# ISHAN P. BORKER

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## Profile Summary

- Results-driven software development professional with 7.5 years of extensive experience across diverse platforms, including Generative AI, Data Science, Machine Learning, NLP, Computer Vision, and Network Service Orchestration. Proven expertise in analyzing requirements, architecting scalable applications, and delivering robust end-to-end solutions. Adept at designing, developing, implementing, and reviewing solutions using a wide array of technologies such as Python, C++, Golang, Docker, Linux/Unix, POSTMAN, and JSON scripting.
- With over 6.5 years of specialized experience in Generative AI, Computer Vision, and advanced machine learning, I have consistently delivered innovative solutions from initial concept and pre-sales proposals to deployment and post-implementation support. My hands-on experience spans research and development, networking, and providing tailored solutions that meet unique customer requirements.
- A highly adaptable team player, I am dedicated to solving complex business challenges, embracing new technologies, and thriving in dynamic, fast-paced environments. I am passionate about continuous learning and eager to take on challenging roles that drive business value and technological advancement.

## Work Experience

**Persistent Systems Limited, Goa, India – May 2022 – Present as Lead Software Engineer**

**Role: Apr 2024 – Present** as **Lead Software Engineer**

- **Generative AI Platform development – Co-Engineering – Data (Client: Baldwin Risk Partners)**:
  Classification: Running the RAG classification and extraction code for different policy documents. Exploring the chunking strategy for the large tables obtained after extracting the documents using LLM calls
  Integration of Amazon Bedrock Agent and AWS Chatbot with Microsoft Teams: Changing the email while testing the message in Amazon SNS and publishing it inside Teams Channel, creating a knowledge base and Amazon Bedrock Agents and testing it with prompts, creating an application inside the developer portal in Microsoft Teams for integration
  Actionable Web Technologies: Creating a tabular analysis for evaluating different actionable web technology tools like BrowserBase, Maxun based on future scalability, and browser dependencies. Python code to enter the URL and download the relevant PDFs, code to connect the LLM model to Amazon Bedrock, and then using BrowserBase packages like Playwright and its APIs to send the URL to download the relevant PDFs**.** Working on stealth mode by modifying the existing code to bypass the captcha or login methods and capture the link, file name, and other metadata. Running the same code on the top 5 carriers being implemented under Carrier Document Download, downloading policy document for each agency code using the credentials for CNA, Selective Flood carrier website and integrating metadata to it, performing download policy document using LLM prompts and Stagehand approach on Hartford carrier website
  Capabilities of Perplexity.AI: Working on improving prompt caching, dynamic updates, response accuracy, cache persistence and query handling using perplexity.ai, retrieving the response format obtained from perplexity API, and checking for the separation of the citations from the text. Testing feasibility of Perplexity in BRP Copilot UAT and potential business benefits
  Mosaic AI Model Fine-Tuning: Performing model fine-tuning on the RAG Component Classification and Extraction dataset from S3 bucket using Databricks Notebook, performing model testing using

**Key Skills and Knowledge**

**Generative AI**
RAG
LangChain
LLM
AWS Chatbot
Amazon Bedrock
BrowserBase
Perplexity.AI
Stagehand
Cline

**Skills**
Python3
FastAPI
NSO
Data Science
Machine Learning
Computer Vision
NLP
C++
Golang

**OS**
Linux/Unix
Windows
macOS

**Scripting languages**
JSON
HTML
JS
PHP
Linux/Unix Commands
Curl Commands

**Other Skills**
Actionable Web Technologies
MySQL
SpagoBI
Tableau
Navicat
GNU-Plot

**Python Libraries**
Numpy
Pandas
SciPy
Seaborn

gpt-35-turbo-SLM, training the fine-tuning run using meta-llama models, deploying the fine-tuned model to serve the endpoint and testing it
Worked on the client requirements like risk map automations, combination of structured and unstructured sources, graph DB for automating the RFP process, LLMs with structured knowledge graphs, graph RAG, knowledge augmented graph and preparing the documentation. Prepared use case presentations for all the POCs

