# MADHURIMA SAI VEERAMACHANENI

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## EDUCATION

**Indiana University** — **Bloomington, IN**

*Masters in Computer Science* — *August 2022 - May 2024*

**Institute of Aeronautical Engineering** — **Hyderabad, India**

*Bachelor of Technology in Computer Science and Engineering* — *August 2016 - August 2020*

## EXPERIENCE

**Research Assistant** — **August 2023-Present**

*Dr. Andrea Hohmann—Hohmann Labs* — *Bloomington, Indiana*

- Worked on Withdrawal behavior in Rats and started working on analyzing the behavior in Rats and Mice when induced with different drugs by using Deeplabcut and Simba along with Machine Learning.
- I specialize in developing and testing Desktop and web Applications. Notably, I played a key role in creating the 'Rat Counter' Desktop app using JavaFX, resulting in a 500% increase in productivity by analyzing behavior in research videos.
- Additionally, I made significant contributions to DeepLabCut and Simba projects, leading video labeling, behavior analysis, and applying data visualization and machine learning skills. My role emphasizes a comprehensive understanding of software development, data science, and behavioral analysis in a research context.

**Deep Learning Research Assistant** — **March 2023 -July 2023**

*Dr. Cheng Hu —Psychological and Brain Sciences* — *Bloomington, Indiana*

- Analyzed a dataset of 500 brain scans to investigate the effects of respiratory noise.
- Collected and analyzed 100 hours of brain activity data from various imaging modalities, including fMRI, EEG, and MEG. Collaborated with the team to formulate research strategies and identify areas for improvement.
- Implemented Algorithms to extract phase information and correct respiratory noise in data and presented research findings in team meetings and conferences. The research paper, published in the journal of Neuroscience, presented novel insights supported by statistical analyses ($p < 0.01$).

**Software Developer** — **August 2020 – August 2022**

*Tata Consultancy Services* — *Hyderabad, India*

- Collaborated with a team of 8 developers at USAA bank to model and deploy innovative Java-based software applications, driving operational excellence and empowering the BFSI domain.
- Developed an algorithm that improved the performance of a financial risk assessment module by 50 percent , enabling accurate risk analysis.
- Designed and deployed scalable micro-services architecture, handling over 10,000 concurrent user requests.
- Orchestrated the seamless migration of a legacy banking system to a modern Java Spring Boot framework, resulting in a remarkable 50% reduction in response time and improving user experience for bank employees.

**Software Engineer Intern** — **May 2018 – July 2018**

*Microsoft* — *Hyderabad, India*

- Researched and investigated modernizing the Outlook platform by transitioning to micro services architecture, resulting in a 40 percent improvement in scalability and performance.
- Streamlined code base by diagnosing critical areas for improvement, leading to the resolution of 60 software bugs and optimization of key functionalities: increased system efficiency by 20%.

**Java Developer Intern** **June 2017- August 2017**

*Softtek Solutions* *Hyderabad ,India*

- Created a Java-based Web and Android App to streamline the verification process, resulting in a 40% reduction in verification time and upgraded accuracy through real-time data validation.
- Implemented a customized task routing and management system, organizing and systematizing data handling for over 10,000 daily tasks. This optimization resulted in elevated task allocation, lessened operational overhead, and raised team efficiency by 30%.

## TECHNICAL SKILLS

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**Languages and Frameworks**: Python, SQL, Java, C, C++, MATLAB, UML, Shell Scripting, Linux, Angular, ReactJS, PHP PySpark, Django, Flask, JAVA Spring, Java Hybernate.

**Web Development**: HTML, CSS, JavaScript, XML.

**Developer Tools**: PyCharms, Docker, Databricks, Jupyter Notebook, Eclipse, IntelliJ, VS Code, Android Studio.

**Technologies**: Linux, GitHub, JUnit.

**Certifications**: Google Professional Data Analyst, IBM Java Techical Assosciate, IBM Professional Data Analyst, Machine Learning certification by Stanford, Pursuing AWS Cloud Practitioner Certification.

## PROJECTS

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**Identification of Diseased plants in Hydroponic farms using Convolutional Neural Networks**

- Leveraged deep convolutional networks to analyze a vast data set of leaf images, developing a highly accurate plant disease recognition model. Enhanced diagnosis accuracy by 90% and reduced reclassification by 75%.
- Implemented advanced techniques including Deep learning, CNN, Neural networks and Caffe to identify and diagnose 13 different types of plant diseases from healthy leaves.
- Led integration of emoji-based website ratings in The Portal Sleuth, boosting user retention and loyalty by 25%.
- Engineered an innovative approach utilizing machine learning algorithms to distinguish plant leaves from intricate backgrounds, resulting in a 60% improvement in disease detection accuracy and facilitating timely remedial measures.

**Extraction of Facial Features from Speech**

- Spearheaded development of a state-of-the-art TensorFlow model, achieving 93% accuracy in facial landmark detection for augmented reality by leveraging sound wave analysis on speech segments.
- Trained the model on a data set of 5000 videos from AV speech, achieving a space retrieval performance of 70 top 25 results.

**Stone deduction from an Image of a Jewellery**

- Architect-ed and executed a cutting-edge computer vision pipeline utilizing HSV-based segmentation, K-Means clustering, and noise reduction algorithms; enhanced object detection accuracy by 35% and lowered processing time by 20%.
- Analyzed unsupervised learning models, leveraging informed assumptions to optimize computational workflow; achieved a 25% increase in data processing efficiency while maintaining high accuracy.

**Facial Landmark deduction**

- Performed and executed an innovative computer vision project within Open CV, integrating facial feature detection and tracking as a standard capability. Led to sustained accessibility for developers and optimized workflow efficiency.
- Optimized technology by developing a Python-friendly code base, resulting in a 40% decrease in code complexity and refined development speed for the team.