

Bhavana Nare

7067159912 • n.bhavana.reddy5@gmail.com

Git Link: <https://github.com/Bhavana5N>

LinkedIn Profile: <https://www.linkedin.com/in/bhavana-nare-60657385/>

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 SQL
- Methodology : Agile Methodology, V Model, DevOps (CI/CD)
- 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

August 2023 - Present

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

teams.

- **CSW (Complete Software) Integrator**
 - **Role:** Software Integrator
 - **Technologies:** Python, Shell Script, C++, JSON, conan
 - **Description:** Integrated Driving, Parking and vipers1 component to build in CSW (Complete Software). Migrated existing shell scripts to python scripts for easy maintenance and introduced new features to change the workflow. Learnt and enhanced skills to use conan command utility.
 - **Achievements:** Initiation to implement python scripts and use Conan modules.
- **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.
- **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:** Software Developer 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:** Developed a computer vision system for advanced driver assistance, utilizing camera inputs to detect objects and turn indicators. Implemented Python modules for data collection and object classification (Cars, Trucks, Bicycles, Pedestrians, Bikes) using 3D bounding boxes. Followed Agile Model and worked as a scrum master and handled sprint planning and retrospective meetings.
 - **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.
- My academic background in Computer Science, coupled with hands-on professional experience, empowers me to blend technical acumen with practical applications effectively.
- 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.
- My proactive approach in adopting new technologies and methodologies has consistently resulted in successful project executions and improvements in system performance and user experience.
- 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.