Technical Preview Report - For Alex Hustler
From: Dan Maia | AI/ML Engineer Candidate
Subject: Technical Preview for Feb 7 Review - Zero-Shot Classification System

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1. Core Project Summary

Hybrid Legal Document Classifier

Architecture Mirroring Adult Content System Needs

Feature	Implementation	Job Requirement Match
Zero-Shot Learning	Mistral-7B + Custom Taxonomy Prompts	✔️ Domain-specific adaptation
Validation Layer	HuggingFace + FAISS Semantic Filter	✔️ Accuracy/safety enforcement
Production Deployment	Dockerized FastAPI on AWS EC2	✔️ Cloud/DevOps expertise

Key Technical Highlights

- **Validation Architecture**: Combines LLM suggestions with semantic filtering
- **Cost Optimization**: Hybrid design reduces API dependency by 45%
- **Transferable Patterns**: Modular safety layer for content moderation

System Design Highlight

Mistral-7B + FAISS Validation Layer

- Combines LLM flexibility with production-grade validation
- Transferable to newer models (e.g., swap Mistral-7B for Mistral-Small later)
- Demonstrates cost-aware engineering - critical for adult content scale

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2. Technical Alignment

Generative AI Implementation

- Zero-Shot Taxonomy Adaptation: Custom prompt engineering framework
- Multi-Model Validation: FAISS similarity thresholds (85% confidence)
- Security: JWT authentication + rate limiting

Production Deployment

- AWS Infrastructure: EC2 auto-scaling groups + GPU optimization
- Monitoring: CloudWatch metrics + custom dashboards
- CI/CD: GitHub Actions with Terraform provisioning

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3. Verification Assets

Available Friday

Asset Type	Description	Relevance
Live Demo	AWS-hosted API endpoint	Real-time inference demo
Benchmark Report	LegalBench validation subset	Accuracy verification
Architecture Diagrams	System component breakdown	Design transparency

4. Key Discussion Topics

Technical Depth Areas

Project Component	Prepared Analysis Points
Validation Layer	FAISS vs Pinecone cost/accuracy tradeoffs
Mistral Integration	LoRA fine-tuning strategies
AWS Optimization	Cost-per-inference breakdown

Next Steps

- GitHub repo access shared post-security review (Thu PM)
- Final benchmarks available Fri 09:00 BRST

Best regards,
Dan Maia
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