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Department of Computer Science and Engineering

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Android Hacking and Penetration



The White Hat Hackers Club of CSE department convened their second workshop on Android Hacking & Penetration Testing conducted by Dinesh Palika, a certified application security tester from Open Security, on the 17th and 18th of February 2016. The workshop began with a welcome speech and club membership statistics delivered by the club's President Aneesh Angadi, 2nd year CSE. "There are currently 323 members across all 3 departments of this campus, out of which 130 members are attending this workshop today", he quoted. The guest lecturer then began his workshop with a brief discussion on C and how it has found its way into android hacking, securing phones and how to protect one from cyber threats. This was then ensued by architecture of phones, what is meant by rooting, the importance of it and the procedure used in rooting a phone. The next topic dealt elaborately was 'Burp Suite' and its usage, deleting contacts on phone and Wi-Fi

hacks. A fun bout on how various popular websites are vulnerable to loss by having coupons on their web page and how to make use of this was conducted too. The post lunch session majorly dealt with demo activities which were to be implemented the next day. The second day of the workshop kick started with an extensive session on End User's License Agreement (EULA) and a demo on using reverse engineering to crack the key and Android APK files. This was succeeded by a presentation and practical session on Dalvik and ARM VM. The two day workshop concluded with a valedictory function where the Vice President, Dipanker Dey of 3rd year CSE gave the club report and the evening came to an end with The National Anthem.

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UPCOMING EVENTS

- > Ubertech
- > Industrial Visit
- > Hacker's Fest

WORKSHOP ON NETWORK SECURITY



On 15th March 2016, the CSE department organized a workshop on Open Source tools for Network Security, which was conducted by Dr.T.Subbalakshmi from VIT Chennai. The workshop was held in the CSE lab of our campus. The Chief Guest was heartily welcomed by the CSE HOD with a bouquet and the HOD talked to the students about the importance of the workshop. Dr. Subbalakshmi started the workshop by illustrating its objectives and later disseminated the significance of tools used in Network Security. Further she untangled the current scenario of Network Security and she then helped the students in building their knowledge on some of the Open Source tools available in the market that are used by Network Security professionals. She stressed on the importance of the subject and elaborated on the huge demand for Security pertaining to

Networks and the internet. She started the practical session by demonstrating the power of FOS calibration products and tools. The students of the workshop were then given a brief introduction to Virtual Machines and were taught to boot and run Kali Linux via VMware Workstation. The students were then made to try out some of Kali Linux's commands and were enlightened upon the Digital Forensics and Penetration Testing features of this particular Linux flavour. At the end of the workshop the students had the strong foundation on network security, network parameters and network security datasets and many Open Source tools such as Wireshark and many more. Lastly she concluded the speech by thanking HOD for offering her the opportunity to lead and guide the students.

National Science Day



A team from 2nd year comprising of Junaid Ahmed, Rushdam Ali, Sarilya Jaiswal, and Adarsh Shaw participated in the National Science Day Exhibition held in our campus and bagged the first place in the event. Their project was a model of a spying device. The device worked by having a laser hit a vibrating source which would then get reflected and collected by a Light Dependent Resistor (LDR). The collected laser would have the information of the source that produced the sound. The by the team used a mirror as a vibrating source with people talking behind it. The team was awarded a cash prize of Rs 5000 .

News In Bits

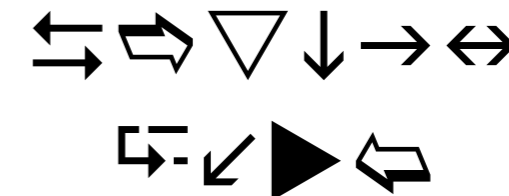
- AMD announces the Radeon Pro SSG, a graphics card with an inbuilt 1TB SSD.
- Nvidia announces the Titan X, a graphics card based on their latest Pascal architecture with a 12 GB DDR5X VRAM and a price tag of \$1200 (Rs 80,000/-).
- NASA's Kepler finds 104 new exo-planets.
- Researchers at MIT devise a secure anonymity network 10x faster than Tor.
- Verizon acquires Internet giant Yahoo for \$4.83 billion.
- Intel launches its first consumer grade 10 core processor, the Intel Core i7 6950X priced at \$1700.
- UC,Davis Graduates fabricate computer chip with 1000 processor cores.
- Google launches the world's fastest undersea cable 'FASTER' with a bandwidth of 60 Tbps
- With a Linpack benchmark of 93 petaflops, China's Sunway Taihulight is now the fastest supercomputer in the world.

