

KESHAV BHARADWAJ VAIDYANATHAN

(650)-660-0341 | keshavbharadwaj98@gmail.com | [LinkedIn](#) | [Github](#) | [Portfolio](#) | Available: Immediately for Full Time

Seasoned Machine Learning Engineer/Data Scientist with 2 years of expertise in Machine Learning, Deep Learning, and working with Large Language Models. Demonstrated proficiency in addressing end-to-end data science challenges, encompassing tasks from data cleaning and feature engineering to deploying models and monitoring performance.

TECHNICAL SKILLS

- **Programming Languages** - Python, C/C++, R, SQL, Shell scripting, HTML
- **Software & Tools** - AWS, Postgres, MongoDB, Docker, Elastic Search, SQLite, Postman, Git, OpenVINO, TensorRT, Vivado
- **Packages** - NumPy, Pandas, Flask, Tkinter, PyTorch, PyTorch-lightning, OpenCV, Keras, SciKit, NLTK, Dash, OpenGL

WORK EXPERIENCE

Silicon Synapse Lab, Northeastern University, MA, USA

Sep 23 – Present

Computer Vision Research Assistant | YOLO, AutoEncoder, Transformer, OpenVINO, TensorRT, YOSO, mask2former

- Integrated real-time scene segmentation and object detection into the robot's perception domain. Conducted thorough data analysis, and preprocessed RGB data, achieving a 0.78 IoU for the ground class. Currently implementing instance segmentation models.
- Working to deploy by utilizing network quantization and optimization using OpenVINO/ TensorRT for NVIDIA Jetson Orin.

Abiomed Inc (Johnson & Johnson), MA, USA

Feb 23 – Sept 23

Data Science Co-op | Time-Series, LSTM, RNN, Transformer, Signal Processing, Data Visualization, Data Analysis, Regression, SQL

- Developed machine learning models to predict cardiac output in patients receiving mechanical circulatory support, utilizing in vivo high-frequency time-series device data, achieving a **5.2%** reduction in percentage error.
- Conducted research and implemented a Domain-Adversarial Neural Network (**DANN**) to forecast aortic pressure in different patient cohorts, leveraging computer simulations to generate high-volume data.

Mad Street Den, Chennai, India

Dec 20 – Jul 21

Machine Learning Engineer | Recommendation System, Docker, SQL, CNN, SVM, Classification, AWS, SVM, Elastic-search, NLP

- Developed ML models to generate tags for an Elastic search-driven recommendation system. Constructed indexing and search scripts, and fine-tuned the scoring function for optimization. Designed a CNN for vision-based tasks of identifying handwritten text and tables and a language-based SVM classifier to categorize questions into various question types.
- Designed and implemented data processing pipelines and tag storage across Redshift, S3, Dynamo, and Redis databases and optimized by eliminating redundant operations, resulting in a **15%** reduction in response time.

PATENTS

Q-CerGen (Quick Certificate Generator) | Flask, OpenCV, Tkinter, WebGL, Brython, HTML, Python

Mar 21

- Devised a novel application for swift generation of over **3000+** E-certificates/ E-trophies with a user-friendly interface, and a website.

ADAM (Automatic Disassemble and Assemble Machine) | Python, OpenGL, OpenCV, SIFT algorithm, scikit-learn

Jun 21

- Led the brainstorming, design, and development of a robotic pick-and-place arm prototype adept at disassembling and reassembling patterns made from basic units for object recognition and pattern mapping, while also designing a 3D GUI for pattern customization.

ACADEMIC PROJECTS

Advanced Computer Vision, Northeastern University, MA

Sept 22 - Dec 22

SegMask for 3D Object Detection | 3D Object detection, LiDAR data, Multimodal, Autonomous driving, PSPNet Segmentation mask

- Developed a novel approach on Frustum-PointPillars to enhance accuracy by integrating RGB and LiDAR data on pre-trained PSPNet segmentation masks, resulting in a **3%** improvement in car AP scores on the KITTI-hard dataset for 3D object detection.
- Employed Frustum PointPillars with YOLO, achieving a notable **78 mAP** with a multi-sensor approach

Natural Language Processing, Northeastern University, MA

Jan 22 - Apr 22

Question Answering System | Large Language Model - BERT, LSTM, RNN

- Obtained a **63.5%** accuracy and **66.7** F1-score with the baseline Bi-Directional LSTM model on SQuAD2.0, and a **77.3%** accuracy with Distilled BERT, achieving an **85.4** F1-score for question-answering tasks.

Deep Learning, Northeastern University

Jan 22 - Apr 22

Visual Question Answering | Transformers, LxMERT, VGG, LSTM, CNN, Multimodal

- Achieved **57%** accuracy with the baseline LSTM Question + norm image model with VGG image embedding and **70.68%** accuracy with the transformer-based LXMERT model for visual question answering on the VQA dataset.

EDUCATION

Northeastern University, Boston, MA

Dec 23

Master of Science in Computer Engineering, Specialization in Computer Vision, Machine Learning and Algorithms

GPA: 3.88

Courses: Machine Learning, Deep Learning, Natural Language Processing, DBMS, Advanced Computer Vision, Assistive Robotics.

Visvesvaraya Technological University, Bangalore, India

Aug 22

Bachelor of Engineering in Electronics and Communication Engineering

GPA: 8.43