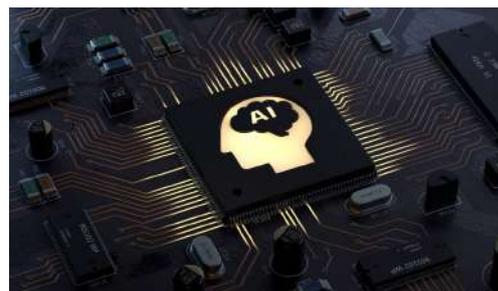
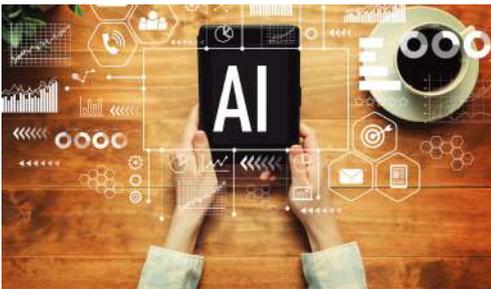


# AI CLUB

*Indira Gandhi Delhi Technical University for Women*



**THE REVOLUTION**

2020-2021

# ALL ABOUT AI CLUB IGDTUW

Breathed into existence by the assiduous perseverance of the organizing student committee, under the patronage of our beloved Hon'ble Vice Chancellor, who herself is an active researcher in the field of AI, **Dr. Amita Dev** and backed by the mentorship of the Faculty Coordinator **Prof. Arun Sharma**, the AI Club of IGDTUW set to sail with a vision to inculcate a profound cognizance of the



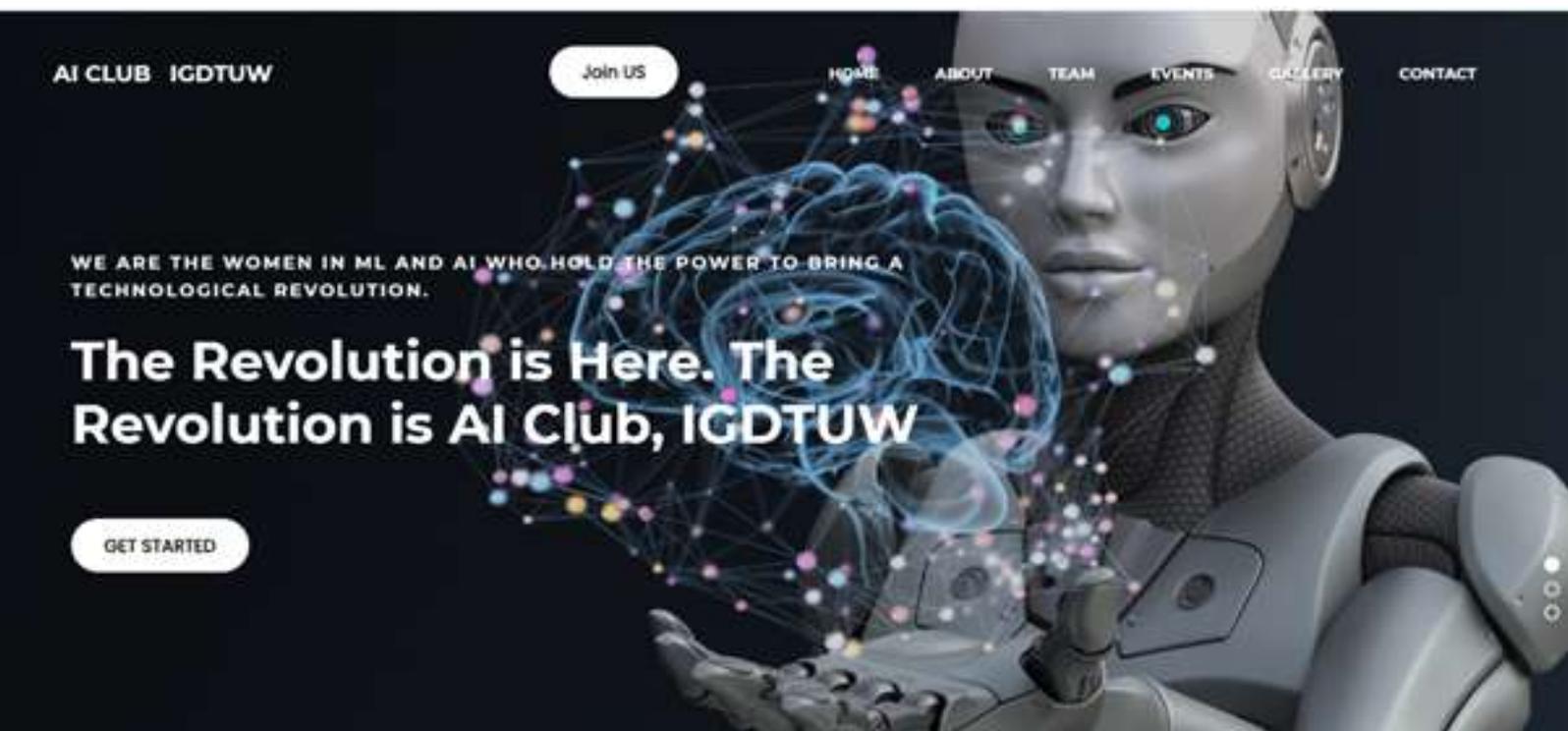
**ground-breaking technologies of Artificial Intelligence and Machine Learning.** We aim to create diverse opportunities for **aspiring innovators** to gain experience and in the practical applications of such trailblazing technologies and to design ingenious and **sustainable innovations**, contributing towards the **revolutionization of** mankind.