- **NSO Engineering (Client: CISCO):** Worked on EMS adapter activity support for different workflows like distribute, activate, commit image on IOS-XE device, working on API hardening: adding error handling conditions to the EMS adapter Go code, validating the inputs for SWIM APIs, performed code refactoring on it, performed add image, activate and commit using install method for IOS-XE device, updating the EMS adapter to be compliant with CW infrastructure by refactoring the code using Authentication, No Authentication, running different EMS APIs inside cw-admin SVM Infrastructure like import, activate, distribute and commit image using curl commands and updating the wiki page, written the unit test cases for the refactored codes and generated test coverage report, developed POC for Go client for fetching the CCO catalog and SMU details for each record in catalog, fetched multiple devices inside the jobsummary EMS Code

**Role: May 2022 – Mar 2024** as **Senior Software Engineer**

- **Routermation CISCO NSO Offshore Transition (Client: CISCO):** Worked on Crosswork Workflow Manager (CWM) installation, creation of adapters, resources, secrets, EPNM, created workflows, adapters for different applications and tested it on POSTMAN, Captured requests and responses for different APIs like import, distribute, activate and commit image, get job summary, get device details, device upgrade, consolidated workflow etc. for Element Management Systems (EMS) on POSTMAN, implemented codes for networking device upgrade and created adapters using Golang and executed the workflows in CWM UI, executing the SWIM APIs in CWM UI instance, worked on Network Service Orchestration (NSO) installation and Routermation Automation Kit for device onboarding, fleet upgrade and golden config, performed LNT device upgrade using RAKfu Main workflow and lux test cases, fixed critical and major issues for CW-EMS adapter using SonarQube, updated the CW-EMS adapter with CWM 1.1 support and library integration, worked on IOS-XE device upgrade

- **Serving NER and REL models using SpaCy**: Worked on clinical trials dataset analysis and calculating performance metrics scores using SpaCy for Named Entity Recognition (NER) and Relationship Extraction (REL) using pipelines like tok2vec (on CPU), different transformers (on GPU), plotted loss curves for NER, REL, combined models. Improving performance metrics like precision, and f1 score for all models. Development is done using Python inside Google Colaboratory

- **Data Inference**: Served the English SpaCy model on FASTAPI and tested it on POSTMAN. Served own trained NER, and REL models using FASTAPI code and tested the model on POSTMAN and in Swagger UI. Deployed model on AWS EC2 T2 medium instance, dockerized FASTAPI NER code, and pushed the docker container on GitHub

- **Topic Modelling (SEC filings)**: Worked on topic extraction on docoh dataset of companies (Intuit, UHG, Wells Fargo, etc.) using packages like BERTopic, Latent Dirichlet Allocation (LDA), Contextual Topic Modelling (CTM). Performed dimensionality reduction (PCA, UMAP), and clustering (HDBSCAN) techniques, using transformers like Roberta, finbert, and sentence transformers to improve topic extraction and visualizing the topics using PyLDAvis. Development is done using Python inside Google Colaboratory

- **PDF Text Extraction (Client: IBM Infosphere)**: Worked on PDFs from URLs. Extracted, and preprocessed the text from it using PyPDF and generated histograms using nltk. Worked on extractive text summarization using different summarizers like LSA, Luhn, Text Rank, and Lex Rank and calculated the inference time of each summarizer. Development done inside Spyder and PyCharm. Tested FastAPI codes for training and inference concerning Fasttext classifier on text classification dataset with categories like Chemical Hazardous, Restricted Prohibited, Neither,

Scikit-learn
Plotly-dash
Matplotlib

**Tools and Technologies**
EMS
Crosswork Workflow Manager (CWM)
Network Service Orchestration (NSO)
Lux
SonarQube
Jupyter Notebook
Google Colaboratory
Kaggle notebook
Spyder
PyCharm
VSCode
POSTMAN
Swagger UI
Github
AWS EC2
Azure ML Studio
Github Copilot
AWS Code Whisperer

