struggling team find its way back to relevance.

The story doesn't reinvent the wheel. Its plot is quite conventional, being more akin to *Days of Thunder* than *Rush* or *Ford V Ferrari*.

One of the film's standout features is its immersive cinematography. Kosinski and his crew took a bold approach by shooting during real Grand Prix weekends, with the fictional APXGP team integrated into the paddock and pitlane alongside actual F1 teams.

Camera placement inside custom-built F1 cars offers a driver's eye view rarely seen even in modern broadcasts. The roar of the engines, the blur of speed, and the tension in the pit lane are all captured with precision. In terms of technical achievement and immersion, *F1* is a win.

Brad Pitt brings charisma and conviction to the role of the veteran driver. While his age might stretch realism for a returning F1 racer, his performance is grounded and sincere. The supporting cast also does a great job with the somewhat generic script they are provided with.

There's also a missed opportunity to explore the more complex side of Formula 1. The film occasionally glosses over some of the more controversial aspects of Formula 1, such as the inter-team politics and sponsorship pressure, while barely scratching the surface of media scrutiny and motorsport regulations in favour of a more polished narrative. The racing itself was a mixed bag, where in some instances the racecraft and strategies felt very lifelike and ingenious, while in other cases it felt very gimmicky and unrealistic.

F1 is a cinematic adrenaline rush that tries to capture the spirit of Formula 1 with style, heart, and thrilling visual realism. But its predictable story and missed potential somewhat hold it back.

Editor & Publisher
Mahfuz Anam

Features Editor and Head of Content Marketing
Ehsanur Raza Ronny

Campus In-Charge
Faisal Bin Iqbal

Campus Team
Syeda Afrin Tarannum
Abir Hossain

Photographer
Orchid Chakma

Graphics & Layout
TDS Creative Graphics

Production
Shamim Chowdhury

Send your articles, feedback, and opinion to campus@thedailystar.net
Find our content online at thedailystar.net/campus

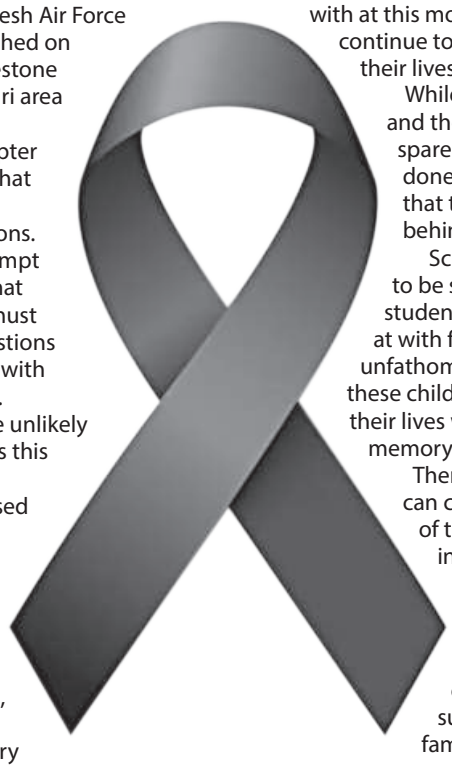
WE MOURN

We are deeply saddened by the devastating events that unravelled on July 21 as a Bangladesh Air Force (BAF) jet fighter crashed on the premises of Milestone College in the Diabari area of Uttara.

This is a dark chapter for our nation, one that will provoke grief as well as many questions. However, as we attempt to make sense of what has transpired, we must continue to ask questions and follow them up with even more inquiries.

Even then, we are unlikely to be able to process this tragedy.

What was supposed to be just another usual school day for these young students tragically became their last. Dreams have been thwarted, innocence has been lost, and lives cut very short. We cannot fathom the pain that their loved ones have been burdened with at this moment, and will continue to carry for the rest of their lives.



While there are words and thoughts to be spared, very little can be done to soothe the scars that this incident has left behind.

Schools are meant to be safe spaces for students to look back at with fondness. It is unfathomable how many of these children will have to live their lives with this as a core memory.

There are no words that can carry the weight of the grief that this incident has evoked, but the Campus team still extends its most profound and sincere condolences to the survivors and the families of the victims.

OPPORTUNITIES

Leeds Beckett University
Leeds Law School International Scholarship

ELIGIBILITY

Students must be enrolled in an eligible course and meet other eligibility criteria.

Scholarships are offered automatically if you meet the eligibility criteria.

