**Design Document: Data Science Commander Homepage**

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**🎯 Project Description**

**Overview**

The **Data Science Homepage** is a professional portfolio website designed to showcase advanced technical skills in AI/ML, Computer Vision, and Data Science while creating a memorable personal brand. The project combines cutting-edge web technologies with a unique "naval command center" that reflects both professional expertise and personal interests.

**Core Concept**

The website transforms the traditional portfolio format into an immersive "command center" experience where:

* **Technical skills** are displayed as tactical systems and weapon specifications
* **Projects** are presented as a naval fleet with different vessel classifications
* **Personal information** is structured as a military dossier
* **Interactive demos** simulate real-world AI/ML applications

**Primary Objectives**

1. **Professional Differentiation**: Stand out in a crowded field of data science portfolios
2. **Technical Demonstration**: Provide working examples of YOLO and RAG capabilities
3. **Recruiter Engagement**: Create an memorable experience that leads to interview opportunities
4. **Skill Showcase**: Demonstrate both technical and creative problem-solving abilities

**Unique Value Proposition**

"The only portfolio that treats AI/ML expertise as a strategic military operation, combining professional credibility with creative storytelling to create an unforgettable candidate experience."

**👥 User Personas**

**Primary Persona: Sarah Chen - AI/ML Recruiting Manager**

**Background**: Senior Technical Recruiter at a Fortune 500 company with 8 years of experience in tech hiring

**Demographics**:

* Age: 34
* Location: San Francisco Bay Area
* Education: MBA + Technical Background
* Experience: Reviews 50+ resumes per week

**Goals & Motivations**:

* Find qualified AI/ML candidates who can hit the ground running
* Identify candidates who demonstrate both technical skills and creativity
* Reduce time-to-hire while maintaining quality standards
* Present strong candidates to hiring managers with confidence

**Pain Points**:

* Generic portfolios that look identical
* Difficulty assessing real-world application of technical skills
* Limited time to thoroughly evaluate each candidate
* Need to quickly differentiate between theoretical and practical knowledge

**Technology Comfort**: High - uses LinkedIn Recruiter, ATS systems, GitHub

**Decision Factors**:

* Clear demonstration of relevant skills (YOLO, RAG, Python)
* Evidence of practical project experience
* Professional presentation and attention to detail
* Memorable candidates who stand out positively

**Behavioral Patterns**:

* Spends 2-3 minutes on initial portfolio review
* Looks for specific technologies mentioned in job requirements
* Values candidates who can explain complex concepts clearly
* Prefers portfolios with working demonstrations over static descriptions

**Secondary Persona: Michael Rodriguez - Senior ML Engineer**

**Background**: Technical interviewer and team lead at a growing AI startup

**Demographics**:

* Age: 29
* Location: Austin, TX
* Education: MS in Computer Science
* Role: Senior ML Engineer & Technical Interviewer

**Goals & Motivations**:

* Evaluate technical depth and problem-solving approach
* Assess code quality and architectural thinking
* Find candidates who can contribute to production ML systems
* Identify individuals who stay current with industry trends

**Pain Points**:

* Candidates with impressive resumes but shallow understanding
* Portfolios that don't show real engineering skills
* Difficulty assessing ability to work with production constraints
* Time constraints for thorough technical evaluation

**Technology Expertise**: Expert - PyTorch, TensorFlow, MLOps, Cloud Platforms

**Decision Factors**:

* Code quality and architectural decisions
* Understanding of ML engineering best practices
* Ability to explain technical tradeoffs
* Evidence of working with real-world constraints

**Tertiary Persona: Jennifer Park - Hiring Manager**

**Background**: Director of Data Science at a mid-size tech company

**Demographics**:

* Age: 38
* Location: Seattle, WA
* Education: PhD in Statistics
* Role: Builds and manages DS teams

**Goals & Motivations**:

* Build diverse, high-performing teams
* Find candidates who fit company culture
* Balance technical skills with collaboration ability
* Make final hiring decisions with limited candidate interaction time

**Pain Points**:

* Assessing cultural fit from portfolios alone
* Balancing technical requirements with team dynamics
* Limited time for candidate evaluation
* Need to make confident hiring decisions

**📖 User Stories**

**Story 1: The Time-Pressed Recruiter**

**As** Sarah, a busy AI/ML recruiter,  
**I want** to quickly assess a candidate's technical capabilities and project experience,  
**So that** I can efficiently decide whether to move them to the technical screening phase.

**Scenario**: It's Thursday afternoon, and Sarah has 15 more resumes to review before her 4 PM meeting. She opens the Data Science Commander homepage and is immediately intrigued by the unique naval theme. The skills radar shows exactly what she's looking for - strong Python and YOLO experience. She clicks on the YOLO demo, uploads a test image, and watches real-time object detection in action. "This candidate actually knows what they're doing," she thinks, bookmarking the profile for follow-up.

**Acceptance Criteria**:

* Homepage loads in under 2 seconds
* Skills are immediately visible and clearly rated
* YOLO demo works with drag-and-drop file upload
* Contact information is prominently displayed
* Mobile-friendly for review on phone

**Story 2: The Technical Deep-Dive**

**As** Michael, a senior ML engineer conducting technical interviews,  
**I want** to understand the depth of a candidate's knowledge and see their actual code quality,  
**So that** I can prepare appropriate technical questions and assess their engineering skills.

**Scenario**: Michael receives a candidate referral from Sarah and visits the portfolio during his lunch break. He's impressed by the technical sophistication of the interface itself - "Anyone who can build this understands web technologies." He explores the project section, examining the RAG system architecture and noting the attention to performance optimization. The GitHub links show clean, well-documented code. He spends extra time on the Q&A system, asking technical questions about vector databases and getting knowledgeable responses.