**Machine Learning Libraries**
Tensorflow
Keras
SpaCy
BERTopic
NLTK
PyPDF
PyLDAvis
PySpark
MLFlow

**Algorithms**
Classification
Regression
Clustering
Time series forecasting
Topic Modelling
Latent Dirichlet Allocation
Yolov3
Yolov4
Mask R-CNN
Faster R-CNN
OpenCV
Fast text
Named Entity Recognition (NER)
Relationship Extraction (REL)

calculated the total training time of all the models. Performed Volumetric Stats for Catalog files like unique UNSPSC for Primary, Corrected Category, number of data points available and missing for each UNSPSC for corrected category

- **Binary classification of network attacks**: Worked on binary classification of network attacks present in NSL-KDD dataset, performed EDA, data pre-processing, generating plots to understand different features using matplotlib, seaborn, found statistical insights, performed feature engineering using one-hot encoding, label encoding, feature scaling, normalization, performed feature selection using methods like filter, wrapper and embedded, performed model selection using cross-validation, bootstrapping, used different machine learning classifiers like Random Forest, Decision Tree, XGBoost, Gradient Boosting, Voting Classifier and trained the model, performed hyper-parameter tuning using GridSearchCV and RandomizedSearchCV, evaluated performance metrics, saved the trained model and exported it on the server using joblib, worked on model explainability using eli5, Partial Dependence Plot, Individual Conditional Expectations, Local Interpretation of Model Explanation, SHAP

- **Smart Interviewer:** Developed MCQ part of the test using Python, created a dataset of question bank using .toml for AI Technothon event. Development is done using Python, GitHub Copilot, and VS Code

- **Image Segmentation**: Worked on Medical Image segmentation using U-NET, Mask R-CNN on NVIDIA GPU Cloud (NGC)

**TechnoPro India, Bengaluru, India - Dec 2020 – Apr 2022 as Machine Learning Engineer**

- **Annotation (Client: Nexar)**: Worked on semi-automated annotation using CVAT and ML algorithms like YOLOv3, Faster R-CNN, Mask R-CNN, and manual annotation using LabelBox, LabelImg, GTStudio, led the team of 10 annotators, and provided training on annotations like bounding box, polygon, polyline, landmark, image segmentation, cuboid, video, 3D annotations, instance, and semantic segmentation

- **Smart farming**: Implemented tomato image classification based on image data using SVM, KNN, MLP, and Logistic Regression. Development is done using Python inside the Jupyter lab

- **Reviewer Analysis (Client: Nexar)**: Analyzed reviewer's incident data using Python in graphs and video dashboards inside Jupyter Notebook using matplotlib, seaborn

- **Industry 4.0(Client: Toyota Kirloskar Motors):** Worked on detecting car parts in images and training models using YOLOv3, performed image annotation using VoTT and car parts damage detection using detectron2, Mask R-CNN models. Worked on predictive bearing maintenance to find the remaining helpful lifetime using regressors like SVR, RF, and DT Regressor. Worked on Object Detection and Tracking of real-time intrusion using YOLOv4, and OpenCV. Development is done using Python inside Google Colaboratory

- **Perimeter Intrusion Detection System (Client: Bengaluru International Airport Limited):** Worked on POC, designing RFP on perimeter intrusion detection project for Airport surveillance covering aspects of Machine learning, Computer vision, RADAR for video surveillance, verification, tracking, access control security, and Smart Command and control system, designed presentations, case studies, RFP, POC for different AI-ML projects

**Molecular Connections, Bengaluru, India - Jul 2020 – Oct 2020 as Senior Software Engineer**

- **EHR Predictive Modelling**: Cleaned EHR data, performed EDA, visualization, and correlation, performed binary encoding on the lab values, trained the model to calculate performance metrics, exported model on the server using joblib/pickle, explored plotly-dash. Development is done using Python inside Google Colaboratory

**Hobbies**:
Playing indoor and outdoor games, gymming, yoga, listening to music, reading, watching news and movies, and watering plants

- **FHIR HL 7:** Implemented Formal Concept Analysis, JSON files parsing, FHIR Parser using Python, worked on HAPI FHIR Server by creating resources from JSON, tested REST operations on POSTMAN, created own FHIR Server

