Aditya Basu

⌖ http://adityabasu.me | ✉ aditya.basu@psu.edu | ☏ +1 (814) 862-8300

EDUCATION

PENN STATE UNIV. (PSU)
PHD IN COMPUTER SCIENCE
Exp. Grad. May '21 | University Park, PA
Cum. GPA: 3.85 / 4

DHIRUBHAI AMBANI (DA-IICT)
B.TECH. IN INFORMATION AND COMMUNICATION TECHNOLOGY
Grad. Jan '15 | Gujarat, India
Cum. GPA: 8.55 / 10

RESEARCH INTERESTS
Systems Security • Operating Systems

COURSEWORK

GRADUATE
Computer Security A
Hardware Security A
Operating System Design A

UNDERGRADUATE
System and Network Security AA
Systems Software AA
Operating Systems AA
Embedded Hardware Design AA

SELECT PROJECTS
Side-Channel (SC) on RSA
Verilog | 10 hrs./week | 8 weeks

Implemented RSA on FPGA and did SCA to find the private key.

Key-Value Server-Client
C++ | 10 hrs./week | 8 weeks

Coded a sync & an async version of KV server, which was highly available.

SKILLS

PROGRAMMING
Over 5000 lines:
C • Python • Django • Bash • LaTeX • Puppet • Ansible • Java • HTML

Over 1000 lines:
ARM Assembly • x86 Assembly • CSS • Javascript

TECHNOLOGIES
Git • Linux • Mac • GNU make • Docker

LINKS
Github:// mitthu • LinkedIn:// mitthu

HOBBIES
Programming circuits • Karate

REFEREED PUBLICATION

- A. De, **A. Basu**, S. Ghosh and T. Jaeger, **FIXER: Flow Integrity Extensions in Embedded RISC-V**, Design, Automation and Test in Europe (DATE), 2019 *(in press)*.

- **Aditya Basu**, Anish Mathuria, Nagendra Chowdary. **Automatic Generation of Compact Alphanumeric Shellcodes for x86**. 10th International Conference on Information Systems Security (Hyderabad, India), LNCS 8880, Springer, pp. 399-410, 2014. (accept. rate: 19% or 25/129) [pdf | doi | ppt | code]

RESEARCH EXPERIENCE

CFI-ENFORCEMENT ON LINUX
Aug. 2017 – current | 20 hrs./week | Supervisor: Trent Jaeger
- Instrumenting the Linux kernel to generate CFI policy and enforce it at runtime.

COMPACT ALPHANUMERIC SHELLCODES FOR X86
Feb. 2014 – Apr. 2014 | 25 hrs./week | Supervisor: Anish Mathuria | REPORT
- Designed and implemented two new encoding schemes for producing compact alphanumeric shellcodes for x86, as compared to Rix and Wever.

EXPERIENCE

NIO | PRODUCT SECURITY INTERN
May 2018 - Aug. 2018 | 40 hrs./week | San Jose, CA, USA
- Worked on securing and pen-testing ES8's (SUV) firmware and it's OBD-II diagnostics port. Created patches to fix the found vulnerabilities.

COURSE: OPERATING SYSTEMS | TEACHING ASSISTANT
Jan. 2018 - May 2018, Aug. 2016 - Dec. 2016 | 20 hrs./week | PSU, PA, USA

MEDIA.NET | SYSTEM OPERATIONS
July 2014 - July 2016 | Mumbai, India
- Automating and managing infrastructure serving >100 million reqs./day.
- Took two day training session on (i) *Advanced Linux*, and (ii) *Networking* for new recruits.

COURSE: SYSTEMS SOFTWARE | TEACHING ASSISTANT
Jan. 2014 - Apr. 2014 | 10 hrs./week | DA-IICT, Gujarat, India

ADMISSION PORTAL OF DA-IICT | SOFTWARE DEVELOPER
Jun-Jul 2013, Jun-Jul 2014 & Jun-Jul 2015 | 30 hrs./week | Gujarat, India
- Created the admission portal of the university using Django (python).
- The portal generates merit-lists and wait-lists of candidates based on their stream preferences and merit ranks.

JAGRUT NAGRIK (NGO) | RURAL INTERNSHIP
Dec. 2011 | 40 hrs./week (full-time) | Ramosana, Gujarat, India | REPORT

AWARDS

2014	honor	Highest CGPA in UG among wards of SVB trust
2011	honor	Highest percentage in HSC among wards of SVB trust
2010	top 2.5%ile	All India Engineering Entrance Examination (AIEEE)
2010	97.5 / 120	Gujarat Common Entrance Test (GUJCET)
2007	certified 'A' grade	Intermediate Drawing, Gujarat State Examination Board