Abichal Ghosh

480-876-3640 | aghosh55@asu.edu | linkedin.com/in/abichal-ghosh/ | github.com/ABICHAL1708

EDUCATION

Arizona State University   Aug. 2022 – May 2024
Master of Science, Computer Science   GPA - 3.96/4.00

Birla Institute of Technology and Science, Pilani   Aug. 2018 – May 2022
Bachelor of Engineering, Computer Science, First Division   GPA - 8.65/10.00

TECHNICAL SKILLS

Languages: Python, C, C++, JavaScript, Java, MATLAB, HTML 5, CSS, Bash, MySQL
Tools: D3, React, Git, AWS, DynamoDB, TensorFlow, PyTorch, NumPy, SciPy, scikit-learn, Pandas, Linux, FastAPI
Subjects: Cloud Computing, Software Design, Data Structures & Algorithms, Data Mining, Natural Language Processing, Semantic Web Mining, Information Assurance & Security, Data visualization, Human-Computer Interaction, Computer Vision, Artificial Intelligence, Web Development, Database Management Systems, Operating Systems

EXPERIENCE

Machine Learning Engineer Intern   May 2023 – Dec 2023
501CThree.Corp   *Michigan, USA*
- Refactored and debugged existing code for data collection from Raspberry Pis resulting in improved efficiency.
- Implemented a new streamlined distributed system with separate folders and AWS DynamoDB tables to enable simultaneous real-time data collection and upload from multiple Raspberry Pis across 4 different locations.
- Detected anomalies for enabling accurate failure detection in the data collected from the Raspberry Pis.
- Utilized AWS CloudWatch and lambda triggers to create a real-time warning system based on detected anomalies.
- Trained a classification model with 85.7% accuracy on data with effective interpolation of missing values.

Machine Learning Research Intern   May 2021 – Dec 2021
Computer Vision Center (CVC, UAB, Spain)   *Barcelona, Spain*
- Analyzed image compression codecs and Variational Autoencoder(VAE) models to identify areas for improvement.
- Visualized the Filters of the 1st layer of the models, and examined subsequent layers of the models using PCA, CKA, Canonical Correlational Analysis (CCA), Singular Vector Canonical Correlational Analysis (SVCCA), etc.
- Improved the size and the performance by evaluating a prototype, achieving an average improvement of 47.5%.

Machine Learning Intern   May 2020 – June 2020
RRSC West, NRSC, ISRO   *Rajasthan, India*
- Generated and exported 500+ Satellite Images from Google Earth Engine using JavaScript & Data Augmentation.
- Utilized DeepLabv3+ and UNet for high-res Satellite Image Segmentation to detect Solar Farms and Sand Dunes.
- Achieved autonomous target detection for the precise tracking and monitoring of solar farms(for maintenance) and sand dunes(An indicator for managing disasters, particularly sandstorms).

PROJECTS

Prototyping and Redesigning a website| *Javascript, React, HCI, UI/UX*   Jan 2023 – May 2023
- Led a Human-Computer Interaction project focused on redesigning a website employing React for the redesign.
- Enhanced user experience by introducing a cart feature and resolving critical page linking errors.
- Evaluated project success with metrics including 53.27% increase in Overall Relative Efficiency, 27.8% decrease in average navigation time and 65.41% increase in the mean System Usability Score.

Cloud System Visualization with Behavioral Lines | *Javascript, D3.js, AWS*   Aug 2022 – Dec 2022
- Leveraged a dataset with 1440 data points, containing 5 performance metrics of multiple clusters of AWS servers.
- Implemented an interactive and flexible visualization using D3.js consisting of 4 charts to analyze the highly complex and correlated cloud computing dataset.

UML Diagram Generator| *Java, Software Design, Software Architecture*   Aug 2022 – Dec 2022
- Developed a dynamic UML diagram generator using Java, showcasing proficiency in software design & architecture
- Designed a GUI with a dual-interface system: one side for code structure input, and the other for the interactive UML visualization enabling the users to intuitively add class relations by interacting with the diagram elements.
- Utilized the Model-View-Controller(MVC) design architecture pattern for a more modular architecture.
- Employed industry-standard practices such as Decorator Design Pattern for dynamically adding GUI elements in real-time and Observer Design Pattern for real-time code-diagram synchronization.