ARCHIT CHECKER

Email : archit.checker_ug20@ashoka.edu.in **Website** : checker5965.github.io

EDUCATION

Ashoka University *August 2017 - Present*
3^{rd} Year Undergraduate CGPA: 3.85/4
Department of Computer Science Major CGPA: 3.86/4

RESEARCH INTERESTS

Computer Architecture, Operating Systems, Architectural Security

RESEARCH IN PROGRESS

AMBOP: Adaptive Multiple Best Offset Prefetcher
Arup Mondal, Sarabjeet Singh, Archit Checker, Manu Awasthi

INTERNSHIPS

Lehigh University *Research Intern*
HearMyCI *Summer 2019*
Dr. Michael Burger

- Led technical development on an app to provide **cochlear implant simulations** to the caregivers of children with hearing loss.
- Used **Digital Signal Processing** Techniques to accurately simulate cochlear implant models of the top 3 CI companies.
- Developed a prototype **web application using Django and Python** with functionality for user profiles and customization.

Trivedi Centre for Political Data *Full Stack Development Intern*
Surf *Winter 2018*
Dr. Sudheendra Hangal

- Worked on adding features to Surf - a name resolution software for Indian Political Data.
- Added functionality for reading **custom datasets and ID, Column, and Sort spec changes**.
- **Mined normalization rules using Edit-Distance** to improve the Surf clustering algorithm.

PROJECTS

Context Free Grammar Parser *April 2020 - May 2020*
Dr. Mahavir Jhawar, Ashoka University

- Developed a web application using Vanilla JavaScript to Parse Context Free Grammars.
- Used Earley Parsing algorithm, along with an original algorithm for example generation.
- The full project can be **viewed here.**

Enron e-mail Dataset Clustering *Nov 2019 - Dec 2019*
Dr. Ravi Kothari, Ashoka University

- Used LDA to do Topical Modelling of the Enron e-mail Dataset.
- Best achieved coherence value of 0.58 with 5 topics and perplexity value of -8.2 with 7 topics.
- Visualizations can be found **here** and **here**. Full report - **here.**

Architectural Exploration of Memory Hierarchies *September 2019 - Present*
Dr. Manu Awasthi, Ashoka University

- Studied about various **side-channel attacks**, and Principles of Secure Processors and Architectures.
- Studied about **Prime + Probe, Flush + Reload, and Evict + Reload** attacks.
- Mounted Flush + Reload on GnuPG and Implemented the Spectre attack.

ClassifierC *September 2018 - November 2018*
Dr. Goutam Paul, ISI Kolkata

- Implemented a **Naive Bayes Classifier, and a K-Means Clustering Algorithm in C**.
- Used Python to pre-process various datasets (Iris, Pima Indian, Loan Prediction, Black Friday etc.) and surveyed accuracy on the C implementations.

Ruhi *December 2017 - January 2018*
Independent Project

- Implemented a web-application in using Flask-Python.
- This was for the Ruhi tutors for automatic allocation, feedback, and report management.

AWARDS AND HONORS

- Qualified for the Regionals - International Collegiate Programming Contest **(ICPC)** *November 19*
- Selected for Undergraduate Architecture (uArch) Workshop at **ISCA 2019** *April 19*
- Secured a position in **Dean's List** for excellent academic performance. *All Semesters*
- Won the first prize in IIM Indore's Leadership competition - Chaitanya. *September 18*
- Finalist in Digital Masala Challenge hackathon by Facebook and YKA. *December 2017*

TECHNICAL SKILLS

Programming Languages	Python, C, Java, JavaScript, C++, Assembly, Shell Scripting
Simulators	ChampSim, Mastik
Frameworks and Tools	Django, Flask, Numpy, Pandas, Keras, LaTeX

TEACHING

Role	Course	Semester	Class Size	Feedback
TA	Operating Systems	Spring 20	31	4.34/5
TA	Foundations of Computer Programming	Monsoon 19	99	4.67/5
Helpdesk Tutor	Computer Organization and Systems	Monsoon 19	-	-

LEADERSHIP

Computer Science Academic Representative *2019 - 2021*
Ashoka Academic Advisory Board

CS Curriculum Developer *2019*
Neev Program - Teaching Underprivileged Children

RELEVANT COURSEWORK

Theory of Computation · Programming Languages Design and Implementation · Architectural Exploration of Memory Hierarchies · Advanced Computer Architecture · Operating Systems · Design and Analysis of Algorithms · Computer Security and Privacy · Introduction to Machine Learning · Advanced Programming