Berlin School of Business & Innovation Issue 19 — 23.09.2022

BSBI Gazette

Editor: Professor Dr Kyriakos Kouveliotis / **Associate Editor:** Dr Farshad Badie berlinsbi.com

Editorial

Professor Dr Kyriakos Kouveliotis

Provost & Chief Academic Officer,
Berlin School of
Business and Innovation

For this week's Editorial, I would like to share an inspirational poem by Rabindranath Tagore.

Ekla Chalo Re'

If they answer not to thy call walk alone
If they are afraid and
cower mutely facing the wall,
O thou unlucky one,
open thy mind and speak out alone.

If they turn away, and desert you when
crossing the wilderness,
O thou unlucky one,
trample the thorns under thy tread,
and along the blood-lined track travel alone.

If they do not hold up the light when the night
is troubled with storm,
O thou unlucky one,
with the thunder flame of
pain ignite thy own heart,
and let it burn alone.

Photo of the Week

Inspirational Quotes

Never let the fear of striking out keep you from playing the game.
— Babe Ruth

You have brains in your head. You have feet in your shoes. You can steer yourself any direction you choose.
— Dr Seuss

I never dreamed about success, I worked for it.
— Estee Lauder

You can never cross the ocean until you have the courage to lose sight of the shore.
— Christopher Columbus

“

An unexamined life is not worth living.

— Socrates

Article of the Week

Pickl.ai

6 Prerequisites for Starting Learning Machine Learning

In order to learn Machine Learning Being thorough with probability and its applications A good knowledge of statistics, building on the first point Knowing linear algebra and elementary algebra An understanding of trigonometry Working knowledge of calculus Dexterity with a programming language
If you do not know any of the above, make it a point to learn them thoroughly so that you do not face any roadblocks while going through any given course in Machine Learning.

What is Machine Learning?
The ability of machines to perform complex tasks without being explicitly programmed to do so is termed as Machine Llearning. It is a multidisciplinary domain that lies at an intersection of subjects like computer science, algebra, statistics and calculus. It is a subset of artificial intelligence, a field of study that has fascinated humans for decades now.
Abbreviated as ML, it encompasses various techniques and consists of a wide variety of tools for specific purposes. Regression, classification, deep learning, random forests, neural networks and the list goes on and on. It is said to have over 14 types even though this is contended. There is much more agreement on classifying it into three main subtypes: (A) Supervised Learning, (B) Unsupervised Learning (C) Reinforcement Learning.
Machine Learning is lauded for making data useful at a large scale. While companies use it as a tool to improve services for their customers and to maximisze profits and fulfill business goals, scientists use it for solving complex problems and discovering novel solutions that enrich human life.

Where is Machine Learning used?

It has come to occupy an important position in the 21st century lifestyle, with almost all the apps and technical services we use utiliing it in one way or the other. From the curated feeds on platforms like Facebook, Instagram, Quora and Reddit to product recommendations on websites like Amazon and Flipkart, Machine Learning and its uses can be found everywhere. Your favourite search engine Machine Learning in bringing you credible and useful search results. Navigation services use it to provide reliable traffic predictions. Weather forecasts are fast abandoning large and cumbersome models from meteorological science and replacing them with ML-based approaches. The so-called tools of the future like language translators, text-to-speech engines, computer vision and self-driving cars all rely upon it. All in all, Machine Learning pervades our everyday life and is widely recognised as a changemaker that is already enhancing our lives.

Why do people study Machine Learning?
Just like the industrial revolution and the age of the internet, Machine Learning has taken the job market by storm. The sheer number of applications for Machine Learning roles has led firms to scramble for professionals who are skilled and have domain expertise.
The global Machine Learning market is expected to grow to $209.91 billion by 2029, at a compounded annual growth rate of 38.8%, considering 2022 as the base year. A lot of opportunities are opening , across tech companies, banking and financial services organisations, new-age start-ups and legacy giants alike.
This has led to a proliferation in degree programmes and courses that claim to make anyone an exponent of Machine Learning. However, this is not completely true as there are various criteria one needs to meet in order to learn Machine Learning satisfactorily. These are listed below.

Necessary Prerequisites for Machine Learning
Being a multidisciplinary field, ML is highly technical. There are six broad areas where expertise is needed to build good fundamentals for a career in Machine Learning.

High-school algebra and linear algebra
Math is used prodigiously in Machine Learning. Therefore, having a good grasp on algebra is essential. The focus points include linear equations, logarithms, tensors, matrices and their multiplications and functions.