**Rubixe, Bengaluru, India - Dec 2019 – Jun 2020 as Data Science Consultant**

- **Employee Performance Analysis**: Cleaned the data, performed EDA, created a visualization to find department-wise performance of employees, and built a model to improve performance using machine learning algorithms like Random Forest, Gradient Boosting, XGBoost, ANN, KNN, Logistic Regression, SVM, Decision Tree with the highest accuracy of 96% using Gradient Boosting, used feature engineering, Grid & Randomized Search CV, SMOTE

- **Spare Parts Inventory Management**: Cleaned, analyzed the data, created the visualization, built a model using time series algorithms, achieved better predictions for ARIMA

- **Improving ITSM**: Imported data from the server, performed EDA, implemented prediction on priority tickets, reassigned tickets using ML algorithms with an accuracy of 86%, implemented ARIMA, and SARIMA on incidents, achieved better predictions using Rolling Forecast

- **Sales Prediction**: Used SMOTE to handle imbalanced datasets, PCA for dimensionality reduction, predicted status of sales potential using classification algorithms, achieved 72% accuracy, plotted ROC, precision-recall curve

- **Telecom Churn Prediction**: Predicted churn using ML classification algorithms, achieved an accuracy of 97%, used K-fold, Stratified K-Folds CV to improve performance, plotted ROC, precision-recall curve, calculated churn-risk score, exported model on the server

- **Bank Good Credit Score**: Imported Customer Accounts, Demographics, and Enquiry data from the server, created a visualization to check factors influencing customers having a good or bad credit history and achieved 95% accuracy using ML classification algorithms. Development is done using Python inside Jupyter Notebook for all these projects

**Digiapt Software, Bengaluru, India - Oct 2019 - Nov 2019 as Associate Software Developer**

- Used Tableau to categorize companies' data from Tofler, Zaubacorp, and MCA, and plotted their location using My Maps, used Snovio to capture emails of employees and analyze roles

**Eaglys Inc. (Deputed from Teczuno), Tokyo, Japan - Dec 2018 – Jul 2019 as Research Engineer**

- **Back Office System for Manhour Management**: Captured attendance spreadsheet from Google Drive using Python, generated reports in the form of graphs, presentation
- **SecureDB**: Tested SQL queries, achieved API documentation using Natural Docs, PyDoc, worked keyword searching on the encrypted database using python, C++, worked homomorphic encryption for matrix multiplication, addition of numbers using HElib, C++ in docker

**Teczuno Global India, Bengaluru, India - Apr 2018 – Aug 2018 as Data Analyst**

- Gathered data from the government website, helped in application development to locate startup companies using Tableau, and built-up concepts as a part of pre-sales support

**Anant Infomedia, Goa, India - Aug 2017 – Feb 2018 as Project Trainee**

- Predicting employee attrition using Azure ML Studio: Designed models using classification, regression, clustering, anomaly detection
- Business Intelligence: Used MySQL, and SpagoBI for Data Analysis, created dashboards, cockpits, and OLAP and deployed on SpagoBI server, worked on PHP, JS, HTML, Navicat

## Internship Experience

**Rubixe, Bengaluru, Karnataka March 2020 – May 2020 Data as Science Intern**

- **AI for Hiring**: Designed business proposal for students' academics and placement data, built model using classification algorithms to predict students' placement, published a research paper in the International Journal of Science and Research (IJSR)

**Goa Electronics Limited (GEL), Panaji, Goa - Oct 2018 - Nov 2018 as Project Intern**

- Worked on the analysis of making compliant government websites, designed Software Requirement Specification (SRS) for labor and employment, land dispute, fire, and emergency services, etc., designed flowcharts for employment exchange services

**C-DAC ACTS, Pune, Maharashtra - July 2016 – May 2017 as Project Intern**

- Worked on Parallelization of Backpropagation algorithm using OpenMP and C in Ubuntu, carried out dissertation work, and presented a paper at the International Workshop on Internet of Things and TV White Spaces (WIOT' 2017)
- Published research paper in the International Journal of Current Research (IJCR)
- Good Knowledge on OpenMP, MPI, Machine Learning, C, Linux Commands