The AI Club is a **technical society** with the goal of spreading awareness and knowledge on topics like machine learning, deep learning and robotics. We organize **hackathons, international conferences, trainings, mentorships** etc. in collaboration with reputed multinational companies like **Deloitte, Incubate IND, Amazon, Urban Company, Coding Blocks** among many others.



# LAUNCH OF WEBSITE

The AI CLUB IGDTUW was officially launched virtually on 2nd October 2020 during the Gandhi Jayanti celebrations. It was **launched by Prof. Arun Sharma, Examination Dean and faculty coordinator** of the club in the presence of honourable **vice chancellor Dr. Amita Dev, Anveshan CEO V.K. Arora, Deans and HOD's**.



In the event everyone was told about the events that had been organized by the club and the goals which were being aimed by the club. A video on **national hackathon 'HackOverflow'** organized by the club was shown followed by the launch of the official website of the AI CLUB. The website team worked hard to build the website from scratch.

The honourable vice chancellor Dr. Amita Dev congratulated the whole team of AI CLUB and wished the team best for future endeavours.

# SESSIONS



PRESENTS

## AI IN THE CORPORATE SECTOR A CASE STUDY OF URBAN COMPANY

SPEAKERS



**KANAV ARORA**  
Vice President  
Engineering  
Urban Company



**AMISHAPRIYA SINGH**  
Software Development  
Engineer  
Urban Company

**DATE: 3RD OCTOBER**

**TIMINGS: 11 TO 12 NOON**

**PLATFORM: ZOOM**

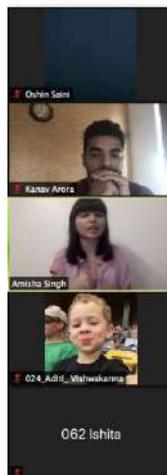
## URBAN COMPANY

Urban Company, formerly known as **Urbanclap**, is one of the few home service companies in the country which cater to almost all the home services. It was established in 2014 by three individuals and the company has now grown to have a **workforce of more than 1200 employees**. The company also has its offices in Australia Dubai and Singapore. The company follows the philosophy of “**Techfirst**” which stands for “**Technology first**”.

We were thrilled to have UC as our partners for the hackathon. We even conducted a **session on 3rd October**, virtually, in which Mr. Kanav Arora, Senior Vice President of Engineering and Ms. Amishapriya Singh, Software Development Engineer, were the speakers. Mr. Kanav joined the organisation almost four years back and today he is a **senior Vice President** leading the **engineering team** of UC. **Amishapriya Singh** is one of our IGDTUW alumni who is currently working as a **SDE at UC**, making us IGDTUW students proud to be studying at such a prestigious university. **Kanav Arora** is the textbook definition of a techie. Throughout his career so far, he has engaged in and built products that stemmed from a personal pain point, and then opened up the technology to the world. They both truly are an inspiration to young budding engineers like us.