- Data is represented in the form of matrices/tensors
- There is a wide usage of transformations for ensuring that models work
- Representation of relations in the form of equations is extremely common.

Elementary trigonometry
While triangles (and geometry) aren't actively related to Machine Learning, trigonometry basics are specifically required for understanding a specific kind of activation function called *tanh* in neural networks, which in itself is quite an advanced topic. Nevertheless, a strong grasp of trigonometry is an indication of having sound basics, which will definitely hold a new learner in good stead.

Probability
Probabilistic models and the theory of chance is considered to be a bedrock for statistics, which in turn is fundamental for Machine Learning. The notion that outcomes need not be discrete goes a long way in the domain and therefore, needs to be internalised.
Starting from simple probability, one needs to inculcate concepts as advanced as conditional probability and Bayes' theorem. You will be learning more with time but these are the ground basics that are necessary.

Statistics
Building on probability and combining it with the good old mean, median, mode, variance standard deviation etc (summarized aptly as "measures of central tendency"), knowing the types of distributions is needed the set.
The normal distribution and the Student's T are the ones that greet novices. One gets to work with these in detail, while building a clear intuition of how data is represented and found to work. Hypothesis testing is an essential, which naturally leads on to z-score, t-score etc., and confidence intervals.

Calculus
Anyone with a background in science or engineering will tell you that calculus is one tool that forms a mainstay of many of the theoretical aspects of their work. The same goes for Machine Learning in general and deep learning, in particular.
It is used scantily at the basic level. Knowing *gradients* and *partialderivatives* allows you to make sense of backpropagation. While you can make do without knowing it well (Andrew Ng says so), knowing it can help build a deeper understanding of what happens under the hood.

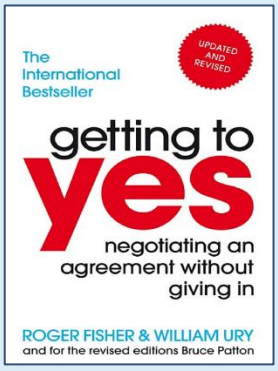
Programming Language
Machine Learning has flourished mainly because of the capabilities provided by powerful programming languages like *Python*. While you can go with any language you deem fit, Python is the choice. It is used prodigiously for its inclusion of a large number of libraries/modules - as reflected by its *batteries-included* motto.
While you do not need to be a coding whiz, you definitely need to be able to understand the basics of variables, data types, functions and using libraries. Eventually, you'll be working with everything ranging from insightful plots to deep nets, which is to say that you'll need to be open to learning along the way.

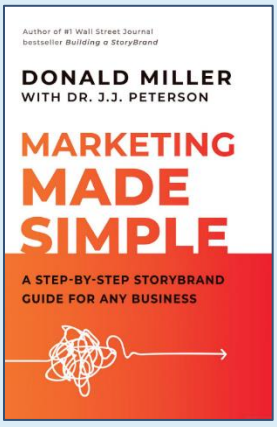
Source

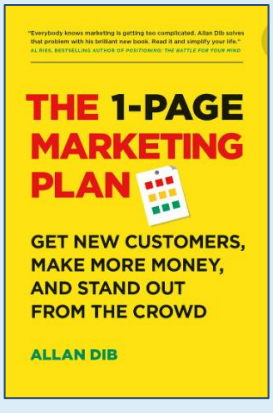
Websites of the Week

- On research engineering
- What operation management does?
- Functions of marketing logistics
- AI and the future of consulting
- Leadership theories and styles

Books of the Week



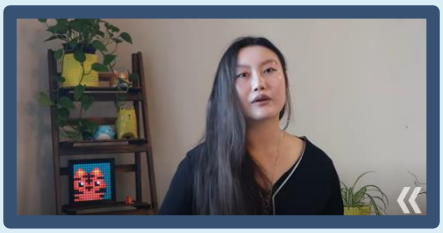




Videos of the Week

The skill of self confidence

The power of self-belief



How I would learn data science in 2022

Learn how to learn

Reach beyond your limits by training your mind

Week in Review

All you need to know about everything that matters

Flavio Andrew Santos
Lecturer

Areas of expertise:
Behavioural Economics in Tourism, Behavioural Pricing, Decision Making, Revenue Management

TOURISM & TECHNOLOGY

Event: Tourism and Technology Summit. Tourism and Technology Summit is an annual summit dedicated to the digital transformation of the Tourism, Travel and Hospital industry in Africa.