DEADLINE: NOT MENTIONED

Visit leedsbeckett.ac.uk/international-students/scholarships to learn more

Cardiff University
Vice-Chancellor's International Scholarship (Postgraduate)

ELIGIBILITY

The scholarship is worth GBP 10,000 in the form of tuition fee reduction.

Applicant must pay any required deposit by the date specified on their offer letter.

No separate application for the scholarship is required.

DEADLINE: NOT MENTIONED

Visit cardiff.ac.uk/study/postgraduate to learn more

University of Surrey
International Excellence Award

ELIGIBILITY

The scholarship is worth GBP 5,000 in the form of a tuition fee reduction.

The scholarship is merit-based and its recipients are decided by the scholarship awards panel.

DEADLINE: JULY 31, 2025

Visit surrey.ac.uk/fees-and-funding/scholarships-and-bursaries to learn more

University of Glasgow
World Changers Glasgow Scholarship (Postgraduate)

ELIGIBILITY

The scholarship is worth GBP 5,000 in the form of a tuition fee reduction.

No separate application for the scholarship is required.

DEADLINE: NOT MENTIONED

Visit gla.ac.uk/postgraduate/ to learn more

OPINION

WHY HAS LANDING AN INTERNSHIP BECOME SO DIFFICULT?

NUSRAT MEHERIN FAIZA

Landing an internship today is no longer just about getting your foot in through the door, it has become a rat race. In Bangladesh, while there are openings offered throughout the year, securing an internship almost feels as tough as applying for a full-time job, with companies relying on a series of rigorous screening rounds that make even the most confident candidates doubt their chances.

Four to five rounds of assessment tests, multiple case studies followed by an interview – simply to land an internship. While it is only natural that employers are looking to hire the best candidate, what has become a matter of concern is that the screening method has turned into an elite selection process for fresh graduates and thus, shut out many talented individuals.

Internships are meant for students to gain exposure and some experience. For it to become inaccessible to many – especially a large portion of whom have no prior experience – appears to be incredibly defeating.

Additionally, job listings for interns now include requirements like "previous relevant work experiences will get preference", which is paradoxical. The scenario has become so warped that it discourages them from applying in the first place. This leaves them stuck in a loop where they can't land internships because they lack experiences, which in turn, prevents them from gaining experience because they are unable to get an internship.

There's this issue of prestige too. Being an intern at a smaller company often provides more hands-on experience than a larger one. Yet when these students apply for a full-time job, they often don't get the same preference as the handful of people who might have worked at larger companies. Instead of evaluating what it is that a candidate has learned during their internship, employers often judge their time as interns based on the brand name.

Experience at smaller startups should be valued just as much as large corporations. For instance, an intern at a startup might have worked across multiple departments and even taken on leadership responsibilities. To full grasp why their time as an intern added value to their professional development, employers could look at the objectives that the applicant was able to achieve and what they learned in the process instead of merely fixating on where they did it.

Such hurdles and shortcomings filter out too many promising candidates. Alongside such issues, the obsession with intense screening processes has made it harder for students to attain the experience they so desperately want and need.

Is it then any wonder that the stringent selection procedure has left a flock of demotivated job aspirants in its wake?

This ruthless approach, fraught with high requirements, frequently makes students feel inadequate, impeding their professional development rather than inspiring them to keep trying. The implications of such gaps fester as this same demographic, then have to put up with the ordeal of applying for full-time jobs with little or no experience.

If companies continue this trend, the job market will soon be filled with applicants who successfully navigated based on strict selection criteria, which is difficult for most students to attain. If this approach prevails, it will – to many degrees – undermine the very purpose of internships and perpetuate inequity.

To genuinely nurture the next generation of professionals, companies must expand their reach and process of recruiting interns – one that doesn't just benefit a select few who have already enjoyed success, but a broader range of candidates.

Nusrat Meherin Faiza is a writer, tutor, and chronic overthinker. Reach out to fuel her overthinking at nmfaiza15@gmail.com

A GUIDE TO SURVIVING YOUR FIRST INTERNSHIP

Arrive with an open mind
Your first internship might not match your dream role. However, it is a learning opportunity. Embrace every task, no matter how small, because it gives you insight into how real workplaces function.

Learn from your colleagues
Watch how your colleagues communicate, lead, and collaborate. These behaviours often reveal more about workplace culture and expectations than anything written in a manual.

Ask questions thoughtfully
You are not expected to know everything. When you are unsure, do not hesitate to ask questions. That being said, you must make sure that you have attempted to figure things out first. It shows initiative and respect for others' time.

Treat it like a real job
Be punctual, dress appropriately, and take your responsibilities seriously. Interns who show professionalism are more likely to receive glowing recommendations or even job offers.