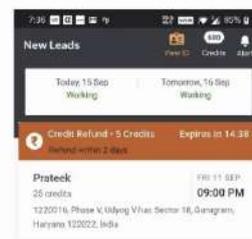
The session was on “**Artificial Intelligence in the Corporate sector - A case study of Urban Company**”. It was a deeply informative and interactive session where Kanav sir and Amisha maam told us about how they use cutting edge technology to develop products providing services to people all across the world! They provided us with the perfect balance of knowledge and experience. We were honoured to host one of the great leaders in Startups for the webinar who explained each concept smoothly.

We were also delighted to have Kanav sir as one of the Judges for HackOverflow, the national AI Hackathon. He was very specific in his questions to the participating teams. He made sure the teams understood the main take away points about their prototypes and tied it to the industry. He even suggested changes in the prototypes presented by the teams which would help them reach a wider audience if they wish to put up their prototypes in the selling market.



### 1. Provider Behaviour

- Provider activity filter
- Provider preferable job location
- Incentivisation of jobs that are less favourable - remote area, low price package etc



## DELOITTE

The AI Club IGDTUW organised an informative session on **4th October'20, on artificial intelligence and machine learning**. The speaker for the session was **Ms. Neeru Monga, HR Manager at Deloitte**. It was an interactive session which aimed at giving insight into how these revolutionizing technologies are the changing the world.



Deloitte, is a Anglo American multinational professional services network, and one of the Big Four accounting organizations and the largest professional services network in the world by revenue. **Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited (“DTTL”), its global network of member firms, and their related entities.**

The session began with the **introduction to ML-AI and their roles in corporate world**. Ms. Monga explained **how AI and robotics is learnt at graduation level is different from the industrial world**. She enlightened the students about the vast expansion of AI in corporate world and it's importance by giving real life examples. Her way of expressing and explaining the things was unique and very easy to understand. The speaker **also addressed the issue of COVID-19 and how machine learning is helping people to gain awareness and take necessary precautions**. She termed it as-"the new normal". The online meetings, classes and appointment with doctors, work from home were possible only because of machine learning. In the end, a QnA session was conducted where students were asked how they can start with ML as a beginner and what are stepping stones of expertise. **After the QnA, the AI club declared its first national hackathon 'HackOverflow'**. A presentation was given by the AI Club enlightening students about its purpose, and various activities being organized. The hackathon was appreciated by the Speaker. The session was ended by the thank you note by host.



The AI Club of IGDTUW in collaboration with IncubateIND conducted a session on features and applications of Git and GitHub with its upcoming, hands-on session on “**Getting Started with Git and GitHub**” by Mr Kaushik Roy, Principal Architect at IncubateIND, where he meticulously steered participants through the concepts of Git and Github, and gradually built our way to proficiency through a profound understanding of foundational basics and utilitarian practice.

AI CLUB IGDTUW  
presents  
Seminar on

# GETTING STARTED WITH GIT AND GITHUB

10 OCT 2020  
4 - 5 PM

BY  
**KAUSHIK ROY**  
PRINCIPAL ARCHITECT  
AT INCUBATEIND

**INCUBATE  
IND**.COM

AI club of IGDTUW collaborated with Incubate IND company for Hackoverflow 2020. Incubate IND provided a complete platform for the Hackathon participant registration as well as hosting the hackathon.

We are grateful to Mr. Rohit Sardana, Co-founder of INCUBATEIND and Mr. Shakti Singh who assisted us in managing the participant details and streamlining the entire process for the organisers as well as the participants, making the hackathon a tremendous success.

By providing a space for the next generation of explorers to discover, create, and work together to achieve collective goals and pursue shared ambitions, IncubateIND provides fertile ground for networking and teamwork.



PRESENTS

# MACHINE LEARNING IN CLOUD

A hands-on session by



**GIRISHA GARG**  
Sr. Technical Trainer  
(AIML Specialist)  
Amazon Internet Services

**24TH OCTOBER 2020**  
**4-5 PM**  
**VENUE: ZOOM**

# amazon

As a pre event to **Hackoverflow**, the nation-wide Hackathon, AI CLUB of IGDTUW brought a golden opportunity for students to get an insight into cloud computing through session on “**Machine Learning in cloud**” and gain vital information on the latest technology in Artificial Intelligence (AI) and Machine Learning (ML).

