Husam Solachuddin

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EDUCATION

University of California, Irvine — **Dec 2024**

Major: Computer Science B.S. | Specialization: Intelligent Systems — GPA: **3.70** | CS GPA: **3.76**

Honors and Awards: Regents' Scholar, Dean's Honor List

Relevant Coursework

Artificial Intelligence, Machine Learning and Data Mining, Data Structures, Algorithms, Full Stack Deep Learning, System Design, Operating Systems, Embedded Systems, IoT, Information Retrieval

PROJECTS

Detecting Unelectrified Settlements — Jan 2024 - Current

Python, Pytorch, CV2, JSON, MatPlotLib, SciPy — **APPLIED DEEP LEARNING**

- Preprocessed remote sensing data of Sub Saharan Africa from an IEEE dataset of Sentinel-1, Sentinel-2, VIIRS, and Landsat satellites into tiles and subtiles of image stacks and metadata
- Implemented image processing and augmentation techniques (grid-slice, restitch, blur, noise, flip) for generalization
- Implementing ResNet50 on Sentinel-1 data and SegNet on VIIRS data to identify settlement and electricity maps
- Designing front-end to present data and findings to targeted end users

Google Street View Digit Recognition — Dec 2023

Python, Tensorflow, Keras, Matlab, Pytorch, Scikit-Learn — **MACHINE LEARNING AND COMPUTER VISION**

- Used Keras to create a Convolutional Neural Network trained on the SVHN dataset, achieving 91% accuracy
- Trained a Logistic Regression model from Scikit-Learn on the same dataset as a control model
- Pre-processed images from the SVHN database to ensure learner compatibility
- Created variational autoencoder to generate images of class labels using Pytorch
- Generated heat maps of both models to identify key features extracted by each model using Tensorflow

UCI.ICS Web Crawler — Jan 2024

Python, Lxml — **WEB CRAWLING**

- Developed a web crawler using lxml to navigate the UCI ICS domain
- Implemented validation system to avoid discovered URLs, non-ICS URLs, and crawler traps
- Identified and logged data such as trap URLs and accessed subdomains for domain mapping and evaluation

ZotVotes — May 2023

C, Docker, Pthread — **API, SERVERS AND MULTITHREADING**

- Constructed the back-end for a multi-threaded poll voting server in a Docker container for UCI students
- Translated protocol messages between the polling server with PetrV API to ensure interoperation
- Utilized threads and synchronization locks to guarantee proper concurrency and data integrity

EXPERIENCE

UC Irvine ICS— Lab Assistant — Dec 2023 - Now

Python, Git — Irvine, CA

- Assists students in understanding programming concepts, tools, and Python libraries
- Debugs students' Python code and answers students' doubts during lab and office hours

Mathnasium— Instructor — Aug 2019 - Jan 2023

Excel — Tracy, CA

- Taught math and provided SAT preparation to high school students across varying math levels
- Managed and monitored individual student progress for the company database

SKILLS

Languages:	Python, C++, C#, C, Objective-C, Java, Javascript, SQL, R, Go, Assembly, HTML, CSS
Libs/Frwks:	Numpy, Pandas, Scikit-learn, MatPlotLib, TensorFlow, Keras, OpenCV, Pytorch, Lxml, NLTK, spaCy, ReactJS
Tools:	Matlab, Databases, Conda, Linux/Windows, AWS, Jupyter, Docker, Git, VS Code, Figma, Excel, Unit Test
Comms:	English, Indonesian