Keshab Agarwal

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SUMMARY

Senior year CS major at UCSD; hardworking and focused individual with excellent communication skills. Looking for part time internships for Fall 2022 and full time positions starting January 2023. Open to relocation.

EDUCATION

University of California - San Diego   San Diego, CA
Bachelor of Science in Computer Science, Minor in Economics   *Sep. 2019 – Dec. 2022*
- **Cumulative GPA:** 3.99
- **Provost Honors:** Fall 2021, Spring 2021, Winter 2021, Fall 2020, Spring 2020, Winter 2020, Fall 2019
- **Relevant Coursework:** Deep Learning, Machine Learning, Intro to Cybersecurity, Operating Systems, Advanced Data Structures and Algorithms, Software Engineering, Computer Networks, Web Server Technologies and Online Analytics, Systems Programming, Computer Architecture, Components and Design Techniques for Digital Systems

EXPERIENCE

Apple Inc.   San Diego, CA
Firmware Intern (Upcoming Summer 2022)   *Jun. 2022 – Sep. 2022*
Design Verification Intern   *Jun. 2021 – Sep. 2021*
- Ensuring functional quality of multiple image processing blocks in Display Engine
- Working closely with the team to review specifications, develop attributes, and define methodology & test benches
- Teaming up with the design and arch. teams to understand the functional and performance goals of the design
- Work independently and manage deliverables to align with the project goals

Computer Science and Engineering Department, UC San Diego   San Diego, CA
Undergraduate Tutor   *Oct. 2020 – Present*
- Undergraduate tutor for Advanced Data Structures, Introduction to CS: Python, and Software Tools Lab
- Responsibilities include mentoring students, holding office hours, grading, preparing, and testing assignments

Gerald's CER Lab, University of California San Diego   San Diego, CA
Research Assistant   *Jul. 2020 – Feb. 2022*
- Worked on analysing the academic and social experiences of transfer students in Computer Science courses.
- Conducted hypothesis tests using **Pandas** and **SciPy** to identify differences in academic performance and analyze weekly survey responses for social experiences of different student groups across courses.

PROJECTS

Recurrent Neural Network for Caption Generation on COCO-2015 | *PyTorch, NumPy, Python*   Mar. 2022
- Created and trained a RNN using LSTM layers to generate captions on $1/5^{th}$ of the COCO-2015 dataset
- Used a pre-trained ResNet-50 encoder with a custom linear layer and a multi-layer LSTM decoder for the task
- Used stochastic sampling method for caption generation and achieved a Bleu-1 score of 68.61%.

Fully Connected Feedforward Neural Network for Classifying KMNIST | *NumPy, Python*   Feb. 2022
- Created and trained a feedforward neural network with one hidden layer to classify KMNIST dataset in NumPy
- Implemented back-propagation, stochastic gradient descent, and momentum from scratch using NumPy
- Experimented with different activation functions, topologies and regularization to achieve an accuracy of 86.54%.

Web Analytics Website and Collector Script | *Express JS, Node JS, MongoDB, Passport JS*   Jun. 2021
- Wrote a script which collects website analytic data and sends it to a RESTful endpoint with a MongoDB database
- Created an analytics dashboard to visualize aggregate page load time waterfall data, served using Node & Express
- Added a auth system using Passport JS which enforces admins privileges (ability to edit users) or user privileges

Pomodoro Timer Web App | *Vanilla JS, CSS, HTML*   Mar. 2021
- Designed and developed a Pomodoro Webapp in a team using HTML, CSS and JS, following Agile development
- Features include weekly performance graph, total statistics, keystroke access and high-contrast mode

TECHNICAL SKILLS

Languages: Python, C/C++, Java, JavaScript, HTML/CSS, SystemVerilog, Verilog, Bash Script
Libraries and Frameworks: PyTorch, CUDA, NumPy, Pandas, SciPy, Node JS, Express JS
Other Skills: Git, Assembly (MIPS, ARM), MATLAB, MongoDB, HTML, CSS