This session on “Machine Learning in Cloud” was delivered by Ms. **Girisha Garg**, Sr. Technical Trainer (AI/ML) at **Amazon Internet Services**, on **24th of October**, to understand its pivotal breakthrough in ascertaining the ubiquity of groundbreaking technologies of Machine Learning in the contemporary market.

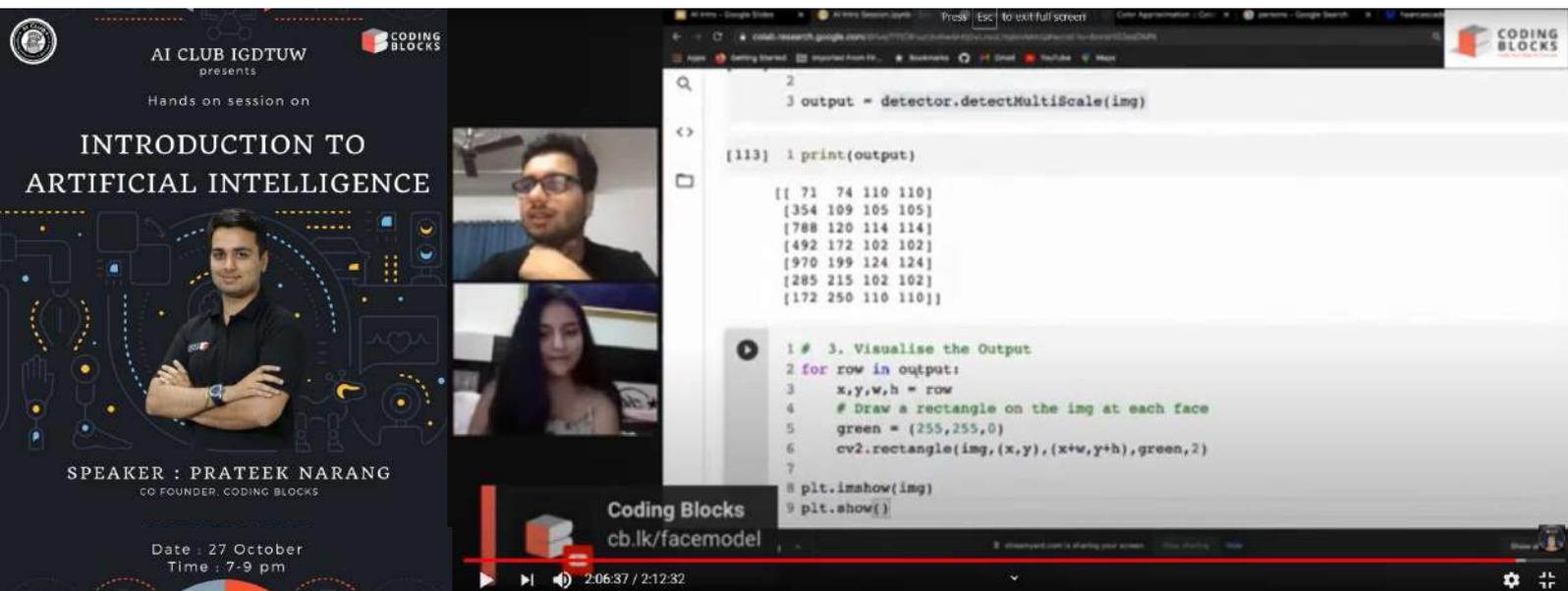
In this hands on session she explained what **machine learning** is and the core idea of **building systems** that have the ability to automatically learn from data and improve the experience without being explicitly programmed. She covered topics like types of problems which can be solved by ML, its libraries, application in the real world, and how cloud in machine learning is the consummate assistance for a real-world business thriving on surging demands, and serves as a one - step destination for the fulfillment of every paramount necessity from minimizing technical infrastructure to making the accessibility and incorporation affordable for developing enterprises. The session culminated by clearing doubts of students and future scope of this technology.

**Amazon Internet Services Private Limited (AISPL)**, an Indian subsidiary of the Amazon Group that undertakes the resale and marketing of AWS Cloud services in India, has achieved full Cloud Service Provider (CSP) empanelment and successfully completed the Standardization Testing and Quality Certification.

# CODING BLOCKS

Coding Blocks in collaboration with AI CLUB IGDTUW conducted a session on '**Introduction to AI**' by **Mr. Prateek Narang, Co-founder at Coding Blocks**. Coding Blocks has been bridging the gap between the quality of skills demanded by industry and the quality of skills imparted by conventional institutes.