Technology has always been an important component of the global economy. It has however become a strategic imperative due to the emergence and the rise of the tech-savvy, connected consumers across global and national socioeconomic landscapes and sectors Even though this has immense potential to create value, unlock broader societal benefits and change negative perceptions about Africa, its adoption in many African tourist destinations lags compared to international good practices. Contextually, this challenge differs from country to country, but it remains a major inhibitor to a competitive African Tourism Industry and that is the gap Tourism and Technology Summit Africa aims to close

You can register for FREE here

Dr Duraisamy Balaganesh
Lecturer

Areas of expertise:
Database Systems, Artificial Intelligence, Li-Fi Technology

BLOCKCHAIN/DATA SCIENCE

Blockchain technology may provide reliable data at no charge where all the decision-making depends equally on all connected nodes and hence, no single point of failure. Sharing of data within nodes imply a significantly higher amount of data within the chain, which can be fed directly and freely to machine learning models without any third-party assistance. Using Blockchain Protocol Stellar used to scrub down the master audience set based on relevancy. Real-time ad verification and fraud protection were achieved at scale resulting in a high view ability and engagement for the served assets.

The world is generating 2.5 quintillion bytes of data every day. However, it is not only the quantity of data but also the quality of data that matters too for driving insights. The decisions derived from data are as good as the quality of the information itself. In order to obtain an accurate result for a particular model, the data must be pre-possessed to remove unclean, redundant, irrelevant and noisy data. The ultimate aim of pre-processing data is to clean data, extract features from data, and normalise the data. Blockchain solutions can add veracity to the 3Vs of big data (volume, velocity and variety) and bring a high level of reliability and trustworthiness by addressing issues like human error, incorrect information, data duplication and more at the source. Incorporating Blockchain databases in machine learning means having shared, relatively much more significant and safer data, which in turn, means better models with better throughput, therefore making more efficient and reliable systems. Brands could reach out to a sharply defined audience without invading their privacy and ensuring that compensation of data goes directly to data providers.

Dr (MD) Ahmed ElBarawi
Academic Support Manager

Areas of expertise:
Orthopaedic Surgery, International Trading (Medical Supplies), Agribusiness

AUTISM

According to a study published in Nature Genetics, researchers have discovered 72 genes that are strongly associated to Autism Spectrum Disorders (ASD) and more than 250 other genes with a strong link to ASD. The results were from a partnership of five research organisations whose work included comparing ASD cohorts with independent cohorts of people with developmental delay or schizophrenia. The findings were based on examination of the genetics of more than 150,000 people. According to co-senior author, Joseph D. Buxbaum, PhD, Director of the Seaver Autism Center for Research: "We know that many genes, when mutated, contribute to autism," and this study: "brought together multiple types of mutations in a wide array of samples to get a much richer sense of the genes and genetic architecture involved in autism and other neurodevelopmental conditions."

Source: More Than 70 Genes Strongly Linked to Autism Spectrum Disorders - *Medscape* - August 2022

Professor Dr Ahmad Farhat
Lecturer

Areas of expertise:
NGOs and Non-Profit Management, Organisational Behaviour and Psychology, Coaching, Training and Development

PSYCHOLOGY

According to the Global Organisation of Humanitarian Work Psychology's newsletter report, Purdue University founded an initiative a few years ago called the 'Purdue Identities Project' (PIP). This initiative aims to answer the question of what might happen when an individual hides a part of their identity or what they represent? In other words, who are they really? The project uses evidence-supported findings from diversity and identity management to enhance the diverse climates at the university. The invisible or hidden identity includes a set of backgrounds, experiences and other characteristics that may not always be apparent or visible to others. Yet, they affect the students, staff and faculty's lives and everyday interactions. The PIP initiative aims to meet those targets through educational and training curriculum development, working on campus resource assessment and development and producing Video and media awareness campaigns designed to bring light to the common issues related to the identity and diversity of Purdue's campus.

Find out more information about PIP here.

Mostafa Gaballa
Lecturer

Areas of expertise:
Tourism, Hospitality, Travel

TOURISM

The World Tourism Organisation (UNWTO) and the State Secretariat for Economic Affairs of Switzerland (SECO) have joined forces to launch the first National UNWTO Students' League of the year.

