Krishna Narendrabhai Parmar

SOFTWARE ENGINEER, Arthro3D

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HIGHLIGHTS OF QUALIFICATIONS

- AI/Machine Learning: Proficient in PyTorch and U-Net architectures for medical image segmentation, achieving 97% accuracy in DICOM processing and table removal applications.
- Real-Time Systems: Skilled in live data integration, automated dashboards, API consumption, and interactive visualization with technical analysis indicators.
- Programming & Game Development: Advanced Python/Pygame expertise with OOP, physics simulation, collision detection, and graphics programming including particle systems.
- Database & Backend: Proficient in MongoDB, CRUD operations, scalable architecture design, and performance optimization with caching mechanisms.

EDUCATION

2022-2025 **B.Tech in Computer Engineering**
Birla Vishvakarma Mahavidyalaya, Anand, Gujarat, India CGPA: 6.13

2019-2022 **Diploma in Computer Engineering**
BBIT, Anand, Gujarat, India CGPA: 8.64

PROFESSIONAL EXPERIENCE

May 2025 – Present **Software Engineer, Arthro3D**

- Working on automation Pipelines for Knee3wiz, Hip3wiz and Glan3wiz

Dec 2024 – April 2025 **Software Engineer Intern, Invisible Fiction**

- Developing medical imaging software pipeline using deep learning for table segmentation in DICOM medical images.
- Built U-Net model to identify and remove examination tables from medical scans with 97% accuracy and 0.9 precision.
- Implementing bilateral CT separation for processed images to generate 3D bone models for surgical planning.
- Working with PyTorch, pydicom, and medical imaging libraries to create clinical-grade automated systems.

PROJECTS

May 2025 – July 2025 **3D Hip Surgery Planning Pipeline (3D-HSPP*)***

- Developed automated 3D medical imaging pipeline for hip surgery planning that processes CT scan data to predict anatomical landmarks across pelvis, femur, and spine structures with bilateral processing capabilities.
- Implemented mesh generation and point cloud registration using marching cubes algorithm and Coherent Point Drift (CPD) with statistical averaging to handle patient-specific anatomical variations.
- Engineered production-ready architecture with multi-threaded processing, comprehensive error handling, and support for clinical data formats (NRRD, CSV, XML).
- Integrated medical imaging stack including Open3D, VTK, NumPy, and specialized libraries to create clinical-grade system for automated landmark prediction and 3D medical data processing.

Aug 2025 – Nov 2025 **3D Medical Image Processing Pipeline for Orthopedic CT Analysis**

- Built automated CT processing pipeline for batch processing NRRD medical images with bone segmentation using Hounsfield Unit thresholding, 3D mesh generation via marching cubes, and standardized OBJ output.
- Developed interactive visualization and measurement tool with matplotlib-based GUI featuring real-time slice navigation, hip center detection, and precise anatomical landmark identification.
- Engineered coordinate system standardization using rotation matrices and affine transformations to align patient anatomy across datasets with robust 3D spatial reorientation.
- Created scalable multi-patient processing system with comprehensive error handling that reduced manual processing time from hours to minutes per case using Python, NumPy, Open3D, and medical imaging libraries.

Dec 2025 – **Femoral Condyle Analysis Pipeline**

Feb 2026
- Developed Python pipeline to analyze femoral condyles from 3D meshes and medical imaging data with multi-threaded CPD affine registration to align reference femur models with patient meshes.
- Automated landmark extraction and circle fitting to estimate medial and lateral condyle radii with interactive visualization tool using Matplotlib for manual refinement.
- Integrated Open3D, VTK, NRRD, and SciPy for 3D mesh processing, image cropping, and volume handling to enhance orthopedic imaging workflows.

Feb 2026 – **Batch Video Transcription System with AI-Powered Speaker Diarization**

Present
- Built automated video transcription system using OpenAI Whisper and SpeechBrain for speech-to-text conversion with speaker identification, integrating audio processing pipeline via MoviePy/LibROSA.
- Implemented advanced speaker separation using K-means clustering on MFCC coefficients, chroma vectors, and spectral contrast features with temporal windowing to accurately segment 2-5 speakers.
- Developed responsive multi-threaded GUI with Tkinter interface featuring batch processing capabilities, recursive file discovery, and real-time progress tracking.
- Optimized for cross-platform deployment with GPU acceleration (CUDA support), CPU fallback mechanisms, and robust error handling with graceful degradation.

SKILLS

Languages :- C, C++, C#, Java, Python, HTML5, CSS3, JavaScript, PHP, .Net

Frameworks :- PyTorch, TensorFlow, OpenCV, NumPy, SciPy, Pandas, Open3D, VTK, Matplotlib

& Libraries MERN Stack (MongoDB, Express, React, Node.js), Ajax, PostgreSQL, Oracle, MySQL

Tools & :- Git, Docker, CUDA, LibROSA, MoviePy, Whisper, SpeechBrain, RESTful APIs, WebSockets, JWT

Technologies Authentication, VS code, Antigravity

Soft Skills :- Team work, Effective Communication, Attention to Detail, Problem-solving, Result-Driven, Proactive Attitude

CERTIFICATIONS & CONTINUOUS LEARNING

Jan-April 2024
- **NPTEL** Course: Natural Language Processing **(NLP)**
- Continuous learning in Generative AI technologies including OpenAI GPT models, Anthropic Claude, Google Vertex AI, and prompt engineering techniques
- Active participation in AI/ML communities, staying updated with latest developments in Agentic AI, LLMs, and enterprise AI adoption strategies