

CHIRAG SACHDEVA

csachdeva@cmu.edu | (412) 294-2174 | csachdeva.com | linkedin.com/in/csachdeva

EDUCATION

Carnegie Mellon University

Master of Science | Study in Computer Science | *GPA : 3.93/4*

Achievements : Department Merit Scholarship, Best Student Project Award (Web Apps)

Pittsburgh, PA
Aug 2019 – May 2021

Punjab Engineering College

Bachelor of Engineering | Aerospace Engineering | *GPA : 9.3/10*

Achievements : University Silver Medal (2nd/800), Young Research Fellow by the Govt. of India, Full-Tuition Waiver, Capstone Winner

Chandigarh, India
Aug 2014 – May 2018

Coursework : API Design, Data Structures, Computer Systems, Web Application Development, Software Construction, Java for Application Programmers (TA), Database Management, Cloud Computing, Data Analysis

EXPERIENCE

Institute For Software Research, CMU

Software Engineer – Intern

- o Developed a distributed web crawler for a Search Engine to analyze security protocol and SSL certificate information of websites; responsible for all phases (design, version control, coding, unit testing and production).
- o Crawled through 4.3 million URLs per day using multithreaded parallel breath search of domains/subdomains based on priority values.
- o Decreased latency time and improved data exchange rate between sockets by 4x utilizing encrypted serialized data objects in Java.
- o Built cloud infrastructure using AWS Elastic Beanstalk for storing, querying large data, and displaying results on a JSP web application.

Pittsburgh, PA
May 2020 – Sept 2020

Carnegie Mellon University

Graduate Researcher, Software Engineer

- o Analyzed 1 million data points from 20+ ECLSS sensors to enable autonomous situational awareness for NASA Deep Space Habitats and simplified system operations by implementing APIs for monitoring different subsystems.
- o Enhanced system reliability and prognosis accuracy by 10% using Python scripts to clean data, perform clustering and regression.
- o Rewrote and maintained open source JupyterLab extension in Python, JavaScript on OpenChirp (CMU open source platform for IoT).

Pittsburgh, PA
Aug 2019 – April 2020

Stanford University

Software Research Engineer

- o Designed and implemented *fly-by-feel*, a framework which leverages high-dimensionality and multimodality properties of sensor data to predict response of bio-inspired smart wing for autonomous vehicles under different flight conditions and loads.
- o Decreased memory usage by 40% by developing APIs for dynamic allotment of shared memory access key pertaining to flight states.

Palo Alto, CA
May 2017 – Aug 2017

PROJECTS

Tambola – PWA Interactive Game

Led a team of 3 to develop a game of Tambola (Indian Bingo) utilizing Python/Django, MySQL, and Docker on backend. Prevented timeouts and improved service availability to 99.9% under high client loads. Leveraged React and Ajax to provide an elegant frontend interface with well-tested features for game rooms, sessions, and profiles. Presently, it has 5000+ test users.

Sept 2020

A Dynamic Heap Allocation Library for C Language

Created struct-based segregated free lists to perform malloc, realloc, calloc, and free functions in a full 64-bit address space. Reduced internal fragmentation and achieved an average memory utilization of 94.2% and a throughput of 31000 Kops.

April 2020

Geospatial Analysis of Pittsburgh Bus Transit System

Collaborated with Pittsburgh Port Authority to design a database, efficiently store disparate data and use geospatial analysis in Python to create relations between neighborhoods, bus stops, and traffic sensors. Utilized SQL queries and visualized trends using Tableau to generate insights on underperforming bus stops based on given sociodemographic data and traffic count information.

Oct 2019

SKILLS

Languages : Java, Python, C/C++, JavaScript, HTML/CSS, Assembly x86

Databases : MySQL, Firebase Firestore, MongoDB, PostgreSQL, SQLite

Tools : Spring Boot, Django, Node.js, React, Flutter, AWS, Linux, Git, Vim, Docker, Maven, Gradle, Design Patterns, Pandas, Scikit Learn

PUBLICATIONS

- o Sachdeva, C., Gupta, M., & Hodges, D. H. (2018). *Modeling of initially curved and twisted smart beams using intrinsic equations*. **International Journal of Solids and Structures**, 148, 3-13.
- o Sachdeva, C., & Padhee, S. S. (2018). *Functionally graded cylinders: Asymptotically exact analytical formulations*. **Applied Mathematical Modelling**, 54, 782-802.
- o Sachdeva, C., & Padhee, S. S. (2019). *Analysis of bidirectionally graded cylindrical beams using variational asymptotic method*. **AIAA Journal**, 57(10), 4169-4181.