Reflect and improve
Keep a journal of what you learn, what challenges you face, and what excites you. It will help you grow and prepare you to navigate future jobs with greater confidence.

PHOTO: ORCHID CHAKMA

IN THE SHADOW OF JULY

The parents who waited, worried, and walked together

AYAAN SHAMS SIDDIQUEE, AZRA HUMAYRA, *and* **ZABIN TAZRIN NASHITA**

"I don't think you should be getting involved in this ruckus."

"I am so proud of you; carry on."

"Please be careful; I am worried."

"Do you even know what you are getting yourself into?"

Last July through August, anyone who took to the streets heard versions of these lines over and over again, sometimes in the same breath. Parents, older siblings, aunts and uncles, and some well-meaning neighbours, all participated in the same exchange. Some said it with pride, some with fear, and most with a mix of both.

Between July 15 and August 5 last year, parents across the country held their breaths waiting, worrying, and counting the hours until their children returned home from the protests. Some had their parents' blessing. Others went without it.

We must remember Mahamudur Rahman Saikat, 20-year-old who had completed his HSC exams in 2023 from Government Mohammadpur Model School and College. On July 19, 2024, he was shot in the head in front of the government primary school on Nurjahan Road in Mohammadpur, Dhaka. Since that day, a man, his father, has often been seen standing at that very spot. He stood there in silence.

We must remember Golam Nafiz, a student of Banani Bidyaniketan School and College, killed on August 4, 2024. When Nafiz's father first saw the photograph of his son's lifeless body, he could barely believe it. Still, he made his way to the morgue at Suhrawardy Hospital to claim him—his boy, now gone.

And we must remember Nafisa Hossain Marwa, a 17-year-old HSC examinee. She was killed on August 5, 2024. When the 2024 HSC results were published, her mother, Kulsum Begum, with tears in her eyes, spoke about Nafisa's aspirations of becoming a photographer or a graphic designer.

Hundreds of stories are the same as these three.

Campus reached out to parents to hear about their perspectives. A multitude of responses were collected. Most often when they spoke about their perspectives, fear was palpable.

Hosneara Binte Shahadat, mother of a Dhaka University (DU) student who joined the protests on July 7, 2024, says, "I was extremely worried and often told my daughter not to go out, but she did not listen."

Hosneara spent those days anxiously checking in, waiting for replies, trying to keep her mind steady.

"I see parents of children who were killed last year during this time. I cannot help but feel helpless because only parents can understand how it feels to lose their children," she adds.

Hosneara noted that when students were attacked on the DU campus on July 15, her daughter was present. She says, "I was under immense pressure, wondering whether my daughter will come home safely."

Hosneara mentioned that she was anxious every time her daughter went out. Conversations with other parents revealed similar worries and anxieties.

The worries and anxieties are compounded when the protesters were from marginalised communities. Campus reached out to a parent to a child from a Christian family who wished to remain anonymous; he went on to reflect that in times of political unrest, the marginalised are often turned into convenient tools. That weaponisation, he said, can come at a steep cost. For parents in those communities, the fear is natural.

This natural fear of losing children to a just cause is a common denominator, causing many parents to seek refuge in prayers in silent support and solidarity. Such is a sentiment echoed in the account of Rehnuma*, a mother of two from Dhaka, who says, "It's natural to be concerned as a parent, and initially, I didn't want them to participate, but my eldest son had done so regardless. I tried warning him, but he opened my eyes to the fact that we should all stand up against oppression. Eventually, I resigned myself to praying for the safety of all the children who had taken to the streets, including mine, and for their mothers to have strength."

Rehnuma firmly believes that the protests by students were not only laudable but entirely necessary. "Despite being terrified for my children's safety as they expressed solidarity on social media and physically attended the protests, I believe July was God's way of opening our eyes to the evil that was upon us. I look upon last July as a reminder that we must stay vigilant and stand against injustices."

However, not every parent could find it in themselves to allow their children to take part in the protests out of fear. Mahbub*, a father of three, shared how the sight of tear gas, sound grenades, and bullets around his home made him fear for his family's safety and well-being.

"From July 18 (2024) onwards, I saw goons running around the streets every day with machetes and guns, hunting young people and students," he reminisces. "In addition, dozens of police cars passed by our home every day carrying arrested individuals. That is why I didn't feel safe letting my children out of the house. I even felt afraid at times just going out to buy groceries."

