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Rahul **Kodarapu**

Machine Learning Engineer · M.Sc. in Digital Engineering · B.Tech in Electronics and Communication Engineering

Tanneberger Weg 23, 01169 Dresden, Germany

(+49) 1523 676 8016 | rahulguptakodarapu@gmail.com | mortalrahu | rahulkodarapu

Summary

With over 3 years of hands-on experience in Computer Vision, particularly in Object Detection and Segmentation, I bring my passion for devising innovative AI/ML solutions. Proficient in Python and comfortable with various programming languages, my academic background includes a Master's degree in AI and IoT Devices, complemented by a Bachelor's degree in Electronic Devices and Telecommunication. Eager to contribute to impactful causes, I value the dynamic environment of multicultural teams, fostering both professional and personal growth.

Technical Skills

Programming	Python, Embedded C / C++, SQL, (Basics: C, C++, Java SE)
Libraries	TensorFlow(Keras), NumPy, Pandas, Scipy, Matplotlib, Apache Lucene
Cloud Computing Platform	Azure Cloud Platform, Google Cloud Platform
Project Management	Scrum methodology, JIRA, Version Control Systems (Bitbucket, Github)
Languages	English(C1), German(B1), Telugu(Mother Tongue), Hindi(C1), Urdu(B1)
Simulation	Matlab, Anylogic, Cisco Packet Tracer, RoboDK, Xilinx, Proteus, TinkerCAD
Miscellaneous	Microsoft Office Suite, Latex, Adobe Photoshop

Work Experience

Aura Health Technologies GmbH
Berlin, Germany

Machine Learning Engineer — *Jan. 2021 - Jan. 2024*

- Research and development of machine learning algorithms for breast cancer medical applications for surgical navigation, a major focus on CNN-based object detection with the object of interest being a biopsy marker in raw ultrasound data.
- Performed end-to-end machine learning model development, overseeing data labeling, preprocessing, model training, evaluation, and deployment.
- Implemented optimization techniques in training, including efficient data preprocessing through methods like tfrecord files and automated hyperparameter optimization.
- Successfully minimized Inference model latency through various deployment optimizations.
- Furthermore, designed and conducted various experiments for post-training analysis, delving into different features of the data. This deep analysis enabled me to fine-tune both the data and the model for enhanced performance.

SOMATEX Medical Technologies GmbH
Berlin, Germany

Machine Learning Engineer — *Sep. 2020 - Dec. 2020*

- Research and development of machine learning algorithms for breast cancer medical applications for surgical navigation, a major focus on CNN-based object detection with the object of interest being a biopsy marker in raw ultrasound data. (Contract transferred to Aura Health Technologies)

Berlin, Germany

Intern — *Aug. 2019 - June. 2020*

- Worked on Deep Learning Algorithms as a part of master thesis
- Developed an MFC based C++ Software that facilitates the detection of a biopsy marker in a breast tumor with the help of an ultrasound device
- Developed a python pipeline that reads the ultrasound data and converts it into a B-Mode Image

Electronics Corporation of India
Hyderabad, India

Intern — *Jan. 2017 - Apr. 2017*

- Simulated Printed Circuit Board using Proteus Simulation Software and Embedded C programming
- Implemented the hardware version of the Simulated Printed Circuit Board whilst gaining experience in Analysis of Hardware Electronic Components and Soldering

Defense Research Development Organization
Hyderabad, India

Intern — *May. 2016 - July. 2016*

- Focused on the study of various kinds of sensors and actuators, and data acquisition methods
- Worked on the Integration of Sensors and Actuators to Micro controllers

Education

Otto-von-Guericke-Universität — *Magdeburg, Germany*

M.Sc in Digital Engineering (2.2) — *Oct. 2017 - Feb. 2021*

- Machine Learning, Data Mining, Swarm Intelligence, Information Retrieval, IoT Devices, Simulation, Database

Jawaharlal Nehru Technological University — *Hyderabad, India*

B.Tech in Electronics and Communications Engineering (70.4%) — *Sep. 2013 - May. 2017*

- Electronic Circuits, Cellular & Mobile Communications, Digital Signal Processing, Analog & Digital Communications

Massive Open Online Courses — *Online Platforms*

Coursera, Skillshare, Udemy and Udacity

- TensorFlow in Practice, Google Cloud Platform Fundamentals: Core Infrastructure, Introduction to IOT Specialization, Cisco Networking Basics Specialization, Android Application Development

Academic Projects & Research

Deep Learning based Segmentation of Biopsy Marker in Breast Ultrasound Data for Surgical Navigation — *Deep Learning*

Master Thesis — *Jan. 2020 - Nov. 2020*

- Developed a Deep Learning Segmentation Model for biopsy marker detection in breast tumors using ultrasound data.

Smart Adaptive Frequency Hopping — *Internet of Things*

Voluntary Project — *Jan. 2019 - Aug. 2019*

- Developed an Advanced Frequency Hopping Algorithm using Arduino Leonardo with NRF24L01 transceivers in Embedded C/C++.

Machine Learning Algorithms — *Machine Learning*

Mandatory Course Project — *Oct. 2018 - Dec. 2018*

- Implemented Python-based ML Clustering and Classification Algorithms (K-Means, Decision Tree, Bayes, Regression, etc.)

UAV based survey of Un-exploded Ordnance — *Windows Application Development*

Final Major Project — *May. 2018 - Oct. 2018*

- Created a Windows Application in C Sharp .NET, XAML, and R, detecting Unexploded Ordnance using Geo-spatial data collected by a drone with Interpolation techniques.

Traffic Simulation and Optimization — *Simulation*

Inter Disciplinary Project — *May. 2018 - Oct. 2018*

- Modeled and optimized real-time traffic flow in Magdeburg using Anylogic software with Java, conducting experiments for traffic optimization.

Informational Retrieval System — *Command Prompt Java Application*

Mandatory Course Project — *Oct. 2017 - Dec. 2017*

- Developed a Command Prompt Java App that acts as a search engine(for both documents and Web Pages) using Apache Lucene Libraries

Smart Wireless Sensor Network for Monitoring an Agricultural Environment — *Internet of Things*

Bachelor's Final Project — *Jan. 2017 - Apr. 2017*

- Built a plant monitoring device with LPC2148 Microcontroller, including sensors (LM35, Humidity, Ultrasonic), scalable for agricultural fields.

Automatic Street Light Control System — *Electronic Circuits*

Bachelor's Intermediary Project — *May. 2016 - July. 2016*

- Built a simple electronic circuit that switches on a Bulb when it is dark using a light dependent sensor(LDR)

Interpersonal Skills

- Efficient Team Player
- Empathetic Listener
- Non Violent Communication
- Good Presentation and communication skills
- Good Leadership and Team Management Skills

Extracurricular Activity

- Physical: Running, Archery, and Swimming
- Sedentary: Books, Films (Sci-fi), Political News, History, and Mythology

References

- To be furnished on demand