Prateek sir is an **experienced code mentor & programmer with a demonstrated history of working in the professional training & coding industry**. He has done his graduation from DTU and completed his **MS(Research) focused in Machine Learning, Deep Learning & AI from Indian Institute of Technology, Delhi**. He's currently working as Software Engineer,L4 at Google.



The session started with the basics of python, required for machine learning algorithms and few image processing concepts were also discussed including how to resize, add gradient and enhance an image.

The **session was beginner friendly** and the concepts were explained through fundamental examples by Prateek Sir. Overall the **session was enriched with new hands-on experience** and have attendees a new **perspective on how AI is one of the most revolutionary technologies in the coming times**.

The **highlight of the session was the face detection project built using open CV using other inbuilt python libraries**. A mini project was also done on the same to promote AI culture which focused on the commands used to detect faces in images.

# HACKOVERFLOW

The AI Club of Indira Gandhi Delhi Technical University for Women organized a Nationwide Hackathon "HackOverflow". The Hackathon aimed to give the students a chance to hone their abilities, display their technological skills and prove their mettle for building inspiring and innovative pieces of technology. **HackOverflow** was a 48-hours-Hackathon, held on 30th & 31st October, and allowed the participants to display their proficiency in domains like Machine Learning, Artificial Intelligence, Robotics and IoT.

With the **Theme: "AI for the Greater Good"**, the hackathon consisted of problems that were truly the need of the hour and tested the participants' abilities.

Projects were reviewed by renowned professors. Rewards like mentorship from industrial experts, cash prizes, exciting goodies and certificates were provided to everyone for their outstanding display.



**Theme 'AI for the Greater Good'**

Over the past decade, rapid advancements made it possible for AI systems to do things we once only dreamed about. However, much of the hype around AI and machine learning tends to focus on its potential for business, productivity, and profits. Perhaps there should be more spotlight on how we can use AI for good. AI has the power to tackle many of the biggest problems on the planet and could make a huge impact on sustainability, our environment, and even humanity itself. The teams were supposed to create apps, softwares, websites, or anything that would create a better world and improve the lives of the people in need.

## HackOverflow Schedule

- Registration open: 9th October
- Registration close: 25th October (9pm)
- Preliminary Round/ Idea Submission
- Results after shortlisting on basis on Proposed Solution: 29th October
- Hacking Period/Technical Implementation: 30 & 31st October 2020
- Final Presentation Round
- Feedback
- Final Result Declaration