PHOTO: PALASH KHAN

The same level of fear extended to the digital sphere as well, as simply posting in support of the protest was enough to land people in a world of trouble at the time. Mahbub shares, "I did not post anything on social media and even instructed my children not to post anything against the government either. Truth be told, I was afraid of our draconian cyber security laws since we could have been prosecuted at any moment."

Of course, we cannot speak about parents' contribution and support without paying homage to the brave guardians whose protective instincts brought them to the streets alongside their children. There are innumerable parents who believed they had to keep their children safe without turning a blind eye to the sacrifices of the youth and had stayed true to their conviction.

Ayesha Siddiqua Rina is one such mother who had tagged along with her children alongside her husband. "We were going through an undemocratic time, and I believe the uprising was something we all wanted," she shared. "When my daughter expressed her strong desire to join the protests, and I saw countless kids her age do the same, I realised that this was not a situation where we could sit idly at home. I felt that victory could be within our reach if parents like us expressed solidarity with our children. So, I joined alongside my entire family, and it was truly an experience unlike any other."

PHOTO: ORCHID CHAKMA

Shaheen Akhter, a mother of two, was another parent who overcame any and all fears and braved the frontlines. "When I saw brave young children like Abu Sayed, Mugdho, and Faiyaz being killed, I realised that they could've been my own children," she laments. "That's when I started going to protests with my family. I always made sure to stand in front of everyone else so I could ensure that even if the bullets started flying, they would hit me and not a single child there. You can call it a parent's instinct to want to protect their own children, but everyone at the protests felt like my own kin."

Ayesha continues to express her gratitude towards the sacrifices made by the youth and the parents who had taken to the streets alongside them. Just like Rehnuma*, she believes the uprising was a pivotal chapter, and even if all her expectations of a new Bangladesh hadn't been realised, she holds onto the hope of a better tomorrow.

Ayesha continues to express her gratitude towards the sacrifices made by the youth and the parents who had taken to the streets alongside them. Just like Rehnuma*, she believes the uprising was a pivotal chapter, and even if all her expectations of a new Bangladesh hadn't been realised, she holds onto the hope of a better tomorrow.

The parents of martyred students continue to grieve. They believe that their children died for a greater purpose than their own lives. Perhaps this is why their children refused to listen when they begged them to stay at home. Mahmudur's mother watched her son walk out the door, unable to stop him. Her grief almost did not allow her to speak, but she says, "Had I known this calamity was befalling me, I would have confined him to the house."

Every day, these parents sit with the anguish of absence, tears that come unexpectedly. They imagine how their children may have lived. Kulsum Begum, mother of 17-year-old martyred HSC examinee Nafisa Hossain Marwa, who was killed on August 5, 2024, spoke of her daughter's dreams with tears in her eyes. "Nafisa wanted to become a photographer or graphic designer," she shares. "She dreamed of buying land and building a house with her own earnings and mine."

The parents of July 2024 still hope. I took hope that one day they will see a country worthy of their loss. A country that their children believed in.

**The names have been changed upon request privacy*

NOTICE BOARD

BRAC University launches programmes to commemorate the July-August Mass Uprising

On July 16, BRAC University inaugurated a series of programmes at its Merul Badda campus in Dhaka to commemorate the mass uprising that took place in Bangladesh the previous year.

The events included an exhibition of photographs, artworks, and videos; the publication of an exhibition catalogue; musical performances; discussions reflecting on the memories of the uprising; a prayer for the martyrs; and engaging social media posts and videos. Additionally, the student club organised a graffiti project in collaboration with the Ministry of Cultural Affairs.

The commemoration began with members of the student club Monon performing the national anthem at the Exhibition Gallery. A prayer led by Professor Dr Md Golam Samdani Fakir, Director of the Learning and Teaching Innovation Center, sought salvation for the souls of those who sacrificed their lives during the uprising.

The exhibition, titled "Red July", was inaugurated by Vice-Chancellor Professor Syed Ferhat Anwar and opened at the Exhibition Gallery. It showcased over 100 photographs highlighting the contributions of BRAC University students, faculty members, and staff during the uprising, along with student artworks inspired by the spirit of the July-August events.

Videos were screened, featuring footage captured in July of the previous year, which depicted students taking to the streets and staging demonstrations in front of the campus. This exhibition will remain open until August 5.

Members of the BRAC University Cultural Club performed patriotic songs, accompanied by faculty and staff, marking this significant event. Following the performance, a discussion was held, focusing on the spirit of the July-August mass uprising and honouring the contributions of the BRAC University community. Professor Syed Ferhat Anwar interacted with students who were seriously injured during the uprising.