VISION 2020



On 31st March, 2016, 10.30 am, Prof. Dr. N.S. Venkataraman gave an insight to the 2nd and 3rd year students of CSE Department, SRM University Vadapalani on Vision 2020. The guest lecturer holds a Doctorate degree in engineering from IISC. He was the Honorary Secretary General and then went on to be the Vice President of Aeronautical Society of India for 7 years. The Dean and Director of MIT (1989-94) has headed various Engineering and Technical Institutions across Tamil Nadu. The 75 year old young man started his elated session with his views on the state of the current generation's lifestyle. He spoke about how Aeronautical and Computer Science engineering go hand in hand towards the development of the society. "Vision 2020, Vision is the art of seeing the invisible" – is the motto of Technology Information, Forecasting and Assessment Council(TIFAC), an autonomous organization set up by Dr. APJ Abdul Kalam, 1988. He stated the documentation of Vision 2020, which

aims at the well-being of all Indians, global competitiveness, technological development as business investment, meeting the changing demand scenario, long term technological forecast to ensure Indian economic growth and leadership by 2020. In 1994, he joined the organization of 5500 people, in the National Mission of Advanced Composite Materials. He then gave an introduction about TIFAC as an organization by elaborating on its agenda, network, activities, and services. He further moved on to the ways TIFAC aids in the purpose of technological development, Indian software technology, hardware technology and nuclear, space and defence technology for India. The organization uses the three parameters set by UN for Human Development Index (HDI). As a humorous speaker, he engaged the students and kept them on the edge of their seats throughout the session. He ended the session with the thought that students should capitalize on their dreams.



Building Positive Attitude

Building positive attitude towards personal excellence
On 29th February 2016, a guest lecture by Mr. K. Parasuraman was held for the 2nd and 3rd year CSE students. Mr. Parasuraman is a motivational speaker and corporate trainer with an experience of more than 13 years in the field of Behavioral Training and Development. His mission in life is to help people who limit their progress by building barriers and self-defeating prophecies to improve their lives.

The guest lecturer began his session with the perks of life. He addressed the students about working towards a goal but at the same time to enjoy their life. He explained about the importance of the juncture the current students are at with a video of about 1000 people waiting for a job interview outside HCL.

These years are what will make a difference in a person's future and one shouldn't let unnecessary external factors affect this. "Purpose of life is to be happy but keep a check on personality" quotes Mr. K. Parasuraman thereby elaborating on the significance of a good personality, one that is respected and is not a hindrance towards the society and showed a video regarding self-respect. He expressed the need to write notes during any lecture for becoming successful by giving examples of Bill Gates, Richard Branson and Warren Buffett who still follow this.

The speaker and the audience had a small session together where the students were asked what was preventing them from being positive in life and the most prominent answer was fear. He then asked the students



to let go of fear of anything and have a passion and work towards it with zeal. He then demonstrated a series of videos about self-respect, never giving up on dreams, developing gratitude towards people. He justified the need to learn from failure through the video of Wilma Rudolph, an Olympic athlete who suffered polio as a child but overcame it. He ended the session with a video about being independent and a round of questions. The session was interactive and filled with humor.

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Achievement

- Nandhini Rengaraj and Raghav Hari Krishna, of 3rd year, have been selected for SAP. They will be attending one semester at MIT and UC Davis respectively.
- Current 4th year students Priyadarshini K, Sunil B and KR Ranjith Kumar secured internships at TCS
- 7 SRM Vadapalani students out of 30 from SRM got selected to attend Applied CS and Android workshop conducted by the Google Students Club.
- CSE Department's Dance team 'DX', for the 4th time in a row, wins the Inter Department Dance Competition on college day.
- The CSE Volleyball team came runners-up in the Inter-department Volleyball Competition held on 18th of March.
- Khangendra Kumar from 2nd year participated in Mozilla's #Teach the Web event and won the First prize in the 'Torrent Network' event.
- G Karthik and Suprateek from 2nd year, who attended the Mind Controlled Robot workshop, qualified the Zonal rounds and will be participating in National Robotics Championship at IIT Bombay.
- Shubham Kumbhar and Adarsh Shaw from 2nd year

- won the 2nd place in the Science Quiz held during the National Science Day.
- Abhishek, Ritesh and Sruthik of 3rd year came runners-up in VentureCity Hackathon event, conducted by JUSPAY along with SASTRA University for creating an called Meetutu.
- Sahithyan of 3rd year and Rahul Reddy, Surya Charan from 2nd year have been selected for the Zonal level IET PATW (Present Around The World) competition.
- Hari Haran of 3rd year won the 1st prize in King of Dance TV show.
- Karthik and Sai Prasad of CSE Dept. played badminton doubles and Tarun played Badminton singles and they won the 1st prize in the sports meet of college day celebrations.
- Mira Kumar of 3rd year and Krishna Priya of 2nd year were declared as winners in Badminton doubles.
- 2nd and 3rd year CSE Department students participated in the Inter Department Cricket Tournament held at SRM Vadapalani from 21 to 23rd March.