## Problem Statement

S. No.	Domain	Statement
1	Robotics	<p><b>Saving human lives:</b></p> <p><b>Background:</b> In the current atmosphere and political climate, wars and natural catastrophes aren't something new to us. What's even harder than the war, is finding and helping all the people and the casualties.</p> <p><b>Problem Statement:</b> For this problem, you either need to create a remote-controlled robot or drone and integrate with image detection/ path detection software so that it understands how to navigate, and how to identify casualties.</p>
2	Robotics	<p><b>Green dream:</b></p> <p><b>Background:</b> With increasing populations, new sustainability and recycling goals and improved technology departments, municipalities across the globe are joining the "smart cities" movement to become more efficient in managing solid waste. The improvement of the urban waste collection service and, in general, the achievement of a more efficient management of the waste, is one of the main challenges that the cities face, especially due to the population growth. Thus, smart waste management is a key factor of smart cities.</p> <p><b>Problem statement:</b> Design a waste sorting robot that can be used at garbage dumps. Rather than needing to have workers sort through garbage, these autonomous robots should be trained using ML algorithms to identify and process the waste based on the type of garbage.</p>
3	Image and Speech Processing	<p><b>Improving face to face communication for the hearing impaired:</b></p> <p><b>Background:</b> Though speech-to-text app helps persons with hearing impairment in communication, this method is often inefficient and inconvenient as he/she has to keep looking at the speech-to-text app on his phone during his communication with hearing persons.</p> <p><b>Problem statement:</b> A solution which can convert speech-to-text automatically and displays the text in a manner such that the person with hearing impairment does not have to keep checking the speech-to-text app on his/her phone during his communication with others.</p>
4	Image Processing	<p><b>Submarine Surfers:</b></p> <p><b>Background:</b> Computer vision produces numerical or symbolic information from images and high-dimensional data. It involves machine learning, data mining, database knowledge discovery and pattern recognition. Potential business uses of image recognition technology are found in healthcare, automobiles – driverless cars, marketing campaigns, etc.</p> <p><b>Problem Statement:</b> You are working on an autonomous underwater vehicle which is navigating underwater avoiding obstacles and achieving targets. In the navigation there comes a gate of which you know the dimensions and color. Bot must pass through it without touching it in order to complete the mission.</p> <ol style="list-style-type: none"> <li>You have to write code for detecting the gate and to know its center in order for the bot to pass through it.</li> <li>You will get the raw images from the camera and you'll have to perform image processing on it and get the results.</li> </ol>
5	IoT	<p><b>Wearable Health Monitoring Device:</b></p> <p><b>Background:</b> Devices that provide continuous monitoring of these patients are very expensive and sensitive and require trained personnel to use them. It is possible for such patients to be followed up continuously with wearable health devices while maintaining their daily lives in the social environment. For individuals with heart disease, the Heart Rate (HR), Heart Rate Variability (HRV) and Body Temperature (BT) values are considered vital signs that must be measured regularly.</p> <p><b>Problem Statement:</b> The idea is to develop an android-based application to monitor HR, HRV and CT parameters for cardiovascular patients who should be under constant observation. The measuring system, which consists of wearable sensors, constantly measures patient signs. Then send the measured signals to the android interface via wireless connection. If the predetermined critical values for the patient are exceeded, the HR, HRV, CT values and also the real-time location of the patient is sent both to family members and doctor as email and twitter notification. The wearable measurement system allows patients to be mobile in their own social environment, allowing them to live their lives in confidence.</p>
6	Machine Learning	<p><b>Disease Detection:</b></p> <p><b>Background:</b> The age of talking algorithms is here. With each passing day, more and more chatbots are being used in healthcare for effective disease analysis. Disease prediction using patient treatment history and health data by applying data mining and machine learning techniques is an ongoing struggle for the past decades. But no viable solution has been published yet.</p> <p><b>Problem Statement:</b> The healthcare industry produces large amounts of health-care data daily that can be used to extract information for predicting disease that can happen to a patient in future while using the treatment history and health data. Design a text-to-text medical chatbot that can engage patients in conversation about their medical issues and can provide a personalized diagnosis based on their symptoms and connect them to a doctor if the severity of the symptoms is serious.</p>
7	Machine Learning	<p><b>A Chatbot for improvising banking experience</b></p> <p><b>Background:</b> In today's competitive banking landscape, customer expectations on response/turnaround times are increasing at a pace that large banks are struggling to catch up with, compared to their new generation peers. Also, the online lending institutions following an algorithmic approach enabling quick credit disbursements have resulted in upping the expectations of retail customers towards turnaround times. Customer-bank contact channels are also heavily tilting towards the digital platform. Despite this digital shift, customers still have to rely heavily on time-consuming phone and IVR systems for even basic banking enquiry and operations. Hence banks are looking to leverage advances in technology such as artificial intelligence to reduce the time for customer transactions right from the application stage to credit disbursement and collections.</p> <p><b>Problem Statement:</b> Develop a humanoid chatbot powered by AI coupled with deep banking-specific domain knowledge that facilitates customers to ask banking-related questions without visiting the bank or calling up customer service centres. Banking activities can be done through conversation-like interactions thereby reducing turnaround time. Domain knowledge can also be extended to include investment and portfolio analysis by the customer. Authorized transactions can be conducted by integrating with the banks' security transaction applications. In addition, customers can use chatbots to analyze portfolios, compare returns across securities and also perform ROI calculations.</p>

**Winning Prizes**

Winning teams were chosen according to the majority votes of the judges, based on the evaluation criteria.