In a video message, Registrar Dr David Dowland, currently on an official visit to China, emphasised the importance of leadership in today's society. He remarked, "There has been much discussion about youth leadership, and your generation must step up to lead. Leadership involves making thoughtful, sustained contributions to society, grounded in humanity, compassion, and the desire to uplift others."

Addressing the audience as the Chief Guest, Professor Syed Ferhat Anwar urged, "We must rise above all challenges and love our country. Upholding the ethos of BRAC University, we need to work together to serve humanity. Many sacrificed their lives during the July uprising so that we could carry forward their dreams. It would be an injustice to those martyred if we do not fulfil that vision."

The discussion also included contributions from Treasurer Ariful Islam; Director of Communications Khairul Basher; Acting Dean of the School of Pharmacy Professor Yusuf Haider; Proctor Rubana Ahmed; Acting Registrar Farhan Haq; Director of Operations Sajedul Karim; deans and department heads, administrative staff, teachers, and students, including two who lost vision in one eye due to shotgun pellets. Tahsina Rahman, Joint Director of Student Life, moderated the discussion.

A compilation of the exhibition's photos and artworks will be published online in a catalogue. Hard copies will be distributed to relevant individuals and organisations and archived for future reference.

Throughout the month, BRAC University will share posts and videos provided by the University Grants Commission of Bangladesh and the Ministry of Education on its official Facebook page. Additionally, two faculty members will be interviewed by leading newspapers to discuss the uprising and the students' contributions, with these interviews featured on BRAC University's social media platforms.

On July 24, members of the BRAC University Art and Photography Society will participate in a graffiti and artwork competition along the road connecting the Teacher-Student Center to Doyel Chattar at Dhaka University.

NSU holds talk on "The Security Code for This Century: Priorities for a New Era"

The School of Humanities and Social Sciences (SHSS) at North South University (NSU) organised a talk on "The Security Code for This Century: Priorities for a New Era" on July 17.

The session was held at the NSU Syndicate Hall as part of the NSU SHSS Distinguished Lecture Series. The keynote speaker was Major General A N M Muniruzzaman (Retd), President of Bangladesh Institute of Peace and Security Studies (BIPSS). The session was chaired by Professor Abdul Hannan Chowdhury, the Vice Chancellor of NSU, and the concluding observations were provided by the moderator, Professor Abdur Rob Khan, the Treasurer and Pro-Vice Chancellor (In-charge) at NSU.

Professor Md Rizwanul Islam, Dean of the SHSS at NSU, commenced the discussion with the opening remarks, where he expressed gratitude to the distinguished guest for gracing the occasion with his presence. Additionally, he pointed out the critical importance of understanding and adapting to the dynamic concept of security with a holistic approach in the 21st century.

Major General A N M Muniruzzaman (Retd) began by stating that a new security code for the 21st century requires a fundamental shift in how we conceive of and address threats. He urged that moving beyond traditional

state-centric, military-focused approaches to a more comprehensive, interconnected, and adaptive framework is essential. This involves a fusion of technology and warfighting, emphasising proactive prevention through predictive models and continuous learning. Key aspects include software-defined open architectures for rapid upgrades, and interoperability through civilian-military fusion and global collaboration, leading to an information overload of misinformation, bringing us to new heights of vulnerability. He further emphasised human-centric security to abide by ethical use of technology, fostering public trust.

During the Q&A session, faculty members engaged with the guest speaker on the role of advanced technologies like AI/ML, robotics, and quantum computing in modern defense, how emerging modern systems are enabling new forms of warfare, the rise of paradigms such as multi-domain, hybrid, and cognitive warfare, and the necessity of network-centric warfare (JADC2) and advanced defense systems. They also criticised the complexities and lack of cyberspace investments and implementation in the context of Bangladesh.

Professor Abdur Rob Khan observed that the exchange of ideas encouraged a better understanding of the complex interplay between technology, strategy, and human factors in shaping the future of security. Professor Abdul Hannan Chowdhury concluded the session by highlighting the imperative for academic institutions to contribute to the discourse on national and international security, commending the timely and insightful discussion. He further added that there are gaps in the integration of AI in medical systems, defence, and educational institutions in Bangladesh, raising national security concerns. The memorable event concluded with a Crest Handover Ceremony, honouring the esteemed guest with a token of appreciation.

INTERVIEWS

David Dowland on BRACU's first PhD programme and the significance of equitable exchange

ABIR HOSSAIN

PHOTO: **ORCHID CHAKMA**

Bangladesh stands at a crossroads. While it is making progress across many fronts, there are issues that continue to persist. The disparity maybe attributed to many factors. However, one of the most significant ones is the chasm in education, particularly in the realm of development.

