BARNABOSS PULI

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PROFESSIONAL SUMMARY

Results-driven graduate student pursuing a master's degree in Computer Engineering from Cal State Fullerton, with a keen interest in the transformative potential of AI. Boasting a stellar CGPA of 3.95/4, I am equipped with a robust foundation in data analytics and engineering. Eager to contribute to the efforts, leveraging expertise in system software, machine learning, and hardware/software co-design. With a proven ability to adapt to evolving challenges and a passion for driving innovation, I am poised to be a valuable asset to your team.

EDUCATION

California State University Fullerton, *Master of Science in Computer Engineering* *CGPA: **3.94**/4* *Exp.* **Dec. 2024**

Chaitanya Bharathi Institute of Technology, *Bachelor of Engineering in Computer Science and Engineering* *CGPA: **8.01**/10* **Jul. 2022**

WORK EXPERIENCE

Student Research Mentor, Project RAISE. **Jun. 2024 – Present**

- Provided mentorship and guidance to community college students and transfer students, sharing firsthand knowledge of the transfer experience, STEM degree preparation, and STEM transfer processes to help them achieve their academic and career goals.
- Engaged transfer students to build a supportive STEM community at CSUF, advising them on available resources and ensuring they felt welcomed and at home on campus.
- Staffed the Transfer Resource Center, assisted with Project RAISE activities and presentations at community colleges, and supported office tasks, bulletin boards, and informational displays to enhance the program's outreach and impact.

Intern, Full Stack Developer, Keka Technologies Ltd. **Jan. 2022 – Jun. 2022**

- Spearheaded the development of dynamic full-stack solutions using cutting-edge technologies like React, Angular, Node.js, and Python. These solutions significantly elevated application performance, ensuring optimal user engagement
- Displayed exceptional teamwork and communication skills, fostering a harmonious and productive environment among cross-functional teams. This synergy led to the on-time delivery of high-quality web applications that delighted stakeholders
- Pioneered the implementation of Continuous Integration and Continuous Deployment (CI/CD) methodologies, revolutionizing the development lifecycle. This transformative process resulted in an impressive 20% acceleration in deployment speed and streamlined workflows, promoting greater efficiency and rapid innovation

Intern, Mobile Application Developer, CBIT Open-Source Community **Apr. 2021 – Jul. 2021**

- Employed Java, Kotlin, Swift, and React Native to create user-friendly mobile applications, ensuring seamless cross-platform experiences with sustainability in mind.
- Worked collaboratively to deliver intuitive and user-centric mobile apps, promoting positive user experiences and customer satisfaction.
- Successfully implemented version control, resulting in 15% faster app deployment and efficient management of code changes, highlighting proficiency in software versioning and configuration management relevant to AI software development.

RESEARCH EXPERIENCE

Research Assistant, California State University, Fullerton **Aug. 2023-Present**

- Led a groundbreaking research project focused on FPGA security, emphasizing the application of advanced machine learning methodologies to detect hardware Trojans, showcasing proficiency in both hardware and software aspects.
- Implemented dynamic partial reconfiguration techniques to generate diverse circuit profiles, enabling comprehensive training data sets for machine learning models, demonstrating expertise in hardware/software co-design and optimization.
- Generated over 600 unique bitstreams from the FPGAs, allowing for thorough analysis of the effects of hardware trojans on circuit performance, showcasing proficiency in FPGA development tools and methodologies.
- Successfully inserted hardware trojans into ISCAS-85 circuits using Vivado software, demonstrating hands-on experience with industry-standard FPGA design tools and methodologies.
- Collaborated with a team of researchers to identify and document key findings regarding the insertion and detection techniques of hardware trojans, highlighting strong teamwork and communication skills.
- Utilized TensorFlow to develop and optimize machine learning models for hardware Trojan detection, significantly reducing reconstruction errors and enhancing detection accuracy.

PROJECTS

Twitter Sentiment Analysis using Deep Learning

- Conducted extensive sentiment analysis on a large dataset of tweets, investigating public sentiment towards a specific brand during a crucial marketing campaign.
- Expanded the sentiment analysis project to include sentiment trends across different demographics, aiding in the development of targeted marketing strategies.
- Successfully achieved an impressive 82% accuracy in classifying tweets as positive, negative, or neutral sentiments. These findings significantly contributed to enhancing brand perception and informed decision-making during the marketing campaign.

Sign Language Interpreter using Transformers

- Designed and implemented a transformer-based model for real-time sign language interpretation, leveraging pre-trained transformer models (BERT).
- Developed a custom dataset of sign language gestures with diverse variations and integrated data augmentation techniques for model robustness.
- As additional features also added Text recognition in Images and Speech to Text converter.
- Performed rigorous testing and achieved a 90% accuracy rate in interpreting complex sign language phrases and expressions.

Image Super-Resolution using GAN

- Developed a Generative Adversarial Network-based model for enhancing low-quality image resolution, utilizing diverse datasets and advanced perceptual loss functions.
- Evaluated model performance using PSNR and SSIM metrics, achieving a significant improvement in image quality with a 40% increase in PSNR and 30% increase in SSIM scores compared to baseline methods.
- Conducted a comparative study with other state-of-the-art super-resolution techniques, showcasing the superiority of the GAN model in restoring high-quality images.

TECHNICAL SKILLS

Programing Languages: Python, C++, C#, Java, Verilog HDL, Embedded C, R

Tools and Software: Cadence, Synopsys, Xilinx ISE, MATLAB, Simulink, Tensorflow, PyTorch, Docker, NumPy, Pandas, Matplotlib

Hardware Design: FPGA, ASIC, RTL Design, VLSI, LLVM

CERTIFICATIONS

TensorFlow Developer Certificate | Google Analytics Certification | Certified Ethical Hacker (CEH) | Microsoft Azure Fundamentals | Google Ads Measurement Certification| Google Analytics | Professional Certificate | Insights from Data with Big Query | Product-led Certification | Agile Scrum Foundation| Tableau Badges – Connect to and Transform Data, Publish and Manage Content, Explore and Analyze Data, Create Views, and Dashboards