- **1st team prize:** Team Error 404, **15000/- Rupees**
- **2nd team prize:** Team 405-Found, **7500/- Rupees**
- **3rd position prizes:** A-Team and Team Glaxton, **5000/- Rupees**
- **1 Consolation Prizes:** Team Deep AI, **3000/- Rupees**
- **Best Idea:** Team Swag, **2000/- Rupees**

**THE JUDGES****Dr. Mani Madhukar****Dr. Anup Girdhar****Mr. Yashasvi Vats****Dr. V K Arora****Mr. Vivek Mudgal****Mr. Kanav Arora**

The judging panel declared winners and award prizes on the last day of the Event, in the Awards Ceremony, presided by the Honourable Vice Chancellor of IGDTUW Ms. Amita Dev, and the Vice President of NASSCOM Foundation Mr. Santosh Abraham. Apart from these, **participants received unprecedented mentorship from industrial experts, internship opportunities, exciting goodies, vouchers and certificates.**

Judges for the event were Mr. Kanav Arora Vice president Engineering, Urban Company V K Arora CEO, Anveshan Foundation Mr. Lokesh Mehra Head of AWS Academy, South Asia, Amazon Web Services Dr. Mani Madhukar IBM Research Labs Mr. Vivek Mudgal VGeekers

# COURSES

## CODING BLOCKS BOOTCAMP

This November, **AI Club of IGDTUW** in collaboration with **Coding Blocks** brought an amazing educational opportunity for the students of IGDTUW. A Bootcamp on **Advanced Data Structures and Algorithms** by **Coding Blocks**, completely free of cost!

An online coding test was conducted in collaboration with Coding Blocks testing student's basics in programming. The **top 50 performers** of the test were offered the phenomenal "Advanced Data Structures and Algorithms" course for free. The course provided 30 hours of teaching from some of their best experts and mentors.

**Coding Blocks** has been an exceptional learning platform to mentor and help students from all walks of life. They explore various domains of the Development and Computer Science industry and provide students with expert mentorship throughout their courses to help them ace their course of choice.

The Boot camp was headed by **Mr. Apaar Kamal** and **Mr. Prateek Narang**.

Mr. Narang is a Computer Science graduate from DTU who is passionate about teaching. He has previously worked with SanDisk, HackerEarth and has won various hackathons including Google's Code For India and published papers in International Journals. His interactive CV ([www.prateeknarang.com](http://www.prateeknarang.com)) is also popular in 120+ countries.

Mr. Apaar Kamal is an enthusiastic competitive programmer, with years of experience in problem solving. He is rated 6 stars on Codechef and has won various competitions like Code Gladiators, AlgoFlux, CodeWars etc.

The classes started from 2nd November, and the students were taught basic and advanced concepts of various data structures and were made to practice questions important from interview perspectives. The mentors were highly helpful and made the students really comfortable and interactive throughout their sessions hence building up their confidence in the advanced topics taught.

AI CLUB IGDTUW presents

**CODING BLOCKS**

**ADVANCED DATA STRUCTURES AND ALGORITHM BOOTCAMP**

USING C++

**STARTING SOON**  
for shortlisted candidates

**PRATEEK NARANG**  
Co-Founder, Coding Blocks

**APAAR KAMAL**  
Mentor, Coding Blocks

2014, 30 Nov 2013

In IC School, all students have to participate regularly in SUPW. There is a different SUPW activity each day, and each activity has its own duration. The SUPW schedule for the next term has been announced, including information about the number of minutes taken by each activity.

Nikhil has been designated SUPW coordinator. His task is to assign SUPW duties to students, including himself. The school's rules say that no student can go three days in a row without any SUPW duty.

Nikhil wants to find an assignment of SUPW duty for himself that minimizes the number of minutes he spends overall on SUPW.

**Input format**

Line 1: A single integer  $N$ , the number of days in the future for which SUPW data is

