Akhilesh Anilkumar Siddhanti
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UNDERGRADUATE DETAILS

B.E. (Hons) Computer Science & M.Sc. (Hons) Mathematics **Aug 2014 – May 2019**
BITS Pilani KK Birla Goa Campus, Zuarinagar - 403726
CGPA: 7.13/10.0
Electives: Artificial Intelligence, Cryptography, Number Theory, Combinatorics, Algebra 2, Comm. Algebra, Cosmology

ACADEMIC DETAILS (PRE-UNDERGADUATE)

COURSE	INSTITUTE/COLLEGE	BOARD	%/CGPA	YEAR
XII	MTB Junior College, Pune	Maharashtra Board	85.38%	2014
X	DAV Public School, Aundh, Pune	CBSE	95.8%	2012

ELECTIVES/TECHNICAL PROFICIENCY

Electives: Number Theory, Combinatorics, Artificial Intelligence, Cryptography, Algebra 2, Commutative Algebra, Cosmology
Technical Proficiency: C, C++, Java, Python, Sagemath, MATLAB, Latex, HTML, CSS, ASP.NET framework.

SUMMER INTERNSHIP/WORK EXPERIENCE

Undergraduate Research Thesis, Indian Statistical Institute, Kolkata (ongoing) **Aug 2018 – May 2019**
· Analysing and developing a Physically Unclonable Function resilient to SAC property.
· Mounting a fault attack on stream cipher Enocoro.
· Studied Cube and Integral attacks on stream ciphers.
· Designing a fault resilient stream cipher (in progress).

Research Intern, HESL, Nanyang Technological University **May 2018 – July 2018**
· Designing an automated fault attack software (still in progress).
· Modelled an Arbiter-based hardware PUF using minimal parameters.
· Studied Pseudo-boolean constraints and ways to use existing SAT solvers to solve them.

Research Intern, Indian Statistical Institute, Kolkata **May 2017 – July 2017**
· Attacked stream cipher Lizard using TMDTO attacks.
· Developed a new technique of Algebraic TMDTO Attacks, demonstrating an attack on ACORN v3.

Software Development Intern, Essar Group **May 2016 – July 2016**
· Automated the form-filling process for the HR department of Essar Power Gujarat Limited.

PUBLICATIONS

A TMDTO Attack Against Lizard **IEEE Transactions on Computers**
Cryptanalysis of stream cipher Lizard with a time complexity faster than brute-force search.

A Differential Fault Attack on Plantlet **IEEE Transactions on Computers**
Demonstrating a Differential Fault Attack on Plantlet with minimum fault requirements.

Certain Observations on ACORN v3 and Grain v1 (Invited paper) **Journal of Hardware and Systems Security**

An extended work of conditional TMDTO attack on ACORN v3 and Grain v1.

Differential Fault Attack on SIMON with Very Few Faults **Indocrypt 2018**
Showed how block ciphers can also be vulnerable to fault attacks, like stream ciphers.

Differential Fault Attack on Grain v1, ACORN v3 and Lizard **SPACE 2017**
Mounted fault attacks on popular stream ciphers using numerous optimizations.

Certain Observations on ACORN v3 and the Implications to TMDTO Attacks **SPACE 2017**
Cryptanalysis of ACORN v3 using SAT solving techniques.

Differential fault attack on hardware stream ciphers -- A technical survey (Invited talk) **RICAM Special Semester**
A survey of various fault attack techniques employed to cryptanalyze stream ciphers.

POSITIONS OF RESPONSIBILITY

Mentor, Quark Summer Time Project - Machine Learning Course **April 2016 - July 2016**
- Mentored 26 students for the course, "Introduction to Machine Learning", which involved tasking, checking assignments and solving doubts.
- Guided students on a final project titled "Detecting Fake Currency Notes from UCI repository".

Core Member, Department of Backstage and Infrastructure **Aug 2015 - May 2016**
- Managed audio and infrastructure setup requirements for events and key festivals on campus.
- Coordinated with on-campus clubs and departments for various requirements.

CERTIFICATIONS

NETTECH Certification
A course teaching various network security concepts and tools taught by Dr. Swapan Purkait.

SCHOLARSHIPS

DST-INSPIRE SCHOLARSHIP **July 2014**
Awarded for being in top 1 percentile in the state in Grade 12 exams.

EXTRA CURRICULAR ACTIVITIES

- I am a tech-enthusiast, and keep myself updated with the latest technology and gadgets.
- I have won national level competitions in Vedic Mathematics and Abacus. I also hold an orange belt in Karate.
- My favorite sports are Badminton and Table Tennis. I am also fond of playing Chess.