**CSIR- National Institute of Oceanography (NIO), Dona Paula, Goa December 2013 – January 2014 as Project Intern**

- Worked on Robotic OS and serial programming, studied different robotic OS like RROS, EmbOS, RTX, RISC, VxWorks, MOOS, etc.
- Implemented a serial port C program to transfer data from one USB port to another in Ubuntu

## Education

- Master of Technology – C-DAC, Pune and Veltech University, Chennai, Tamil Nadu – 2015 – 2017, 8.61 CGPA
- Bachelor of Engineering – Goa College of Engineering, Goa University, Goa – 2011 -2015, 70%
- Higher Secondary School (Class XII) - Goa Board, 2010-2011, 74%
- High School (Class X) - Goa Board, 2008-2009, 82.17%

## Certifications

- Preparing for the Future of Work with AI Agents by LinkedIn
- Gemini Google AI: The All-in-One AI Masterclass 2025 [NEW] by Udemy
- Mathematics Behind Large Language Models and Transformers by Udemy
- Introduction to Large Language Models (LLMs) In Python by Udemy
- MCP Crash Course Complete Model Context Protocol in a Day by Udemy
- Intro to Large Language Models (LLMs) by Udemy
- Participated in Semicolons 2025, Annual Global Hackathon of Persistent Systems
- Python ML Competency Level - 3 Certification by Persistent University
- Python ML Competency Level - 2 Certification by Persistent University
- Automate the Boring Stuff with Python Programming by Udemy
- Complete Python Bootcamp 2024: Zero to Expert in Python by Udemy
- AWS SageMaker Practical for Beginners: Build 6 Projects by Udemy
- MongoDB – The Complete Developer's Guide 2024 by Udemy

- Complete Tensorflow2 and Keras Deep Learning Bootcamp by Udemy
- Taming Big Data with Apache Spark and Python – Hands-on by Udemy
- Natural Language Processing with Python by Udemy
- Natural Language Processing with Transformers in Python by Udemy
- LangChain with Python Bootcamp by Udemy
- REST APIs with Flask and Python in 2024 by Udemy
- Python for Data Science and Machine Learning Bootcamp by Udemy
- Complete Data Science, Machine Learning, DL, NLP Bootcamp by Udemy
- Git for Geeks: Quick Git Training for Developers by Udemy
- Amazon Bedrock & AWS Generative AI [Beginner to Advanced] by Udemy
- Generative AI: Beginner to Pro with OpenAI & Azure OpenAI by Udemy
- LangChain- Develop LLM powered applications with LangChain by Udemy
- Generative AI for Practitioners Certification Course (Objective and Subjective) by Persistent University
- Generative AI Foundation – Generative AI Assisted Coding using Amazon Code Whisperer by Persistent University
- Databricks Accredited Generative AI Fundamentals
- Career Essentials in Generative AI by Microsoft and LinkedIn
- Databricks Lakehouse Machine Learning Associate
- Participated in Semicolons 2023, Annual Global Hackathon of Persistent Systems
- Fundamentals of the Databricks Lakehouse Platform Accreditation
- Information Security Awareness Secure Coding/Data Handling & Privacy Training
- Deployment of Machine Learning Models by Udemy
- Certified Data Scientist & Data Science Foundation by IABAC, Amsterdam
- Deep Learning specialization by Coursera and deeplearning.ai on Coursera.org
- Certified Data Scientist course completion certificate by DataMites, Bengaluru
- Paper publication “Parallelization of Backpropagation Algorithm & Benchmarking” in IJCR
- Paper publication “Artificial Intelligence for Hiring” in IJSR
- Paper presentation on “Backpropagation Algorithm & Use of OpenMP in ML” in International Workshop on IOT & TV White Spaces

## Declaration

I hereby declare that all the information provided above is true to my knowledge.

**Sign**: **Date**: