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EDUCATION

Master of Computer Science Thesis
(Aug 2021 – May 2023) University of Georgia, Athens, Georgia **GPA: 3.7/4**
Bachelor of Technology – Computer Science
(Oct 2010 – Apr 2014) **Sree** *Vidyanikethan Engineering College, Tirupati, Andhra Pradesh* **GPA:7.9/10**

PAPER PUBLICATIONS

Research Assistantship (THINC Lab UGA):
Computational Trust Framework: Thesis A Computational Model of Robot Trust in Human-Robot Teams
Project Overview: Spearheading an innovative AI project focused on developing a computational trust framework. The goal is to enable AI systems to evaluate and quantify trust in human collaborators during joint human-robot team tasks.
Machine Learning Development: Created sophisticated machine learning models using Python that analyze behavioral patterns, historical interactions, and task outcomes to assign trust values to human participants. Implemented deep learning Bayesian model to compare the results as the reference paper.
Analysis: Ensured the AI system operates in real-time, providing dynamic trust scoring that adapts to new information and changing situations, thereby supporting effective team collaboration.
Collaborations: Considered ethical guidelines into the AI's decision-making process to ensure unbiased evaluations of trust, respecting privacy, and avoiding discrimination. Worked with Psychology team to develop a live test bed to deploy our framework and analyze the results**.**

TECHNICAL SKILLS

- Programming Languages : C++, Django, Java, Python, Flask, Unix Shell Scripting, React JS and My SQL
- Methodology : Agile Methodology, V Model, DevOps (CICD)
- Software's : Jenkins, Google Colab, Docker, Jupyter Notebooks, Visual Studio
- Working Forums : Confluence, CC-Jira, eforge, Doors, Shortcut, Excel
- Plugins/Tools Used : PyYaml, Pylint, JSON, Plotly, Dash, SonarQube, Matplotlib, and Curl
- Courses Taken : Data Science, Artificial Intelligence, Algorithms
- Code Repositories : Git, IMS, Bitbucket, AWS S3
- Frameworks and Platforms : PyTorch, TensorFlow, Keras, OpenCV, scikit-learn, sklearn, Pandas, Numpy, MLFlow, AWS Services, OpenAI Gym, CI/CD Pipelines, DXL Scripting
- Operating Systems : Linux distributions like Ubuntu and RedHat, macOS.

RECENT WORK

Subject: Decision Making Under Uncertainty
Lost Cities Card Game: Lost Cities
Project Synopsis: Engineered an intelligent card game, 'Lost Cities', using the Partially Observable Markov Decision Process (POMDP) model to simulate strategic gameplay in uncertain environments.
Technical Details: Utilized Python for the core algorithm development, encapsulating complex decision-making heuristics that allow robots to effectively compete by calculating optimal moves for maximum scores.
Machine Learning Integration: Implemented advanced ML techniques to enable the AI to adapt strategies based on game progression. The system uses reinforcement learning to understand the game dynamics and improve decision-making over time.
User Interface: Designed and deployed a user-friendly game interface with Django, providing a seamless experience for users to interact with the AI and monitor gameplay.

PROFESSIONAL EXPERIENCE

Robert Bosch, Michigan **Present**

Technical Specialist*. Domain- Software Integrator and Azure DevOps.* Worked as part of cross functional teams.

- **CSW (Complete Software) Integrator**
  - **Role:** Software Integrator and System Engineer
  - **Technologies:** Python, Shell Script, C++, JSON, conan
  - **Description:** Integrated Driving, Parking, and VIPERS1 components into the Complete Software (CSW) platform, ensuring seamless functionality across these systems. Migrated existing shell scripts to Python, improving maintainability, and introduced new features to optimize workflow efficiency. Gained proficiency in using the Conan command utility for efficient dependency management. Demonstrated expertise in ensuring compliance with ISO 21434 (automotive cybersecurity) and ISO 26262 (functional safety), focusing on system integration and adherence to industry standards. As a System Engineer, played a crucial role in analyzing how middleware communicates and processes signals between various components, ensuring smooth system integration. Engaged directly with customers during debugging sessions, contributing to problem-solving and system enhancement efforts, which improved system reliability and customer satisfaction.
  - **Achievements:** Initiation to implement python scripts and use Conan modules**.**
- **HIL Testing:**
  - **Role:** System Tester and Validation Engineer
  - **Technologies:** Trace32, Python, Linux, PyQt
  - **Description**: Developed and executed test cases from system requirements on HIL. Created Python scripts to automate test execution and improve validation efficiency. Implemented new test cases and checj against requirements for various automotive sub-systems and update the test reseults on doors for each release. Debugged and analyzed failed test cases to identify root causes in test scripts, software, or calibration.
  - **Achievements:** Implemented GUI for flashing and testing the toliman software on bench using python and PyQt
- **Pipeline Development and Automation**
  - **Role:** DevOps Engineer
  - **Technologies:** Python, Shell Script, Azure Pipeline, YAML
  - **Description:** Developed new pipelines to automate the process. Used GIT API to perform certain tasks for automation.
  - **Achievements:** Using GIT API to raise a pull request automatically via pipelines to reduce manual effort of building CSW repo with new component versions and raise a PR if build is successful with updated configurations.
- **Project Visualization and Reporting**
  - **Role:** Software Developer
  - **Technologies:** Python, XML, DRAWIO, GIT API
  - **Description:** Designed draw.io diagrams to represent system architecture and workflow processes, for clear and effective project communication. Automated draw IO files generation to display PR statistics and identify the component list for the PRs merged using GIT API. Used Milestone in GIT to group the pull requests to introduce new way of integrating PRs to reduce the manpower to perform manual tests for each PR.
- **ChatBot for quick analysis:**
  - **Role:** Software Developer
  - **Technologies:** Python, AI/ML, AWS,
  - **Description:** Used automatically generated reports as knowledge base and generates graphs and table overview based on user inputs. Used QdrantClient to convert existing knowledge base to vectors to store in Postgres SQL. Used OpenAI's language model to enable the chatbot to understand complex user queries and generate human-like responses.
- **Release Management**
  - **Role:** Software Developer
  - **Technologies:** Docker, Azure, Bitbucket

    - **Description:** Created Docker Files and compose.yaml to create images and upload images to artifactory which can be used to build various components. Designed a common repo for all components and used Azure containers to build components in parallel and sanitize the repos and deploy those repos to Bitbucket.
- **Near Field Filter Calibration Process**
    - **Role:** Data Engineer
    - **Technologies:** Python, scikit-learn, Github
    - **Description:** Worked on design phase and decided what ML clustering Algorithms can be used. We identified pros and cons of clustering algorithms and decided how to consider, which data has to be considered as valid and what are different criteria to filter the data and reject the data.

Continental Automotive India Private Limited, Bangalore, Karnataka May 2019 - July 2021

***Technical Specialist**. Domain- ADAS-Camera Object Detection- Computer Vision*

- **Camera Object Detection (COD) - Computer Vision**
    - **Role:** System Engineer and Scrum Master
    - **Responsibility:** Worked as Scrum Master - Jira is Used for Tracking Tasks, where we follow Agile Scrum and confluence for Documentation and Sprint Retrospective and have good knowledge of Software Development Life Cycle
    - **Technologies:** Python, Oracle, Doors
    - **Description:** As a System Engineer, I contributed to the development and integration of Camera Object Detection systems, ensuring the system's design, functionality, and performance met the required specifications. I worked closely with cross-functional teams, including software developers and label engineers, to coordinate the integration of computer vision algorithms into the system. My role also includes new requirements discussion and with customers and decide on the priority of requirements and how the outputs of camera are considered for Emergency break Assistance (EBA). As a scrum master I led Agile Scrum ceremonies, managed task tracking using Jira, and facilitated team collaboration through Confluence for documentation and sprint retrospectives. I possess a strong understanding of the Software Development Life Cycle (SDLC) and guided the team in following best practices to ensure timely delivery and continuous improvement.
    - **Achievements:** Successfully integrated labeled data from Oracle databases for model training and object detection. Implemented data models and migrated object detection from 2D box to 3D box mapping.
- **TM_KPI_PORTAL**
    - **Role:** Software Developer
    - **Responsibility:** Worked as Full Stack Developer using Web Frameworks (Django, Flask) for python-based web applications. Backend Technologies - SQLite, Oracle, SQL
    - **Technologies:** Python, Dash, Flask, SQLite
    - **Description:** Created a tool to visualize camera object detection performance across various scenarios and weather conditions. Enabled data input via SQLite and presentation of results through graphs, charts, and tables. Worked as a Front-End developer.
    - **Achievements:** Enhanced user experience by providing detailed visual analytics of vehicle classifications and performance metrics.
- **AUTOSIM**
    - **Role:** Technical Specialist
    - **Responsibility:** Worked as python Automation Engineer to develop End-to-End Implementation for AUTOSIM Tool and used GIT version Control Tool and Jenkins for Automation to achieve DevOps. Designed AWS Cloud Formation templates to create custom lambda functions and to set up IAM policies for users, database templates using Python (BOTO3 & AWS CLI) and JSON Templates.
    - **Technologies:** Python, Django, Jenkins, Git, Doors, AWS S3, POSTGRES SQL and DynamoDB (NOSQL), Teraform, AWS Lambda, and REST APIs
    - **Description:** Developed a framework to integrate various automotive components to facilitate end-to-end automation for continuous integration and deployment. Built a GUI for viewing reports and managing component tests. Worked on end-to-end automation and as a full stack developer. For non-relational databases we have used DyanmoDB to

