Ramakrishnan Sundareswaran

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EDUCATION

Iowa State University　　　　　　　　　　　　　　　　　　　　　　　　Ames, IA
MS in Computer Science, GPA: 4.0　　　　　　　　　　　　　　　　*Jan 2020 – Dec 2021*

University of Calicut　　　　　　　　　　　　　　　　　　　　　　　Thrissur, India
BS in Computer Science, GPA: 8.36/10　　　　　　　　　　　　　　*Aug. 2014 – May 2018*

EXPERIENCE

Research Intern - Machine Learning　　　　　　　　　　　　　　Jan 2021 – Jun 2021
NEC Labs America　　　　　　　　　　　　　　　　　　　　　　　　*San Jose, CA*
- Developed ML models for object detection in retail environments using PyTorch and deployed them using AWS.
- Fostered a data-centric approach leading to an increase in the overall mAP@0.5 score by 76%.
- Implemented a detection followed by re-identification pipeline for tracking persons across multiple cameras.
- Designed a POC for a transformer based deep neural net for end to end person tracking across multiple cameras.

Graduate Student Researcher　　　　　　　　　　　　　　　　　Nov 2020 – Jan 2021
Software Analytics and Pervasive Parallelism Lab　　　　　　　　　　　　　*Ames, IA*
- Developed a reinforcement learning framework for energy-efficient path planning in Unmanned Aerial Vehicles.
- Integrated a custom-trained YOLO based model in the perception module that reduced false negatives by 82%.

Graduate Student Researcher　　　　　　　　　　　　　　　　　May 2020 – Aug 2020
Computational Media Lab　　　　　　　　　　　　　　　　　　　　　　*Ames, IA*
- Performed data pre-processing and feature engineering on the VISEM dataset using OpenCV.
- Implemented an end-to-end machine learning pipeline with a CNN backbone architecture using Tensorflow.

Graduate Teaching Assistant　　　　　　　　　　　　　　　　　Jan 2020 – Dec 2021
Iowa State University　　　　　　　　　　　　　　　　　　　　　　　*Ames, IA*
- Lead TA for COMS 113(Introduction to Spreadsheets and Databases) at Iowa State University (1200 students).
- Responsible for conducting live labs, grading exams, assisting 20 other TAs and managing the course website.

Software Engineer　　　　　　　　　　　　　　　　　　　　　　Aug 2018 – Oct 2019
ECI Telecom　　　　　　　　　　　　　　　　　　　　　　　　*Bengaluru, India*
- Implemented robust and scalable distributed applications for high-volume performance in C++ and Python.
- Developed an internal API that parsed XML requests and executed RPCs for configuring network elements.
- Integrated a third party framework with ECI's Neptune product to support a NETCONF northbound interface to the existing legacy system resulting in 20% fewer CLI configuration bugs.

PROJECTS

Puffin: A web app to test your English language skills | *Python, Flask, Tensorflow, AWS*　　　Dec 2020
- Developed a reading comprehension game that uses a BERT based neural network for evaluating answers.
- Implemented REST APIs using Flask, developed a responsive web app and deployed it using AWS.

Map-Reduce Framework | *C++, Python, OpenMP*　　　　　　　　　　　　Nov 2020
- Implemented a Map-Reduce framework in C++ with multi-threading support for a shared memory model.
- Performed profiling for the word count problem and observed a 60 sec speedup for the Gutenberg dataset.

ProveMe: A Theorem Prover for Propositional Logic | *Java, JUnit, Maven CI*　　　Oct 2020
- Developed a tool to check the validity of statements given a propositional logic knowledge base.
- Implemented syntax parsing, postfix conversion, expression tree construction and propositional logic resolution.

Checkers Playing Agent | *Java, JUnit*　　　　　　　　　　　　　　　　Aug 2020
- Designed an interactive Checkers game utilizing object oriented programming and design principles.
- Implemented the minimax algorithm with alpha-beta pruning for the agent gameplay.

TECHNICAL SKILLS

Languages: Python, C,C++, Java, SQL (MySQL), JavaScript, HTML/CSS
Frameworks: Flask, Tensorflow, PyTorch, OpenCV