Ameya Singh

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Education

- **University of California, San Diego** Overall GPA: **3.9**
  Bachelor of Science Major: Computer Science, Minor: Mathematics *September 2019 - June 2023*

  Graduate Coursework: Computer Vision, Robotics and Reinforcement Learning, Web Mining and Recommender Systems

  Undergraduate Coursework: Advanced Data Structures, Design and Analysis of Algorithms, Machine Learning for Music and Audio, Computer Graphics, Data Science in Practice, Honors Linear Algebra, Mathematical Reasoning

  Activities: Vice Chair Logistics at Jacobs' Journal of Engineering Research, Event Finance Chair at IEEE, Project in a Box

Skills

- **Languages**: Python, R, C, C++, JavaScript, SQL, HTML, JAVA, Bash, regex, GraphQL, ARMv7 assembly
- **Frameworks**: PyTorch, OpenCV, Scikit, NLTK, TensorFlow, Keras, Django, Flask, NodeJS
- **Tools**: Kubernetes, Docker, Git, MySQL, SQLite, MongoDB
- **Platforms**: Linux, Arduino, Raspberry Pi, AWS, Google Cloud

Experience

- **Sigma Computing** Remote
  Machine Learning Research Intern *July 2021 - Sep 2021*
  - **Optimizing deep learning model selection**: Working on hyperparameter selection algorithms to accelerate cloud analytics, APIs to automate deep learning model selection using Python and Postgres
  - **Upgrading pre processing functionality**: Helps decide configuration options, while providing warnings and time-series plots
- **Engineers for Exploration** San Diego
  Project Lead - Aye-Aye Sleep Monitoring *October 2020 - Present*
  - **Working on deploying sensor network**: The sensor network is a pilot deployment, possibly generalized in the future for various enclosures.
  - **Data Server and forwarding video streams**: Worked on the capture and forwarding of IR Camera video feed and microphone data to data servers at SDSC through TCP, set up data server for efficient storage of timestamped data using MongoDB
  - **Computer Vision**: Researching various applications like Optical Flow and Background Subtraction to effectively detect motion in order to quantify quality of sleep using RCNNs and C4.5, Awarded the HDSI Undergraduate Research Scholarship for working on this project
- **Jacobs School of Engineering** San Diego
  Deep Learning Research Intern *January 2021 - Present*
  - **Working on robustness of machine learning models**: Using techniques like Interval Bound Propagation to verify steadiness against adversarial attacks, also developing new models and model definitions using ODENets to increase achievable robustness against abnormalities
- **San Diego Supercomputer Center** Remote
  Software Engineer Intern *June 2020 - September 2020*
  - **Developer Lead**: Led a team of 5 developers to work on various components for the Research and Data Services division, working on building and testing new database pipelines and ETL scripts
  - **Model Selection/Improvements**: Worked on developing and upgrading new LSTM models and syncing with Azure Cloud

Honors and Awards

- Halıcıoğlu Data Science Institute Undergraduate Research Scholarship, December 2020
- Provost's Honors - Awarded for obtaining a 3.5+ GPA and taking at least 12 units, Fall 2019 - Spring 2021
- UCSD IEEE Quarterly Projects First Place, Spring 2020

Projects

- **Music Style Transfer Using CycleGAN (GANs, TensorFlow, Audio Analysis)**: Research oriented implementation of a CycleGAN network to efficiently change between different genres of music.
  `https://drive.google.com/file/d/1Z1D054g-Wo87KXsfjm6mR5EjOMVYPQs8/view?usp=sharing`
- **Motion Detection in animals using RCNNs (PyTorch, Computer Vision, Optical Flow)**: Working on a motion detection algorithm utilizing RCNNs to detect motion in enclosed animals, in order to predict sleeping patterns.
  `https://github.com/UCSD-E4E/ASM-motion-tracking`