create tables where we have stored kpi results.
    - **Achievements:** Started with a prototype for COD component with Jenkins for CICD. Enhanced the project to integrate multiple components and developed a visualization API to analyze test results. Used AWS to manage API and storage. Decreased 70%-man effort to perform the testing and uploading test results to Doors.
- **IMS_DASHBOARD**
    - **Role:** Software Developer
    - **Technologies:** Python, React JS
    - **Description:** Engineered a dashboard to manage tasks across teams and provide performance reports to managers. Developed both mobile and desktop versions, enhancing managerial oversight.
    - **Achievements:** Improved project tracking and management efficiency by implementing comprehensive task and performance reporting tools.

Teradata India Private Limited, Hyderabad, Telangana Aug 2018 - May 2019

***Data Analyst**. Domain: Aster- Data Analytics - Agile Process*

PYTERADATA: Tool to provide Python interface for SQL Analytical Functions on Teradata Database.

- The tool automatically creates API by using JSON using Java Programming Language. Use JSON as input to the application which automatically provides an outline for python test files.
- Use Git for Version Control. Followed Agile and Scrum Meetings. Developed Functional Test Cases and Unit Test cases and worked on SQL Queries on Treat Database. Learned Various Data Analytical Functions like Ntree, DecisionTree, and KNN
- **Roles and Responsibilities:** Worked as Python Developer and Tester in R&D Department have good knowledge of OOPs which are used to develop Data Analytical Functions on Teradata Database Server.

Tata Consultancy Services Hyderabad, Telangana Jun 2014 - Aug 2018

***Senior Engineer.** Domain: Ericsson - Agile Process*

DX: DX is a toolbox which support to install components on real nodes and also to create virtual environment to support testing for all components. It contains 7 tools which will help to install components to provide services for telecom industry.

- **AIT (Automatic Installation Tool):**
    - **Role:** Software Developer and Tester
    - **Technologies:** Python, Linux, VirtualBox, Jenkins
    - **Description:** This tool is used to install components on the real nodes. We used VirtualBox to create nodes for testing and used SWP file which is used to deploy the stack of components on the virtual node. Implemented unit and functional test suites to perform the tests. Integrated those suites in Jenkins to achieve CI/CD.
- **ESM (Enhanced Software Management):**
    - **Role:** Software Developer and Tester, Automation Engineer.
    - **Technologies:** Python, KIWI, Artifactory, Shell Scripting, PyYaml, Gerrit, SonarQube, Eforge, Confluence
    - **Description:** Tools to consider YAML as input and deploy a system by using various tools in Process and try to create ISO files that can be used to install packages. csmcli tool to update YAML file with CLI interface. csmlint tool to validate the YAML file. CSM config to generate configurations. csm2iso to generate ISO file. Artifactory Manager can download packages by considering a list of packages in XML file input. Used python language and follow Agile and DevOps as part of the Software Engineering Process. Worked as DevOps Engineer where project uses Jenkins as a bridge between Development and Operations. Git is used as a code repository, and we configured Jenkins to fetch the latest code, perform regression testing, and upload the package to the artifactory.
    - **Achievements:** Implemented new tools and gave client demos and got positive feedback for fast releases with new requirements.

PROFESSIONAL SUMMARY

- Worked on TESCO Project on Business Team Analytics where I build a Web Application using Flask to work on sales forecasting use cases using Python, Dash, and Plotly.

- Technical Specialist and Full Stack Developer with over 9 years of experience in software development, system integration, and project management across various domains including automotive systems, computer vision, data analytics, and software engineering.
- Proficient in Python, C++, and JavaScript, with a strong foundation in database management and cloud services.
- Skilled in deploying robust AI and ML solutions, enhancing system functionalities, and driving operational efficiencies through automated workflows.
- My expertise encompasses designing and implementing scalable software solutions, managing end-to-end software development life cycles, and leading agile project teams.
- At Robert Bosch and Continental Automotive, I took initiatives that significantly reduced manual effort and improved system reliability by automating critical processes using advanced DevOps practices.
- Notable achievements include the development of a computational trust framework for AI systems at the University of Georgia and leading the integration of automated testing and release management systems at major corporations, which streamlined operations and enhanced product quality.
- Developed new tools and implemented prototypes where I worked from requirement design phase to deployment phase.
- Follow iterative development approach for enhancing the tools and provide fast deployment using End to End automation because of good debugging skills and troubleshooting skills.