Abhimanyu Rawat

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EDUCATION

- **Pompeu Fabra University** — Barcelona, Spain
  Ph.D. in Distributed Systems and Security; Marie Curie Fellowship, EU H2020 — Oct. 2019 – Present

- **Birla Institute of Technology and Science** — Pilani, India
  Masters of Engineering in Computer Science — Aug. 2015– July. 2017

- **Maharshi Dayanand University** — Rohtak, India
  Bachelors of Technology in Computer Science — Aug. 2009– July. 2013

EXPERIENCE

- **Google Summer of code(GSoC)** — Remote
  Student Collaborator — June 2021 - Aug 2021
  - **HoneyPot**: Developing an IoT/OT honeypot to defend existing IoT/OT communication protocols such as coap, modbus, mqtt, etc. from cyber attacks. Modularly designed to supports other services such as ssh, http, echo etc.
  - **Multiple Interaction modes**: Supporting multiple interaction modes i.e. Local mode - protocols run locally, High mode - protocols run in separate containers and Hybrid mode - mix of both local and high mode.

- **Nokia Bell Labs** — Paris, France
  Research Engineering Intern, Blockchain Security Group — Oct 2019 - Apr 2021
  - **Blockchain Security**: Blockchain Security project related to the IoT devices running on propriety blockchain solution.
  - **Lightweight Protocols**: Making resource intensive blockchain solution resource efficient for a plethora of usecases.

- **Linkoping University** — Linkoping, Sweden
  Research Assistant, under Prof. Andrei Gurtov — Feb 2019 - Aug 2019
  - **Decentralized Systems**: Worked on decentralized communication between different electronic control units present in the vehicle.
  - **Profiling IoT**: Profiling of the IoT devices connected and reachable via the internet using tools such as Shodan and labelling the observation according to the known vulnerabilities dataset.
  - **IoT Risk Assessment**: Compiled report on IoT devices deployed in legacy systems and mission critical domains which could pose a greater risk if they are using vulnerable or unpatched protocols.

- **EMC^2(Now DellEMC)** — Pune, India
  Software Engineer, Protocols Group(SMB) — Jul 2017 - Jan 2019
  - **SMB/CIFS Protocol**: Enhancing existing SMB/CIFS protocol on NAS box(M-tree based FS) which works for shared access of resources and serial ports between nodes on a network, widely used with Microsoft Windows.
  - **RFC Features**: Developing features for CIFS/SMB protocol referencing RFCs. Bypassing the open-source code and developing in-house protocols features. Continuous feature based delivery from SMB2 to SMB3 upgrade.
  - **Agile Practices**: As a Scrum master facilitated my team for developing, delivering, and sustaining complex products. Maintaining cross-functional collaboration with other teams and, the customer/end user.

- **Google Summer of code(GSoC)** — Remote
  Student Collaborator — May 2017 - Jul 2017
  - **HPX**: Worked with HPX which is a C++ Standard Library for Concurrency and Parallelism. It implements all of the corresponding facilities as defined by the C++ Standard.
  - **Stack Overflow detection**: A stack overflow error can occur in a computer program using excessive memory. This could also be cause by segmentation fault. Simulated the detection with libsigsegv.

- **EMC^2(Now DellEMC)** — Pune, India
  Software Engineering Intern, DDOS Group — Jan 2017 - Jun 2017
  - **DD OS Issues**: The Data Domain Operating System (DD OS) is the intelligence that powers Dell EMC Data Domain boxes used for data backup, archive and long term retention. Often faced issues in setup and configuration both pre-work and in-working states.

- - **Services Debugger**: To avoid setup and services issues, developed a debugger that checks the client side setup and software configurations for smooth operations.
  - **Central Configurator**: Designed a python framework which monitors each and every service(bounded by a rule book) if they are setup and configured correctly. A security layer working in conjunction makes the product resist of manual errors and some network attacks. The product is now part of the DD OS across DellEMC boxes.
- **Navayuga Info. Spatial** New Delhi, India
  Application Development Intern *Summer 2013*
  - **E-commerce inventory**: E-commerce inventory management is the act of measuring the amount, location, pricing, and mix of products available from your business. Designed a mobile application that tracks the end to end business needs of items understocked, overstocked and out of stock
  - **Hybrid Application**: Developed a hybrid application in a native container that uses a mobile WebView object. When app starts, this object displays e-commerce items, using web technologies (JS, HTML5, CSS, MongoDB).

PUBLICATIONS

1. Abhimanyu Rawat, M. Khodari, M. Asplund, and Andrei Gurtov, Decentralized firmware attestation for in-vehicle networks, ACM Trans. Cyber-Phys. Syst. **5**, 10.1145/3418685 (2021).
2. D. Hasselquist, Abhimanyu Rawat, and A. Gurtov, Trends and detection avoidance of internet-connected industrial control systems, IEEE Access **7**, 155504–155512 (2019).
3. A. H. Sodhro, M. S.Obaidat, S. Pirbhulal, G. H. Sodhro, N. Zahid, and Abhimanyu Rawat, A novel energy optimization approach for artificial intelligence-enabled massive internet of things, in *2019 International Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECTS)* (2019) pp. 1–6.
4. M. Khodari, Abhimanyu Rawat, Mikael Asplund, and Andrei Gurtov, Decentralized firmware attestation for in-vehicle networks, in *Proceedings of the 5th on Cyber-Physical System Security Workshop*, CPSS '19 (Association for Computing Machinery, New York, NY, USA, 2019) p. 47–56.
5. Nitya Kanuri, P. Arora, S. Tallaru, Bona Collaco, R. Dutta, Abhimanyu Rawat, M. Manjula, Michelle Newman, and s Cho, Examining the initial usability, acceptability and feasibility of a digital mental health intervention for college students in india., International Journal of Psychology (2019).

AWARDS AND ACHIEVEMENTS

- **2 x Winner IC3 Blockchain Camp**: Winner 2021 and 2020 hosted by IC3 and Cornell University
- **Winner IMDEA Hackathon**: Blockchain Hackathon at IMDEA Software Institute in Madrid, Feb. 2020
- **Winner Copernicus Hackathon**: Student prize at Copernicus Hackathon held at Science Park in Graz in Oct., 2020
- **Academic achievement**: Stood in top 40 students among 10000 students appeared for BITSAT-HD, Merit Scholarship cum. 40% Fee Wavier at BITS Pilani, National Eligibility Test (NET-exam) qualified in first attempt, GATE exam qualified, 3rd position in Codility Titanium 2016 Challenge, Semifinalist in HackerRank University World Cup 2015
- **Others**: Reported bug in payment processing platform ccavenue(discrepancy with payment module), winner of few college level technical events

PROGRAMMING SKILLS

- **Languages**: **Proficient in**: C, C++, Python, Solidity, Go, bash, TeX   **Basic to Moderate ability in**: Lisp, Java, JS, R

- **Industry Software Skills:**: Wireshark, mininet, ns-2, Omnet++, Django, Flask, Android SDK, MySQL MongoDB, Docker, Raspberry Pi and more

EXTRA-CURRICULAR AND INTERESTS

- Certified Scrum Master, by Scrum Alliance Certificate ID 000837249

- Fast Sudoku and Rubik's cube solving, flying glider planes, avid reader, into board-games, culinarian.

REFERENCES

Available on Request