The Student's League is designed to promote local talent development and work with young people to design solutions for some of the most pressing challenges facing tourism. Throughout the competition, students will learn from top tourism experts, both in their own countries and internationally. The participants' efforts will be assessed by an international jury, and, after a first national level round, the league will conclude with a Grand Global Final. For more information click here.

With the first two editions welcoming the participation of around 1,000 students worldwide, UNWTO and SECO are now partnering to foster young talent development in Switzerland through the first National 2022 UNWTO Students' League- Switzerland.

As in past years where students from middle school to master's degree level created innovative sustainable solutions for global hot topics such as managing mass tourism, reducing single-use plastics in accommodation and destinations, fostering rural development through tourism, creating digital communication solutions, inclusiveness and many more, students from across Switzerland will now have a chance to prove why they need to be listened to by participating in the 'Off the Beaten Track' Challenge.

Athanasia Kairou
Academic Officer

Areas of expertise:
Educational Psychology, Systemic and Family Therapy, HRM, Coaching

PSYCHOLOGY

Adolescence is an extended period of time during which many important biophysical, mental, social and emotional changes take place. It has been shown that in adolescence, the rates of both depression and low self-esteem are increased. In this context, body image becomes a key factor for adolescents' psychological survival, both in the school context and in the wider context of their social life. According to recent research, the majority of teenagers are self-aware. Almost two-thirds of parents say their children are insecure about some aspect of their appearance, and one in five say their teens avoid scenarios like being photographed because they're too self-conscious. Weight, skin conditions like acne and hair were the most common causes of insecurities while fewer parents listed height and facial features. Nearly one in five parents of girls also said their child was self-conscious about their breasts (see here).

Poor self-image and insecurity can lead to consequences that last well into early adulthood. Sleep problems, aggression, withdrawal, clinical anxiety and depression are among the issues that insecure teenagers struggle with the most (see here).

Within this context, a supportive family environment plays one of the most important roles in managing this phenomenon. Parents can create a safe communication environment where teens can share their thoughts and worries. Both secure attachment and a strong family bond lead a child of any age to psychological well-being (see here).

Invest time in activities you can all do together, prioritise family time, and your teen will be able to create their own healthy and strong personality.

Dr Konstantinos Kiousis
Lecturer

Areas of expertise:
Human Resource Management, Leadership, Counselling & Career Guidance, Modern Educational Approaches

SPORT FINANCE

Barcelona came out of a difficult situation where the football club was technically bankrupt, as in October 2021, it reported $1.56 billion of debt. There is good news in this area for the club though. The Catalan giant have announced this week profits of €98 million for last season and a turnover of €1.017 billion. There are also forecasting profits of €274 million for the 2022-23 season and that is why the board of directors has approved an operating budget of €1.255 billion.

The current financial state of the club may put them in a solid position moving forward as it's the first time that the club has managed to post a profit since the pandemic. The positive announcement came after a frantic summer of activity at the Camp Nou, as Barca famously activated a series of financial levers which brought in around €700m in funding. Those moves allowed Barca to embark on a summer spending spree and bring in players of a high level to suit up a better team. In addition, the Catalan football club offloaded a host of players in the summer, in order to help the wage bill. Barca has to keep on reducing their wage bill, as next year the club will have no financial levers. They will have to reduce their salary limit and wait to see what may arise from the further sale of players. It surely will be very difficult for them to maintain this situation next season but there is hope for the future.

For more information about the financial status of Barcelona FC, please visit the following links: Link 1, Link 2 and Link 3.

Dr Palanivel Rathinasabapathi Velmurugan
Lecturer

Areas of expertise:
Finance, Human Resource Management, Mixed Research Methodology

FINANCE

Swiss central bank hikes interest rates by 75 basis points.

The Swiss National Bank on Thursday raised its benchmark interest rate to 0.5%, a shift that brings an end to an era of negative rates in Europe.

The 75-basis point hike follows an increase to -0.25% on June 16, which was the first rate rise in 15 years. Prior to this, the Swiss central bank had held rates steady at -0.75% since 2015. It comes after inflation in Switzerland hit 3.5% last month — its highest rate in three decades. The bank said raising the policy rate was "countering the renewed rise in inflationary pressure and the spread of inflation to goods and services that have so far been less affected." It added that further policy rate increases "cannot be ruled out."

The Swiss franc dramatically weakened against the dollar and euro following the rate hike. At 9:15 AM GMT, the dollar was 1.24% higher against the Swiss currency, and the euro was 1.6% higher.

