About Latha Samala

http://www.linkedin.com/in/LathaSamala

Career Progress

- Progressed from developing UI to backend and architect the systems, from developing expert systems to machine learning, from developing software 1.0 to 2.0 systems.
- Understanding the full system top-down and outside-in for which I developed new features.
- Keep track of cutting-edge technologies and how software is evolving. Incorporate my learning into product features. Work with Product managers and understand market research for the viability of technology application under consideration.
- Proactive suggestions for feature updates which were proved in time to be significant.
- Proof of concepts for technologies and be persistent to take it to completion.

Product: Impactful projects

- Initiative: Repurposing existing Neural Network with updates and applying it for solution is significant on how the application can be competitively positioned.
- Initiative: Two significant applications of open-source models.
    - Made existing software significantly better. Comment from PM: The client used and benefited from the machine learning results. Decreases the time for the task at hand with the system.
    - New features to position in the market for growth.
- Adapt to new products and domains and contribute effectively by learning all aspects of software.

Process:

- Write scripts for CI/CD which are re-used for any application with ease.
- Develop tech features as framework templates to reuse for other similar features.
- Over the years initiated and offered suggestions for tracking improvements with Jira, writing BDD tests, 'show and tell' other aspects like test pyramids.

People:

Proactively reach out to cross functional organizations and individuals for collaboration with science and applications of technology. Do presentations for evangelizing ideas and brainstorm with individuals working at all levels from SVP, engineers, tech-pubs, testing roles etc. Ensure holistic view of the features with info architecture and tech architecture to end user visibility.

For the projects that you worked on, can you describe a specific example of algorithm or model architecture innovation in detail?

- Project goal is text detection
    - Combination of many state of art architectures
        - Semantic segmentation - LeNet based Fully convolution network
        - UNet

        - Batch Normalization
    - My key contributions:
        - Implemented “run length smoothing phase with the network output”.
        - Created synthetic data for training.
        - Gathered real world data for testing.
        - Implemented ML training pipeline to experiment with different combinations of steps and gather results.

Have you ever built/trained a neural network from scratch rather than using the pre-trained models? If so, please describe the model architecture in detail.

- New Network
    - Built and trained LeNet to classify disparate images
- Custom Networks from existing networks
    - Built and trained Siamese Network for Signature verification
        - Technically I could have used a simple network like LeNet built earlier which would take significant time to train and converge for achieving the same goal. Hence, I used VGG16 with a pre-trained model and trained further.
        - Input1 -> VGG16 – (custom steps) ->Output1

          | - distance (Output 1, Output 2)

        - Input2 -> VGG16 – (custom steps) -> Output 2

          contrastive loss

    - Built and trained network for classifying documents
        - (Patent 0327360 / Feb 2021)
        - Extended/Bootstrap prior segmentation network with new classification network branch.
        - This involved creating a new synthetic dataset, trained within constraints of GPU to maximize image resolution and tests.
    - Built and trained network for pre-processing images
        - (Patent 10,776,903 / Sep 2020)
        - Update the Segmentation Network to retrieve also the output from the last but one layer for further processing.

What do you think the next big trend is in machine learning for enterprises?

Software 2.0

Democratization with explainability.