Farhat R. Ahmed

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Objective

As a computer engineering undergrad at UCSD in my final year, I am seeking internships to contribute and expand my technical skills in a practical industry setting.

Education

Bachelor of Science in Computer Engineering

University of California San Diego | San Diego, CA

Expected Graduation Date: 12/2025

- current GPA: 3.9, 182/196 credits

Relevant courses taken:

- **CSE**: Advanced Data Structures, Design and Analysis of Algorithms, Computer Organization/ Computer Programming, Engineering Computation/C Introductory Programming Class, Software Tools and Techniques Laboratory, Software Engineering
- **ECE**: Circuits/Systems, Linear Systems Fundamentals, Digital Systems/Circuits, Adv. Digital Design Project
- **Math**: Engineering Probability/Statistics, Linear Alg. Discrete Mathematics, Differential Equations
- **Electives**: ML Learning Algorithms, Intro to AI, Parallel Computing(OpenCL), Deep Learning(PyTorch)

Folsom High School | 05/2022 | weighted GPA - 4.40/4.00, **1580 SAT** (800 Math/780 English)

Work Experience

Paid Internship at UCSD ATI(Academic Technology Innovation) | July 2024 - present

- Software Engineering role immersed me into diverse industry tools/softwares (database apis/web applications, Perl, C#, Python, Docker, WSO2 API Manager, Bamboo, Windows Remote Desktop, Grouper)
- Crafted complex SQL queries in Java-based grouper templates to efficiently retrieve critical data used by UCSD applications like SAL(student account lookup)
- Expanded UCSD's podcast system with new features for a more dynamic, responsive, and intuitive interface
- Extended functionality of the Perl based stuacct database api, which handles student course provisioning, by creating new POST operation and integrating Splunk logging at strategic points
- Created Docker Python Parent Images for new versions and designed bash tests to validate functionality
- Resolved tickets on a wide array of issues affecting DSMLP(Data Science/Machine Learning Platform) users
- Patched vulnerabilities affecting Python Parent Images and other ITS applications

Research Assistant at SEE Lab | Machine Learning | July 2025 - present

- Contributed to SEE lab sponsored by key industry players like Intel, Google, Microsoft, Qualcomm, Oracle
- Expanded Hyperdimensional Computing algorithm Hyper-Spec developed by UCSD researchers
- Using Lovain algorithm, implemented Incremental Clustering for protein spectral data to efficiently incorporate new data into clustering analysis

Paid Internship at UCAR/NCAR| Network Engineering | June 2023 - September 2024

(federally funded atmospheric research facility)

- Automated network processes through Python scripting to improve network efficiency
- For easier maintenance of UCAR's network database, revamped existing database 'Portlist' built on Perl by combining Python and AKIPS(network monitoring software)
- Collaborated in creating a program from scratch to check the state of UCAR's out of band network(backup to main network)
- Enabled simpler configuration for UCAR's land-lines by converting existing configuration file format(SCCP) to

MGCP format through Python file parsing
- Enhanced login efficiency by automating SSH key validation to consolidate device keys in a global file
- Simplified Ansible playbooks that update Cisco and Juniper accounts to call a single accounts file
- To ensure idempotency, simplified NTP/ACL setup and config fetching playbooks using native Ansible modules to replace issuing raw commands

Projects

Face Image Age Detector: Deep Learning Project | January - March 2025

- Using Pytorch, created convolutional neural networks to predict age range based on Kaggle dataset of face images
- Employed VGG-16, DenseNet, ResNet, and Inception convolutional neural networks

Triton Mates: Software Engineering Course Group Project | September - December 2024

- Built a web app using Node Js/React/Firebase for roommates to coordinate tasks and resolve conflicts with a fun points system encouraging participation
- Designed and implemented the backend of critical aspects like roommate task components, event components, points, user profiles, and conflict resolution wizard.
- Took initiative in facilitating technical discussions and completing stalled tasks

Problematic Internet Use Predictor: Machine Learning Project | September - December 2024

- Preprocessed Kaggle Dataset by imputing random values for null values, removing excessively null features
- Predicted Internet Severity Impairment Index (SII) using Linear Regression and Random Forest models with hyperparameter tuning

IEEE UCSD Quarterly Project | April - June 2024

- With a team of fellow students, built a flask based app displaying all current campus events in a single unified environment by utilizing selenium to scrape club instagrams with Jupyter Notebook Python scripts

Deep Learning with Neural Networks with PyTorch

Coursera Certificate | June 2024

- Logistic Regression/Convolutional Neural Networks, Batch Norm., Dropout, Xavier Method, Gradient Descent

Leadership Skills

- **UCSD ATI**, I worked with a team of student and full-time developers where I leveraged my versatile experience to solve diverse software engineering problems in databases/web applications handling student course information
- **SEE Lab,** working under a postdoc, I worked independently performing literature review and integrated incremental clustering through the Lovain algorithm into the complex Hypersec algorithm
- **UCAR,** I worked in the NETS team with student interns and full-time network engineers where I showed initiative in developing innovative approaches to solve challenging problems of the expansive UCAR network

Technical Skills

Programming Languages: Java, Javascript, Python, Perl, C, C++, C#, YAML, Assembly, React, Verilog, SQL
Software/Frameworks: Android Studios, Visual Studios, Cisco Packet Tracer, Computer Vision/EOCV, Linux Terminal, AKIPs Networking Monitoring, Ansible, Jupyter Notebook, Selenium, Pytest, Junit, Emacs, PyTorch, Perl DBI, Docker, scikit-learn, Firebase, Windows Remote Desktop, Bamboo Build
Networking Skills (CyberPatriots/UCAR): Configuring routers/switches**,** IPv4/IPv6 addressing/routing, ACL Firewalls, VLANs, Inter-VLAN routing, OSPF, DHCP, NAT, SSH protocols, SNMP, CDP, LLDP, DNS, automating shell commands, NTP, ACL