Most recently, Sweden's central bank increased its interest rate to 1.75% on Tuesday 20 September. The 100-basis point hike came as the Riksbank warned, "inflation is too high."

The European Central Bank (ECB) moved above zero when it raised rates to combat soaring inflation on Thursday 8 September. The ECB could continue to increase rates, but future rises won't be as drastic as the most recent 75-basis-point hike on Friday 9 September, according to ECB Governing Council member Edward Scicluna.

Source: www.cnbc.com

Mina Shokri, PhD Candidate
Lecturer

Areas of expertise:
Education, Applied Linguistics, Multilingualism, Pragmatics

EDUCATION

Today, more girls than ever go to school. However, despite progress, women and girls continue to face multiple barriers based on gender and its intersections with other factors, such as age, ethnicity, poverty and disability, in the equal enjoyment of the right to quality education. This includes barriers, at all levels, to access quality education and within education systems, institutions, and classrooms, such as child marriage, early and unintended pregnancy, gender-based violence against women and girls, lack of inclusive and quality learning environments and inadequate and unsafe education infrastructure, including sanitation and poverty.

The international community has recognised the equal right to quality education of everyone and committed to achieving gender equality in all fields, including education, through their acceptance of international human rights law. This means that states have legal obligations to remove all discriminatory barriers, whether they exist in law or in everyday life, and to undertake positive measures to bring about equality, including in the access of, within and through education.

For further information please check this website.

Konstantinos Skamagkas, PhDc
Lecturer

Areas of expertise:
Management and Business Development, Educational Programmes

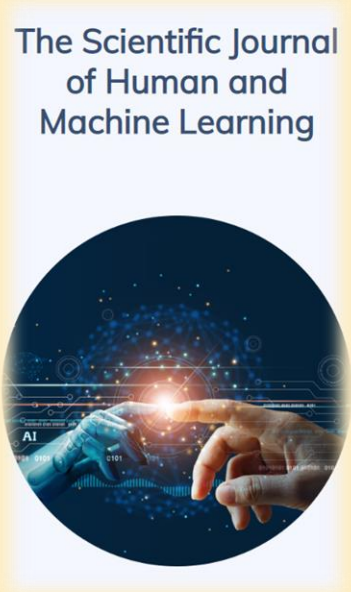
SUPPLY CHAIN MANAGEMENT

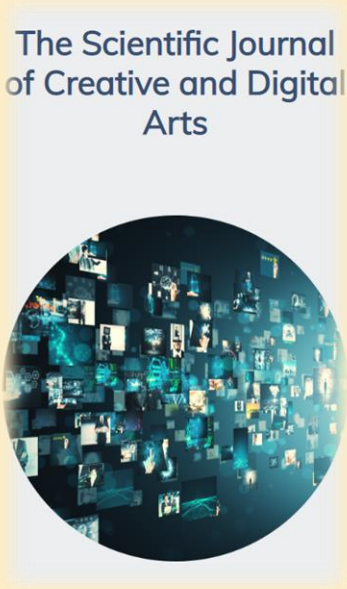
Supply Chain Management – SCOR DS model. The most significant news in global supply chain during the past week was that the Chicago-based Association for Supply Chain Management (ASCM) unveiled a revised, digital version of its Supply Chain Operations Reference (SCOR) model, which describes business activities associated with satisfying customer demand.

The SCOR model, which was developed in 1996, has expanded to include categories like resilience and sustainability, plus new metrics and benchmarks. It's vital to provide supply chain professionals with the most up-to-date competencies to further their skill sets so they can thrive. This new update to SCOR offers a more comprehensive industry standard that empowers organisations to utilise and ensure their supply chains reach their full potential. The new SCOR DS moves end-to-end supply chain thinking from a linear, trading partner orientation to a dynamic, asynchronous supply network that focuses on market drivers, visibility and collaboration.

A fundamental shift from what was a linear model, placing a company between suppliers and customers on either side, changed by adding the Orchestrate to recognise the importance of strategy, business rules, technology and human resources that provide an overarching direction to build a more efficient supply chain. Also, the 'Deliver' was split into 'Order' (customer orders) and 'Fulfil' to give greater detail and emphasis to those activities, practices, and metrics. Finally, the 'Make' became 'Transform', to widen its applicability to more types of manufacturing and service providers.

You can find the link here.





BERLIN SCHOOL OF BUSINESS & INNOVATION