

# PARTH MAHESHWARI

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## EDUCATION

Carnegie Mellon University, Pittsburgh, PA

August 2019 - May 2024

- Pursuing integrated fifth-year MS in **Electrical and Computer Engineering**
- BS in **Electrical and Computer Engineering**, additional major in **Statistics and Machine Learning**

**Honors:** University Honors, Dean's Lists with High Honors

**Relevant Coursework:**

Embedded Systems, Distributed Systems, Computer Systems, Computer Security, Machine Learning, Data Structures, Web Applications, Advanced Algorithms, Human-Centered Software, Statistical Computing, Statistical Visualization, Modern Regression

**Technical Skills:**

Python, Ruby, C, C++, SystemVerilog, x86 Assembly, R, Java, SQL, MongoDB, TensorFlow, PyTorch, Numpy, Pandas, Linux

## WORK EXPERIENCE

Microprocessor Core Verification Engineer, Advanced Micro Devices (AMD)

July 2024 - Present

- Delivering bug-free first silicon through software verification using **random stimulus** along with functional coverage and assertion-based verification methodologies; supporting multiple generations of ZEN cores powering **Ryzen** and **EPYC** chips

ML Energy Researcher, Battery Lifecycle Prediction Tool

August 2023 - June 2024

- Crafted a **real-time predictive modeling and monitoring** tool for **state of charge** and state of health analyses of **decommissioned Lithium-ion** battery cells for deployment to **industrial energy storage** solutions with Dr. Barry Rawn
- Deployed a pipeline to **standardize siloed data** collected from LFP batteries in drones, e-bikes, laptops, and electric cars, boosting **efficiency by 500%**; managed data from industry players and improved savings by estimated **\$100,000 per MWh**

Lead Teaching Assistant, Carnegie Mellon University

January 2021 - Present

- Provide teaching support for diverse courses, including **computer security, statistical computing, statistical visualization, and calculus II** across **6 semesters**; impart skills such as **GDB debugging, stack tracing, data structures**
- Conduct recitations, host office hours, contribute to course material development, and mentor **~150 students** every semester

Founder and CEO, Payree Credit

June 2022 - June 2023

- Built a data-driven product to **aggregate and translate credit scores** across countries, collaborating with **5 credit providers and bureaus** to underwrite loans and increase access to other **financial tools for immigrants**
- Targeted expanding markets such as **India, Pakistan, and Mexico**, partnering with credit card, rentals, student, and auto loan providers; spearheaded an intercontinental **team of 6**; **tested and deployed** an API to make underwriting **10x** faster

Software Engineering Researcher, SpiralGen Inc.

May 2021 - August 2021

- Implemented a **Number Theoretical Transform library** on the SPIRAL program generation system to automate **platform-tuned implementations** for upcoming multicore processors and chips
- Collaborated with teams at **Carnegie Mellon and Drexel University** under Dr. Franz Franchetti to boost **code efficiency** by up to **100 times** compared to manually produced alternatives

Software Engineering Intern, MetaCube Software

June 2020 - August 2020

- Developed a Python-based **customizable NLP tool** to summarize critical information from annual financial reports, saving **400 work hours per year** on average; applied multilingual **Named-Entity Recognition** to tokenize **text and tabular data**

## PROJECTS

Real-Time Operating System - Embedded Systems | *C, Assembly*

August 2023 - December 2023

- Designing a real-time operating system capable of **multi-threading** using dynamic scheduling algorithms, mutexes, context switching, and memory protection; capable of control change from light and sound sensors and **quadrature encoders**

Synesthesia - Engineering Capstone | *Python, C*

January 2023 - May 2023

- Built a dynamic lighting system to automate professional light shows in **real-time** with **100% song detection** and **90% signal attribute extraction** accuracy; compatible with any **DMX protocol** light fixtures; voted **top 10** projects
- Extracted signal attributes like **beat times, energy divisions, spectral content** and used **change point time-series analysis** to map lighting commands and communicate with hardware using a **threaded scheduler**; used **Django, python**

ScheduleLab Web Application | *Python, Javascript*

April 2022 - May 2022

- Programmed a Django-based productivity web application for **agile workflow management** to provide an interface for tracking and collaboration by multiple **concurrent users**; used **OAuth, Bootstrap, AWS**; selected for **top 5 projects**

Computer Science and Data Analysis Projects | *C, Java, Python, R*

January 2022 - May 2024

- Implemented an industry-grade **distributed fault-tolerant system** with active and passive replication, checkpointing, and recovery, a **Linux-like Shell**, a **Dynamic Memory Allocator**, **regression and bootstrapping models**, and more

## LEADERSHIP AND EXTRACURRICULARS

Co-President, CMU Institute of Electrical and Electronics Engineers (IEEE)

August 2020 - May 2024

- Led and managed an executive team of **30 people** for CMU IEEE chapter, conducted weekly meetings, and delegated tasks
- Hosted **corporate and pre-professional events** for **300+ chapter members**; liaised with sponsors, professors, and alumni