Ehsan Mahmud Shishir

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EDUCATION

University of California — **Irvine, California**
Bachelor of Science in Computer Science — *Graduation Date: Jun 2026*
- *Full-Time Dean's Honor List (**1** time)* — *Graduation Date: Date*

Los Angeles City College — **Los Angeles, California**
*Transfer Major: Computer Science (GPA **3.9**)* — *Graduation Date: May 2024*
- *President's Honors (**2** times), Full-Time Dean's Honor List (**4** times)*

RELEVANT COURSEWORK

INF 113: Requirement Analysis and Engineering
INF 131: Human Computer Interaction
CS 121: Information Retrieval
CS 177: Applications of Probability in Computer Science
CS 178: Machine Learning and Data-Mining
ICS 46: Data Structure

PROJECT EXPERIENCE

FutureSelf (Group Health Informatics Project) — **Irvine, California**
Lead Researcher & Designer — *Oct 2025 - Present*
- Conducting a formative research study (**N=51**) to analyze how university students anticipate the short-term consequences of sleep and caffeine decisions.
- Engineering a **heuristic-based decision support system** that maps user input vectors (sleep duration, meal timing, caffeine intake) to predicted future energy states using logic derived from survey data.
- Developing a responsive web interface **(JavaScript)** to visualize "future self" states, facilitating user reflection and behavior change.
- Iterating on UI/UX designs based on qualitative feedback to improve the interpretability of health predictions.

Custom Web Search Engine — **Irvine, California**
Algorithms & Data Structures Developer — *May 2025 - Jun 2025*
- Built a custom web search engine, indexing tens of thousands of pages under strict memory constraints.
- Designed an external-memory inverted index that writes and merges partial indexes on disk.
- Engineered on-disk postings retrieval and optimized file-access patterns to deliver average query response times of **30-60** ms, an **80-90%** improvement over the **300** ms requirement.
- Added configurable term-range index splitting to optimize file-access patterns and query performance.

Machine Learning (Group Project) — **Irvine, California**
Classifier Benchmarking on Fashion-MNIST — *Apr 2025 - Jun 2025*
- Compared kNN, Logistic Regression, MLP, and Decision Tree classifiers on the **70,000**-image Fashion-MNIST dataset.
- Built a Python plus scikit-learn pipeline for data normalization, train/validation/test splitting, and sample image visualization.
- Tuned hyperparameters (k for kNN, solver for Logistic Regression, hidden-layer size for MLP, and max_depth for Tree) via validation curves while analyzing error overlap across models to pinpoint consistently challenging image pairs.
- Generated learning curves showing model performance scaling from **10%** to **100%** of the training data.

HONORS AND AWARDS

- Emma Eisenberg Scholarship
- Milton Lipschutz Scholarship
- Sidney Bertram Scholarship

SKILLS & INTERESTS

Languages: C++, C#, Python, HTML/CSS, JavaScript
Framework & Tools: Git, JupyterLab, Figma, FigJam, Adobe Lightroom CC
Design & Research: User Research, Qualitative Analysis, Sketching
Interests: Photography, Photo Editing