

Pratik Shrestha

Philadelphia, PA
✉ ps937@drexel.com
📁 prtx.github.io
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Education

2019 - **Ph.D. in Electrical Engineering.**

Present Drexel University, Philadelphia, Pennsylvania

Relevant Courseworks: VLSI Design, ASIC Design, Hardware Security, Machine Learning, Deep Learning

2012 - 2016 **Bachelors in Computer Engineering.**

Kathmandu University, Dhulikhel, Kavre, Nepal

Research Experience

Aug 2019 - **Graduate Researcher**, Integrated Circuits and Electronics Lab, Drexel University.

- Present
 - Graph representation learning guided electronic design automation.
 - Automated physical design (using DC/IC Compiler and PrimeTime) for large scale dataset generation at different design stages (logic synthesis, floorplan, placement, CTS, routing).
 - Designed spatial graph based neural network architecture to learn timing and parasitic information from the generated datasets.
 - Hardware security and sequential circuit obfuscation.
 - Developed synthesis algorithm and security measurements for FSM obfuscation techniques.
 - Implement obfuscation algorithms on benchmark ICs and physical design using Synopsys DC/IC Compiler and Cadence Virtuoso.

Professional Experience

Jan 2018 - **Engineering Consultant**, Leapfrog Technologies.

- June 2019
 - Ed-Fi Alliance Analytics Middleware:** Rapid synthesis and reporting of Texas school district data across rosters, transcripts, assessments, college applications, etc.
 - Developed python modules for data extraction, parsing, pipeline, storage, report generation.
 - Created RESTful API's for client-end applications and statistical analysis tool to monitor server traffic.

Jun 2017 - **Software Engineer**, Beta Analytics Pvt. Ltd.

- June 2019
 - NEPSEguide:** Pricing and risk analytic tools to support financial risk management.
 - Designed data entry, normalization and verification systems supporting 30+ cloud workers to collect fundamental data of companies listed in Nepal Stock Exchange (NEPSE).
 - Collected NEPSE pricing data from various sources and maintained them in a central data warehouse.
 - Implemented statistical metrics for predictive analyses. Developed stock screener and charting tools to analyze asset performance.

Nov 2016 - **Associate Developer**, LIS Nepal Pvt. Ltd. (A Yomari Company).

- Jun 2017
 - Implemented Oracle Retail Analytics Data-warehousing architecture and develop BI solutions.
 - Provided 24-hr technical support and consulted offshore clients on ETL batches.

Jun 2016 - **Software Development Intern**, LIS Nepal Pvt. Ltd. (A Yomari Company).

- Oct 2016
 - Assisted as a part of R&D team to study and migrate Oracle Data Integrator (ODI) knowledge modules from Oracle to Teradata.

Technical Proficiency

Languages Python, Verilog, VHDL, Bash, SQL (Expertise)

R, Matlab, Java, Javascript, VBScript, C++, C (Working Knowledge)

EDA Synopsys: DC Compiler, IC Compiler, PrimeTime; Cadence: Virtuoso

Data/ML Pandas, Tensorboard, Statsmodel, Scikit-learn, Torch, Torch-geometric, NLTK, Gensim

Databases PostgreSQL, MongoDB, MS-SQL, Oracle, Teradata

DevOps Docker, Nginx, Linux Server Administration

Frameworks SQLAlchemy, Scrapy, Airflow, Selenium, Flask, Django, Falcon