Bishal Bashyal

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Github Profile

Education

IOE, Pulchowk Campus(4% Acceptance rate) — Pulchowk, Lalitpur
Bachelors Computer Engineering - Full Scholarship-Entrance(Rank 33/16000) — Feb 2019 - Apr 2023
Percentage: 78.08%

The Times Secondary School — Charkhal, Dillibazaar
+2 Science - Full Scholarship — June 2016 - July 2018
GPA: 3.67

New Environment Higher Secondary School — Manigram, Rupandehi
SLC - Full Scholarship - Batch Topper — Sept 2006 - Dec 2015
GPA: 3.90

Relevant Undergraduate Courses
Artificial Intelligence, BigData,Probability and Statistics, Enterprise Computing,Computer Graphics,OOP,Distributed Systems,Data Structure and Algorithms, Discrete Structure,Computer Architecture and Organization, Embedded Systems,Information Systems, Computer Network,Microprocessors, Applied Mathematics

Relevant Tests Taken
TOEFL IBT: 105

Experience

Katmatic Solutions | Software Engineer (July 2023-Present)

- working as Full Stack Software Engineer on Automated Inventory Control and Tracking System. Independenttly researched and implemented an n-worker generic ETL architecture for Enterprise Data Integration with template schematics using fluid.net, utilized elasticsearch for full searching capabilities, and kibana for aggregated data visualization.
- took lead and contributed End to End to 4 Core projects including Smart VMS, Enterprise Data Integration Architecture Based on Fluid Templating Engine, Smart RF-Key Management System, Smart Attendance System.
- Wrote End to End integration tests across the microservice pipeline and helped identify critical test-failure cases.
- deployed pods on Azure kubernetes, created and maintained build pipeline, yaml files, secret keys, certificates, performed code migration for version upgrade resolving peer dependency issues.
- wrote clean Rest API implementation with validations. worked with mqtt, eventhub, and setup proper routes on apigateway for microservice implementation. also deployed the system for local debugging on docker.worked with python and py packages for complex mathematical and AI models simulaton and development.
- implemented the web frontend using Angular and Angular material. organized modules, services, and dependency injection. created a custom report printing module with ckeditor and fluid for designing reports via the UI.
- regularly contributed to product-strategies, architecture design and helped company close clients over NRs. 4M.
- got promoted 3 times within a span of 1 year and was also offered equity in the company.

FuseMachines | Fuse AI Scholar (April 2024-Present)

- worked on weather data analytics to predict seasonal and trend components with STL decomposition.worked on rubric based grading and benchmarking llms on rubric based grading task and plant disease detection with lvm. In plant disease detection, we utilize Learning Vector Quantization (LVQ), a type of artificial neural network for pattern recognition, to classify images based on the features that differentiate healthy from diseased or pest-infested plants. in rubric based grading task, we are working towards building a taxonomy, fine tuning approach and response classification with llms and context relvant NLP inputs. the fellowship also includes ground level mathematical and programmatic study for machine learning, deep learning,computer visions, and statistical approaches to data analytics.

IOE, Pulchowk Campus | Research Assistant (June 2022-April 2023)

- worked on "Information Extraction from Structured Text Document(IRS-990 form)", funded by Docsumo. Compared performance of Rule Based Methods, R-CNNs and DLA methods(LayoutLM) to obtain results characterized by performance metrics. created a custom annotation tool to annotate a 450 page dataset using bounding box approach and an inbuilt model trainer. Extended the project to publish a paper on springer.

Software Fellowship | Instructor (July 2022)

- prepared course materials and worked as an instructor for python,data science,git/github for 10 days software fellowship programme.

HultPrize | Campus Director (Jun 2021-Jul 2023)

- ran yearlong social entrepreneurship incubation programmes in 14 campuses, 200+ campaign events, trained 18k students, and helped build 200 startup teams focusing on worlds pressing issues. won 5 int'l award nominations, 1 award and published in 200+ media articles

Skills

.NETCore,EFCore,Angular,figma,C/C++,DistributedSystems,AzureKubernetes,AWS,EC2,CloudResourceManagement,docl
Driven Architecture,pandas,numpy,pytorch,Javascript,ML/AI,PostgreSQL,mongodb,python

Honors & Awards

Awardee - Central South Asia Program of the Year-2023,Paris (HultPrize Foundation)

Champion - Nepal Physics Olympiad 2018, Nepal (Nepal Physics Olympiad)

Scholarship - Fuse AI Scholarship Receipent 2024(FuseMachines)

Receipent - Mahatama Gandhi Scholarship-2016 (Indian Embassy)

Receipent - HISSAN Meritious Student Award (HISSAN)

Invitee - Harvard Pacific Asian and International Relations Conference 2024 (Harvard University HPAIR)

Achievement - All Nation Rank 3 for Graduate Entrance Exam in CS Engineering(Institute of Engineering)

Liscensee - Registered and Liscensed Engineer by Competetive Exam(Nepal Engineering Council)

Certificate - AWS Cloud Foundations

Projects

Smart Attendance System | .NET Core,Angular,EFCore,mongodb,

- With this project, I built an automated student tracking system with sensor inputs from RFID. created a seperated microservice for AttendanceAPI and wrote complex sql ORM queries to infer attendance from custom date range for specfied classes. the attendance data was mapped to a report on the angular application with CKEDitor and fluid templating. Also implemented an automatic email system to notify parents about student attendance by incorporating the feature in Notification microservice. implemented feature like attendance reconciliation, attendance report, attendance summary etc.

Enterprise Data Bridge for ETL | .NET Core,Quartz,CSVHelper,Regex

- With this project I built a fluid template based Enterprise Cross ERP ETL architecture where data could be loaded from a secondary system to our system by a simple Json schema definition. This project utilized Quartz for scheduling and regularly polling data updates, and CSVHelper .NET library for manipulating and parsing data dumped from a secondary system. This Brdige also supported multithreading and could run parallel tasks at a time while importing data.

Automated Semantic Bio and Factual Information Finder | python,vector db,llm,langchain, selenium,NER

- With this project I implemented an automation tool that scrapes through all websites listed on an google sheet with unstructured loader, stores the text content in chunks in a vector database, and updates the same excel sheet with the founder of the website, email and his/her bio using semantic question answering approach on top of langchain with embeddings for chunk selection.

3D Rendering Engine | C++

- With this peoject, I implemented a 3D rendering engine from scratch in C++. Utilized various rasterization algorithm: phong shading, grourad shading, lighting, cameras and clipping algorithms. demonstrated successful parsing and rendering of both low-poly and high poly environments under different graphic settings and coonfigurations.

Publications

Comparative Analysis and Study of Technology Approach to Document Image Understanding From Structured Text Document Image | ICTIS Conference, LNNS Series(h-index=33)