To that end, the latest PhD programme, offered in collaboration between BRAC University (BRACU) and SOAS University of London, is in the field of political economy of development. Not only is this degree the first of its kind, but it also aims to nurture a new generation of scholars.

To understand what this prospect means to BRAC University, Campus sat down with Dr David Dowland, the Registrar of BRACU, to get his insight into the possible challenges that the university could face in offering such a programme, the state of academia in Bangladesh, and what pursuing a doctorate really entails.

Campus (C): What excites you about the idea of BRAC University becoming the first private university in Bangladesh to offer a PhD programme?

Dr David Dowland (D): One of the things we've been asked a number of times is the significance of a private university offering a PhD for the first time. It was high time for this to happen. To some extent, the fact that we're able to award a PhD is a sign of the coming of age of some of the private universities here. What's really vital for Bangladesh is that all universities work together in the interest of the country.

PHOTO: **COURTESY**

Another thing that is very exciting about this particular PhD scheme is that it signals a shift in the kinds of partnerships on offer. Many of the international partnerships that have traditionally been offered are not equitable. Something that SOAS University of London believes in very much, which attracted us, is that you can have a genuine exchange in your partnership. They realise Bangladesh has huge reserves of knowledge and expertise in terms of tackling big issues. So, it's really important that insights from the global South are part of the world discourse. Both institutions awarding the PhD together as genuine, equal partners is a very exciting prospect.

The fee for this PhD programme – GBP 5,515 per year – is the other aspect. This PhD scheme is really flexible. You can do it without leaving Bangladesh by hybrid learning, you can go to London, or you can mix it, but the cost is actually viable for people. We don't yet have scholarships. However, we're going to try to raise some money to be able to offer it. Additionally, we've got lots of faculty members who don't have doctorate degrees but need them. This is a way for us to start addressing that.

C: What are the major challenges that you think the university will have to face?

D: One of the challenges a lot of people point to is how we can maintain quality. SOAS has a very long track record of running PhDs with a robust quality assurance system, which we're going to be using. Before SOAS agreed to a partnership with us, they also did their due diligence to ensure that we were an institution they'd want to work with. We've also had a partnership with them for over 10 years.

One of the challenges that we do need to work on, however, is scaling up into other subject areas and building the capacity.

C: Why is the PhD programme centred around the field of development studies?

D: The field of development studies is about how to improve countries, make them more efficient, and deal with issues such as climate change, poverty, and inequality. This is something BRACU has been working on for years. So, we have expertise in this field that is recognised internationally and has significant partners to work with in the area as well. It is a crucial subject. All big social issues that Bangladesh is facing can be categorised under development studies. Even SOAS, which has huge expertise in this area as well, has a profound interest in Bangladesh and South Asia.

C: Is a PhD programme for everyone? Who do you think should enrol in such programmes in the first place?

D: One of the obvious target markets for a PhD is, of course, people who want to be academics. So, you basically need to have one if you want to have a serious academic career. But interestingly, a lot of people who pursue it don't go into academic life; they go into other areas instead. The types of PhDs have diversified over the years internationally. We've ended up with work-based PhDs of various kinds as well as doctorate degrees in the arts. Many of these will be addressing very current issues in business and industry. So, there's quite a diversity there.

Is a PhD for everyone, though? Certainly not. It's a really big commitment. It takes over your life for several years, and it's costly. It is also costly in terms of opportunities to pursue other endeavours for a while. Quite often, people who pursue PhDs just have a thirst, really. They want to examine a problem or an issue and really get into it. They hope it's going to have some practical impact as well.

C: What do you think the end goal should be when one is pursuing a PhD?

D: One of the personal goals is personally determined. It is important that you get some sense of satisfaction. There's so much pressure now for academics to publish any number of publications to get promotion or recognition. But how many of these publications are useful is one of the questions a lot of them think about.

For Bangladesh, there is a deficit in research. Building up Bangladesh's own expertise in research areas that will be of some national use needs to be a part of the end goal here.

C: PhD holders are expected to contribute to original research. However, the research sector in Bangladesh isn't nearly as good as many other countries. What do you think needs to change here so that PhD holders can commit to Bangladesh-centric research work within the country?

D: People have to see that there are career routes that are designed in such a way that they get opportunities for good career progression; otherwise, they will want to go elsewhere. There also needs to be time for research to be done. If you're pushed to be teaching the whole time, you don't have the time for research, which can be demoralising as well.