# ZERO DOLLAR SECURITY COURSES

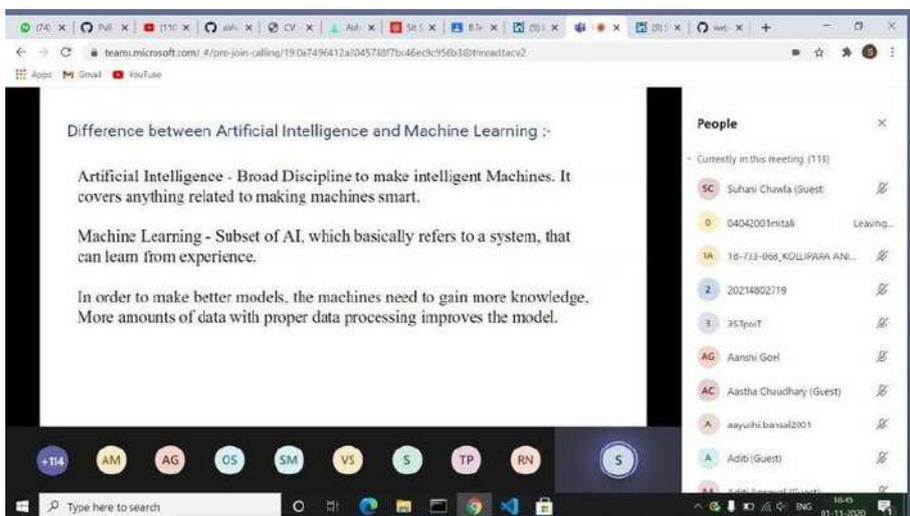
**Zero Dollar Security** is a 'Make in India' initiative and first of a kind company committed to augment the skills of Cyber Security & Data Analytics and change the present Charge-Per-Service model of IT Security Services & Consultancy. Zero Dollar Security ensure to eradicate the cyber threat and deliver meaningful Information from the Digital Infrastructure with Open-Source Crowd Intelligence (Zero Dollar Security Community), an Expert Panel of dynamic security minds and Data Scientists from the Current Industry and an Experienced Advisory Board (Zero Dollar Security Services). The company yearn to 'Educate' and 'Procreate' together as a community.

The **AI Club of IGDTUW** in association with Zero Dollar Security launched two courses, free of cost for the enthusiastic, keen and interested students. The two courses were: **INTRODUCTION TO AI/ML and CYBER SECURITY THROUGH AI**. The courses were conducted in a series of sessions. There were around 4 to 5 sessions on each topic which were mainly conducted on weekends so that the students did not miss out on their regular classes.

The sessions commenced at the beginning of November'20 and in the 1st week of December'20, The sessions were really interesting and informative which covered various topics like Introduction to ML, Basic Algorithms, Data Handling, CNN, RNN, Introduction to Computer Vision, Linux Basics, Ethical Hacking, Social Engineering, Computer Networking, Firewalls, History of Malwares, Malware Development etc.

In total, We recieved registrations from around **250 students**, The course registration was not only limited to IGDTUW students but was open for all people, all universities and all ages, The only requirement was INTEREST AND SPIRIT. Organizing this event for all budding students was indeed a proud moment for the AI Club.

**Certification of participation** was awarded to all of the attendants and the top achievers were awarded with a **Certificate of Excellence**, which added new opportunities and scope to the top scorers' profile and helped them shape their careers, some students were also given various internship opportunities by the company.



# GLOBAL AI CLUB COURSE

The **AI Club IGDTUW** in collaboration with **Global AI Hub** brought to students an exhilarating training course on **Machine Learning** with hands on sessions to provide complete practical knowledge of the subject matter, free of cost.

Global AI Hub is a **Swiss-based leading global community** of 18968 amazing AI talents and experts. They provide AI education and AI career opportunities. Their very noble aim is to educate 10 million AI talents globally and with that, create 1 million new job opportunities. The course provided the enrolled students with 10+ hours of learning by industry specialist and data scientist **Kutay Akalin**.

He was a great mentor to the students and an expert at the subject matter. The students were taught basic to advanced concepts of machine learning with hands on training on real life scenarios which helped the students grasp the complex subject matter very easily.

The course covered some of the topics like Introduction to Machine Learning, Linear Algebra Review, Probability Review, Linear Regression, Logistic Regression, Regularization, Naïve Bayes, Decision Tree and Unsupervised Learning. These topics are the most widely used in the field of Machine Learning.

**MACHINE LEARNING COURSE**

**FREE**

**COURSE STRUCTURE**

1. Introduction to ML
2. Linear Algebra Review
3. Probability Review
4. Linear Regression
5. Logistic Regression
6. Regularization
7. Naive Bayes
8. Decision Tree
9. Unsupervised Learning

**Nov 30 - Dec 4, 2020**  
**7:00 - 9:00 PM**

Join the community to enroll now [community.globalaihub.com](https://community.globalaihub.com)

$$P(A|B) = \frac{P(B|A) \cdot P(A)}{P(B)}$$

The course was a **5-day long series**, starting from November 30th, 2020 to December 4th, 2020. Each day, a 2-hour long session was taken up by the instructor on the various topics covered. Upon completion, the participants were awarded the **Certificate of Participation** to the attendees.