

Anand Agrawal

BITS Pilani, Hyderabad Campus
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EXPERIENCE

Research Engineer

June 2019 - Aug 2020

New York University, Abu Dhabi

Technology: Gidra, Radare 2, RSCAD, Codesys environment

- Working in Modern Microprocessors Architecture Lab. [Website](#)
- Development and Cyber Security assessment of federated smart grid and smart city testbeds.
- Developed detection tool using Ensemble learning (Boosting method Light-GBM) to classify attack and normal events.
- Analysis of Codesys compiled binaries in different Languages and Architectural context.
- Studying the dependencies of critical infrastructure testbeds
- Automated collection of ICS compiled and project binaries.

Software Engineer

Sep 2017 - May 2019

National University of Singapore, Singapore

Technology: Python, NS Simulator, Ansible, Vagrant

- Worked in National Cyber-Security R&D Lab. [Website](#)
- Develop Virtual environment for Critical infrastructure(OT Testbed) and develop IT based attack on OT, and detection of physics based attack using SVM classifier.
- Develop Pentest lab testing environment and Evaluation platform for security solution
- Maintained a shared national infrastructure that provides computing and networking resources for CyberSecurity research and development community.
- Federation of the industrial testbeds to enrich its capabilities

Software Engineer

Nov 2016 - Aug 2017

YuppTV.com, Hyderabad, India

Technology: Scala, Slick, Postgres, Redis

- Worked on project Rivulet (Mutli Tenant LIVE and VOD Streaming OTT Platform). [Website](#)
- Developed YuppFLIX content crawler for movie and their cast(YuppFlix brings an easy access to Indian movies and TV Shows across 9 regional languages).
- Developed Bazaar kids Category for kid content to broadcast in YUPPTV Bazaar section.

Research Assistant

Feb 2016 - Oct 2016

Singapore University of Technology and Design, Singapore

Technology: Python, Mininet, Ladder Logic, Flask

- Worked in a Cyber-Physical Security Project "CYPRO" at SCy-Phy group leading by Assist. Prof Nils Ole Tippenhauer. website link: [Scy-Phy](#)

- CYPRO project is about analyzing the vulnerabilities in Critical Infrastructure and different attack surfaces are investigated on Secure water treatment plant in "iTRUST" lab.

Assistant Professor

July 2014 - Jan 2016

Vignan Foundation of Science and Technology in Research University, India.

Technology: C, C++, Java

- Taught subjects on Data Structure and Advance Problem Solving.
- Involved in funded projects along with technical committee team member.

EDUCATION

Doctor of Philosophy,
BITS Pilani, Hyderabad Campus

March 2021 - Ongoing

Master of Technology in computer science with 7.68 CGPA , July 2012 - June 2014
IIIT Hyderabad, Hyderabad, India

Bachelor of Engineering in computer science with 73.6 % , August 2008 - June 2012
Shri Vaishnav Institute of Tech. and Science, Indore, India

Senior Secondary with 84 percentage,
Universal Academy, Indore, India

July 2007 - June 2008

Secondary with 87.6 percentage,
Baithal H S school, Indore, India

July 2005 - June 2006

TECHNOLOGY SKILLS

Programming Languages: C, C++, Core Java, Python, Ladderlogic, Scala, MIPS

Web Technologies: HTML, CSS.

Database: MySQL, Sqlite, Postgres, Redis.

Development Tools: Eclipse, IntelliJ IDEA, Cisco Packet Tracer, Mininet, Slick, Latex, Github, NS3

Area of Interest: Algorithm and Complexity, Cyber Physical System Security, Wireless Network Security and Cryptography.

PROJECTS

Running Projects: BITS Pilani, Hyderabad Campus

Vulnerability in Wireless Security Protocols

- Analysis of wireless security protocols like WPA/WPA2 and passive detection of attacks like KRACK using Machine Learning.
- Classification of different type of Rogue Access point created by different traditional routers and the smart IoT device.

Smart Lake Testbed for data analytics, monitoring and feedback capabilities.

- Development of robust and scalable smart lake testbed.
- Perform data analytics and monitoring of the water quality and take prior decision for benefiting the aquatic animals

Completed Projects: IIIT Hyderabad, Hyderabad, India

Online Chat Summarization

2014

- Developed an automatic text summarizer tool.

- Tool extracts sentences from the conversation to form a summary by investigating new features and generic features set for email/chat conversation.

Wikipedia Search Engine

2013

IIIT Hyderabad, Hyderabad, India

- Built an efficient search engine algorithm for searching data in data set around 40GB.

ARTICLE

Published Article

- "Cyber-Security Solution Evaluation published in Association of Small & Medium Enterprises(ASME) Singapore in January 2019 issue"

RESEARCH

Research Papers

- "CheckShake: Passively Detecting Anomaly in Wi-Fi Security Handshake using Gradient Boosting based Ensemble Learning" submitted in Transaction of Dependable and Secure Computing and is in under review.
- "kTRACKER: Passively Tracking KRACK using ML Model" accepted in CODASPY 2022 held in Baltimore-Washington DC Area, USA (Virtual).
- "Towards Robust Power Grid Attack Protection using LightGBM with Concept Drift Detection and Retraining" accepted in CPSIoTSEC 2020 held in Orlando USA(Virtual).
- "VOTNET: Modeling and Simulation approach for Operational Technology" accepted in WSC 2018 held in Gothenburg, Sweden.
- Poster: "Physics-Based attack detection for an Insider threat Model in a Cyber-Physical System" published in Asia CCS 2018 held in Incheon South Korea.
- "Matrix Hashing with Two Level of Collision Resolution" published in 8th International Conference on Cloud Computing, Data Science & Engineering (CONFLUENCE 2018), Uttar Pradesh, India. Jan 2018.
- "Towards High Interaction ICS Virtual Honeypot-in-a-Box" in Cyber-Physical System Security and Privacy(CPS-SPC) in conjunction with the 23rd ACM Conference on Computer and Communications Security(CCS) in Vienna, Austria.
- "On Ladder Logic Bombs in Industrial Control Systems" in Proceedings of the Workshop on the Security of Industrial Control Systems and of Cyber-Physical Systems (CyberICPS), co-located with ESORICS in Oslo Norway, 2017
- Conflation of IoT with Raspberry pi 2 for MI Board Interaction. The 3rd IEEE sponsored 3rd International Conference on Electronics and Communication Systems (ICECS 2016), Coimbatore, India. Feb 2016
- Concom Sorting Algorithm (Approach based on counting and comparison).The 4th IEEE International Conference on Computer Science and Network Technology (ICCSNT 2015), Harbin, China. DEC 2015
- Experimental Analysis of Fixed Parameter Algorithms for Odd Cycle Transversals and Feedback Vertex Sets. International Journal of Engineering and Management Research. Vandana Publication, India. Oct 2015
- link: [Google Scholar](#)

**ACADEMIC
HONOURS**

Secured All India GATE Rank 419 and 608 in the year 2014 and 2012 respectively. GATE is the highest Technical level National examination in India for the entrance of post-graduates aspirants in prestigious colleges.

**EXTRA-
CURRICULAR
ACTIVITIES**

- TPC member of 2nd & 3rd International Workshop on Artificial Intelligence and Industrial Internet-of-Things Security (AIoTS).
- Technical challenge maker team in Scy-phy week 2016. Scy-phy week is an annual event of SUTD to discuss and mitigate cyber attacks in future.
- Conducted Technical events “logic killer” & “code Exchange” in Vignan University.

Place: Hyderabad

Date: 27th of May 2022

ANAND AGRAWAL