Another thing that matters very much is that there's collaboration between different types of universities. If there is collaboration, you can begin to build a research infrastructure in the country. We need to think about subject areas that have a great interest in the country's future. One or two universities working on these areas won't be enough. You need to have a national infrastructure for research. There are also lots of bureaucratic issues nationally. There always have to be rules, of course, but it can be difficult for people if they keep running into all these obstacles.

I think if you're a young researcher, you're looking for a place that's going to be really stimulating. If you've got that kind of environment developing here, people are more likely to stay.

SKILLS

A GUIDE TO self-studying Machine Learning

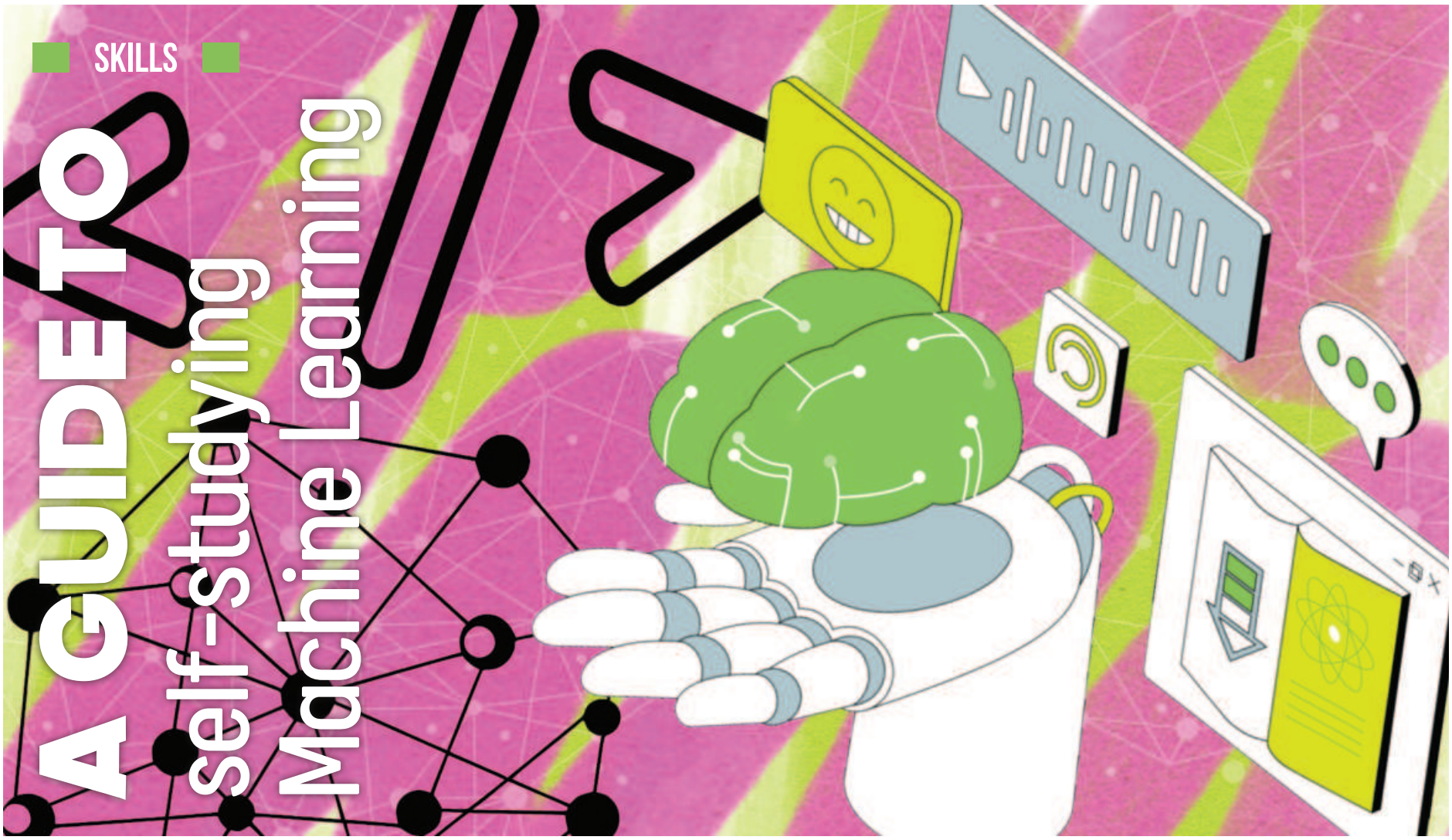


ILLUSTRATION: **ABIR HOSSAIN**

BIPRA PRASUN DAS

Over the past decade or so, few fields have grown as explosively as Artificial Intelligence (AI). One of the most important domains of AI is Machine Learning (ML) – a branch of AI that involves enabling computers to learn patterns and make decisions from data, without being explicitly programmed for each task.