Forensics and Crime Investigation Workshop



The White Hat Hackers Club hosted a two day workshop on 25th and 26th of July in the field of Forensics and Crime investigation, which was conducted by Mr. Karthick Vigneshwar P S, Director and Technical Advisor for infySEC UK. He has more than 10 years of professional experience in IT Security Industry, specialized in Ethical Hacking and Cyber Forensics.

Mr. Karthick kickstarted Day 1 of the workshop explaining the differences between Ethical Hacking and forensics. He then showed multiple videos on understanding one's hardware, how it changed the minds of inventors towards computerization, on the outreach of technological devices from the 20th century to the 21st century and some very proficient videos on BIOS, OS and Bootloader, all of which made grasping of concepts and ideas easy. Along with the series of videos, Mr. Karthick demonstrated the various methods of cracking a google account password and elaborated on the concepts of virtual system and slack space and the procedure of retrieving data from a dying RAM. He then elucidated on the topics of OS protection and security management with details about hard reboot, soft reboot and ACPI signal.



Post lunch, an interactive session regarding the implementation of Cryptography and Steganography in cyber forensics took place. The day came to an end with a detailed analysis of a Network Forensics case study. Day 2 kick started with an interesting video about the various security measures and general computer facts. The students began practice sessions using the software tools provided during the workshop while he simultaneously demonstrated google docking, hiding and decoding one format in another format for security purposes. The enthusiast then walked the students through satellite hacking using various applications available online. The workshop ended with a quick Q & A session and the valedictory function. Balaji Ramesh from St.Micheal's College won the Facebook Hashtag competition conducted in the workshop. Every participant also got a certificate, a feather they can add to their cap. The workshop was attended by more than 70 students from our campus and 20 from various other institutions.

The Time For AMD

Anyone familiar with the PC industry from the 2000's would know that there used to be a time when AMD processors used to blow the Intel counterparts out of the water when it came to raw performance and efficiency. AMD's Athlon X2 and FX processors would perform much better than Intel's flagship Pentium Extreme processors in 2005. But in 2006, Intel released its Core Duo and Core Quad Processor lineup and a case of role reversal occurred where AMD struggled to compete with Intel till today. Not anymore. AMD has announced its latest architecture code-named Zen. The Zen architecture has a 14nm fabrication process leading to significant improvement in efficiency. Also the architecture focuses on improving Single Core performance unlike the previous Bulldozer architecture which solely focused on Multi-Threaded performance. Thus leading to a tremendous leap in performance from the last architecture. Also a first for AMD is going to be the introduction of Simultaneous Multithreading which is analogous to that of Intel's Hyper-Threading technology where performance figures are increased due to the presence of logical cores which while not as fast as the physical cores, do not take up any space on the wafer. Among the number of factors affecting performance, the most crucial factor is the processor's IPC or Instructions per Cycle (number of instructions executed by CPU in a single cycle). The Zen architecture is touted to have a 40% increase in its IPC when compared to the previous Bulldozer architecture and this puts it in the league of Intel's current Broadwell-E and Skylake offerings. Even with the improvements and architectural enhancements, the AMD chips will be cheaper than the Intel ones while providing equal or greater performance. So the next time you're out shopping for a laptop or building a rig for Skyrim, don't underestimate the AMD Processors because come October when Zen will get released to the masses, Intel will finally have a strong rival at its shoulder.

The Dawn Of Vulkan

The Khronos group, previously known for maintaining the OpenGL Graphics Library has released the specifications of the first version of their new low level graphics API called Vulkan on the 16th of February. Vulkan is a game changer in the field of Computer Graphics not only because it is open source but because it is a more structured API and provides more interactivity for GPU programmers with graphic cards as the API provides explicit control over memory management and synchronization.

The Vulkan project was in development since July 2014 and was initially based upon AMD's Mantle API. The Mantle API gave game developers console like abilities when it came to optimisation of games for PC hardware. AMD handed over their work on the Mantle API to Khronos in 2014 and ever since Khronos has worked with wellknown companies like Valve, Nvidia and Intel to create the Vulkan API. Due to the openness of Vulkan, it is by far the most portable graphics API in the market. Unlike DirectX 12 which is locked to Xbox One and Windows 10, an application developed in or using the Vulkan API can run on almost any platform be it Linux or Android. This opens up innumerable possibilities for Linux becoming more popular as a home desktop OS and more video games being developed for it and also opens up doors for more ambitious mobile games. Another advantage of Vulkan is the performance improvements it brings due to a complete overhaul of the low level code. idTech was one of the first companies to release a mainstream game engine that used the Vulkan API as one of its main Rendering API's.

They call it idTech 6 and the video game Doom was developed on it. While running Doom on Vulkan a 30% increase in frame rates per second was found when compared to OpenGL. So, the Vulkan API along with performance improvements and portability changes the landscape of Video Game development as it makes it easier for developers to target more platforms and reduces the need to port and rewrite their game code to other APIs while the consumers could enjoy games that run faster while being less resource intensive at the same time.