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Keeran Dhakal

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SUMMARY

Software engineer with over 2 years of professional experience developing scalable applications, APIs, and microservices. Skilled in RESTful architecture, with hands-on experience in containerization, cloud deployments, and CI/CD pipelines.

EDUCATION

University of Nebraska Omaha, USA *May 2025*
M.S. Computer Science (GPA: 3.96)

Institute of Engineering, Pulchowk Campus, Tribhuvan University, Nepal *2016 - 2021*
B.E. Electronics and Communication Engineering

EXPERIENCE

Graduate Research Assistant **Aug 2023 - May 2025**
University of Nebraska Omaha, USA

- Designed and implemented a Constraint Answer Set Programming (CASP) solver system capable of evaluating 1000+ combinatorial optimization combinations per instance, effectively selecting optimal solutions and improving solver scalability and expressiveness.
- Developed a Dockerized benchmarking infrastructure that automated performance testing across 3+ solver systems, reducing evaluation time by 70%.
- Benchmarked and documented the performance of the new solvers in terms of time and memory and compared it with other similar solvers within various benchmarking environments.
- Collaborated with 2 faculty advisors and other peer researchers on solver system design and architecture, contributing to research publication submissions.
- Maintained a clean, extensible codebase to support future solver extensions and simplify integration with logic-based toolchains.

Software Engineer **Jun 2021 - Jul 2023**
Docsumo, Remote

- Designed and maintained high-performance microservices and RESTful APIs, enabling efficient processing of 30,000+ financial documents across 20+ formats such as invoices and bank statements.
- Led a project to develop an extraction framework for information retrieval involving scanned and Excel documents, identifying key value pairs as well as table headers and rows, and reducing manual extraction time by more than 80%.
- Implemented AI-assisted data extraction pipelines leveraging machine learning and large language models (LLMs), achieving over 95% field-level accuracy.
- Deployed and managed scalable backend systems in production with Docker, Google Cloud Platform, and CI/CD pipelines, ensuring reliable and efficient service delivery.
- Developed and maintained comprehensive unit and integration test suites emphasizing test-driven development, significantly enhancing code reliability and early bug detection.

SKILLS

Programming Languages: Python, C++, C, Java, JavaScript, SQL
Backend: Flask, Django, Spring Boot, Hibernate, Streamlit
Frontend: HTML, CSS, React, Bootstrap
Cloud & DevOps: Docker, CI/CD, GCP, AWS
Machine Learning/Deep Learning: NLP, Computer Vision, LLM, GAN, Neural Networks, Information Retrieval
Frameworks & Tools: TensorFlow, Pytorch, OpenCV, CMake, Git, Bash, Linux
Data Processing: Pandas, NumPy, Scikit-learn, Matplotlib, Power BI
Soft Skills: Problem Solving, Teamwork, Leadership, Good Communication, Time Management

PROJECTS

EZSMTv3: A Constraint Answer Set Programming Solver

- Developed a CASP solver system and integrated SMT solvers to handle logical problem-solving for combinatorial and optimization problems using a custom declarative language.
- Manuscript submitted for journal publication.

Reproducible Benchmarking Platform for ASP Solvers

- Created a Docker-based infrastructure to benchmark and compare multiple Answer Set Programming (ASP) solvers with automated evaluation and reporting.

Analog Meter Reader using Computer Vision

- Fine-tuned object detection model, YOLOv7, for locating an analog meter in the image.
- Used image processing algorithms to detect the meter needle and determine the meter reading.