From diagnosing diseases based on medical scans, predicting stock trends, filtering spam emails, to training chatbots like ChatGPT, ML has a wide range of applications. Self-learning ML can sound like a very daunting challenge. With a bit of patience and consistent effort, however, it is very much possible. It must be noted, though, that everyone's learning pattern is different, and it is important to figure out what works best for you.

Firstly, you must become fluent in Python. Begin by installing the latest version of Python and setting up a code editor such as Visual Studio Code. Familiarise yourself with fundamental concepts such as loops, functions, data structures (lists, tuples, dictionaries), and list comprehensions by working through concise tutorials on resources like W3Schools.

Once you feel confident enough, you can spend some time building small projects to apply your knowledge. A good place to look for beginner projects is the GeeksforGeeks website. On a side note, it is important to have a solid grasp of some maths concepts. For probability and statistics, you can refer to the book *Probability and Statistics for Engineers and the Scientists* by Anthony J Hayter and videos from *The Organic Chemistry Tutor* on YouTube.

Next, for Neural Networks, *Khan Academy's* "Intro to AI" playlist and *3Blue1Brown's* "Neural Network" playlist should cover everything you need to know. For Linear Algebra, the book *Elementary Linear Algebra* by Howard Anton and Chris Rorres is a good resource, alongside *3Blue1Brown's* "Linear Algebra" playlist on YouTube if you are more of a visual learner.

Now that we have covered the fundamentals, there are some libraries that will make your coding experience easier. Libraries are already written pieces of code that you can take and use as your own. Install packages via pip and then shift your focus to the following. Pandas for manipulating tabular data; practice loading, cleaning (removing empty rows), reshaping, and summarising datasets. Additionally, you can opt for NumPy for numerical operations and matrix manipulations, which is the backbone of most ML computations. And finally, you may use Matplotlib to generate informative graphs, turning abstract results into visual stories.

A good way to begin is by following hands-on tutorials. Daniel Bourke's TensorFlow YouTube series is beginner-friendly and highly practical. Andrej Karpathy's "Neural Networks: Zero to Hero" breaks down how neural networks work and helps you build them from scratch. Start with basic models like a simple neural network.

A good start is revisiting W3Schools or other concise tutorials for basic syntax. Then, download a classic dataset (for example, the Iris flower dataset on Kaggle) and practise a full pipeline: load the data, clean it, compute summary statistics (mean, mode), slice and reshape arrays, and produce clear visualisations. Give yourself some time to become proficient at this. After some time, you should be comfortable reshaping real-world data with Pandas, performing array operations in NumPy, and making charts that provide insights about your data. When you can handle these tasks without guidance, you'll be poised to tackle the core of machine learning.

To do that, you'll need to use a machine learning framework. The two most popular options are TensorFlow and PyTorch. These are powerful libraries that make it easier to create and train machine learning models without writing every algorithm from scratch. Both frameworks are excellent, and they offer the same core functionality.

A good way to begin is by following hands-on tutorials. *Daniel Bourke's* TensorFlow YouTube series is beginner-friendly and highly practical. *Andrej Karpathy's* "Neural Networks: Zero to Hero" breaks down how neural networks work and helps you build them from scratch. Start with basic models like a simple neural network. As you go through the code, pause and look up what each line does. This might mean asking ChatGPT, reading documentation, or watching quick videos to understand the maths and logic behind each concept. Other good resources are: Andrew Ng's Machine Learning on Coursera (Free), Andrew Ng's "deeplearning.ai" course on Coursera (Paid), Fast.ai Deep Learning Course (part 1) (Free), Fast.ai Deep Learning Course (part 2) (Free).

As for books, the most popular ones are *Artificial Intelligence – A Modern Approach* and *Hands-On Machine Learning with Scikit-Learn and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems.*

Once you have made it this far, you can start by applying your knowledge to various projects. You may find ideas for projects in GitHub's project-based-learning repository. Other resources are Huggingface and Google Colab.

Once you have learnt basic to intermediate ML, you can now choose to specialise in domains like Natural Language Processing (NLP), Generative AI, Computer Vision, etc. However, all of that is beyond the scope of this article. Learning ML is a process that can be both challenging and rewarding. With the right approach and understanding of what works for you, it is possible to self-study Machine Learning.

Bipra Prasun Das studies Computer Science and Engineering at North South University