**Acceptance Criteria**:

* Projects include technical architecture details
* Code repositories are linked and accessible
* RAG Q&A system demonstrates domain knowledge
* Performance metrics are displayed (inference times, accuracy scores)
* Technical blog posts or documentation are linked

**🎨 Design Mockups**

**Homepage - Dashboard**

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│ ║ CMD-DS-SPEC [Dashboard] [My profile] [Profile] ●ONLINE ║ │

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│ │ COMMANDER HQ │ │ TACTICAL OVERVIEW │ │

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│ │ │ ◯ PROFILE │ │ │ │ Skills Radar Chart │ │ │

│ │ │ HUD RING │ │ │ │ │ │ │

│ │ │ ⊕ CROSSHAIR │ │ │ │ Python ██████████████ │ │ │

│ │ └─────────────┘ │ │ │ YOLO ██████████████ │ │ │

│ │ │ │ │ RAG ██████████████ │ │ │

│ │ Data Science Commander│ │ │ CV ██████████████ │ │ │

│ │ AI/ML Specialist │ │ └───────────────────────────┘ │ │

│ │ NEU • CV • RAG │ │ │ │

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│ ║ │ 🎯 CV BATTLESHIP│ │ 🤖 RAG DESTROYER│ │ ⚙️ ML CRUISER │ ║ │

│ ║ │ Computer Vision │ │ Knowledge Base │ │ ML Pipeline │ ║ │

│ ║ │ & YOLO Detection│ │ & Q&A Systems │ │ Development │ ║ │

│ ║ │ │ │ │ │ │ ║ │

│ ║ │ [ACTIVE] 🟢 │ │ [ACTIVE] 🟢 │ │ [DEPLOYED] 🟡 │ ║ │

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│ ║ CONTACTs ║ │

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│ ║ 📧 Direct Line: your.email@example.com ║ │

│ ║ 💼 Professional Network: LinkedIn Profile ║ │

│ ║ 💻 Code Repository: GitHub Portfolio ║ │

│ ║ 📍 Boston, MA ◉ ║ │

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│ © 2024 Data Science Command Center SYS-TIME: 14:32:05 EST ● │

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**Projects Page – My project**

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│ ║ CMD-DS-SPEC [Dashboard] [Fleet Ops] [Profile] ●ONLINE ║ │

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│ ║ FLEET: STRATEGIC OPERATIONS ║ │

│ ║ AI/ML Systems Deployment Portfolio ║ │

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│ [12+ Projects] [5 Active Systems] [95% Success Rate] │

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│ │ FLAGSHIP PROJECT │ │

│ │ │ │

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│ │ │ │ │ 🎯 YOLO BATTLESHIP │ │

│ │ │ [PROJECT DEMO] │ │ Advanced Object Detection │ │

│ │ │ ▶ PLAY │ │ │ │

│ │ │ │ │ Comprehensive CV system with │ │

│ │ │ [YOLO Detection │ │ YOLOv8, custom training, │ │

│ │ │ Screenshot] │ │ 95%+ accuracy across classes. │ │

│ │ │ │ │ │ │

│ │ └─────────────────────┘ │ Tech Stack: Python, PyTorch, │ │

│ │ │ OpenCV, ONNX, Ultralytics │ │

│ │ │ │ │

│ │ │ 📊 95.3% mAP | ⚡45ms | 12 Classes │ │

│ │ │ │ │

│ │ │ 🔗 [DEMO] 📁 [GITHUB] 📄 [DOCS] │ │

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│ │

│ Filter: [All Systems] [Computer Vision] [RAG] [ML] [Web] │

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│ │ 🤖 RAG│ │ ⚙️ ML│ │ 👁️ CV│ │

│ │ Intelligence │ │ ML Pipeline │ │ Video Analysis │ │

│ │ System │ │ Automation │ │ System │ │

│ │ │ │ │ │ │ │

│ │ Advanced Q&A │ │ End-to-end ML │ │ Real-time video │ │

│ │ with vector │ │ with Docker & │ │ processing for │ │

│ │ embeddings │ │ AWS deployment │ │ object tracking │ │

│ │ │ │ │ │ │ │

│ │ LangChain │ │ Scikit-learn │ │ OpenCV │ │

│ │ ChromaDB │ │ MLflow │ │ MediaPipe │ │

│ │ OpenAI API │ │ Docker │ │ TensorFlow │ │

│ │ │ │ │ │ │ │

│ │ [OPERATIONAL] 🟢│ │ [DEPLOYED] 🟡 │ │ [ACTIVE] 🟢 │ │

│ │ │ │ │ │ │ │

│ │ [Details] [Code]│ │ [Details] [Code]│ │ [Details] [Code]│ │

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│ │ 📝 NLP CORVETTE │ │ 🌐 WEB PATROL │ │ 🔬 RESEARCH │ │

│ │ Text Analysis │ │ Full-Stack │ │ Neural Arch │ │

│ │ & Classification│ │ Data Platform │ │ Optimization │ │

│ │ │ │ │ │ │ │

│ │ [STANDBY] 🔴 │ │ [LIVE] 🟢 │ │ [RESEARCH] 🟠 │ │

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│ ║ TECHNICAL ARSENAL ║ │

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│ ║ Deep Learning: [PyTorch] [TensorFlow] [Keras] [Ultralytics] ║ │

│ ║ Computer Vision: [YOLO] [OpenCV] [MediaPipe] [ONNX] ║ │

│ ║ RAG & LLM: [LangChain] [ChromaDB] [OpenAI] [Pinecone] ║ │

│ ║ MLOps: [Docker] [AWS] [MLflow] [GitHub Actions] ║ │

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