

12.02 - Conversational AI Integration for Crean and VIA Smart Factory

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Sponsor Intro

Crean Inc. is a leading engineering and consulting firm specializing in manufacturing solutions

Crean Inc. and VIA Smart Factory deliver smart manufacturing solutions for high-tech companies

VIA Smart Factory is designed to transform traditional manufacturing into data-driven, intelligent operations.

Project Overview

1. Automating consultant matchmaking with AI.
2. AI system to predict schedules and optimize production in high-mix factories.

Designs: VIA vs Match

Input

Data Prep	ResumeEmbeddings
Table Flattening	FAISS Index
Cleaned Input	Job Embedding

Logic

Scheduling Rules	Similarity Scoring
EDD + SPT	Candidate Ranking
Simulation Engine	AI Reasoning

Output

Predicted Times	Ranked Matches
Delivery Metrics	Fit Analysis
KPI Results	Skill Gaps

Results System 1 (VIA Smart Factory Scheduling)

- End-to-end AI scheduler
- Modular ML prediction engine
- Cleaned & restructured data
- Streamlit schedule extractor

Results System 2 (Match-Making)

- 95% faster
- 85% improved accuracy
- Real-time reasoning
- Scalable
- Full web app

Top provided engineer example



Eugene Hockenberry Resume.pdf

Rank: 1 - Score: 0.50

Fit + Gap Analysis:

- Positive Fit:**
Eugene Hockenberry stands out as a strong candidate for the Aerospace Engineer position at Northrop Grumman due to his extensive 24+ years of experience in engineering and program management, particularly within the aerospace sector. His background in systems engineering and R&D aligns well with the role's focus on developing complex aircraft systems and supporting flight performance models. Furthermore, his proven ability to manage cross-functional teams and communicate effectively with diverse stakeholders showcases his leadership skills, which are essential for contributing to design reviews and technical evaluations. His experience in government contracting and client relationship management adds significant value, making him the top candidate among the five.
- Why Not a Perfect Match:**
Despite Eugene's impressive qualifications, he is not a 100% perfect match for the Aerospace Engineer role primarily due to his educational background, which is in Electrical Engineering and Computer Engineering rather than Aerospace Engineering or Mechanical Engineering. Additionally, while he has a solid foundation in systems engineering, he may lack direct experience with specific aerospace tools and methodologies such as CFD, FEA, and flight mechanics, which are critical for the position. His expertise seems to be more aligned with electrical systems and program management than with the specific aerodynamics or propulsion focus required by the position.
- Missing Skills:**
Eugene's resume reveals several specific missing skills that could hinder his fit for the Aerospace Engineer role. He does not appear to have experience with key engineering tools mentioned in the job description, such as MATLAB, CATIA, or ANSYS, which are crucial for performing the required analyses. Furthermore, he lacks hands-on experience with wind tunnel testing or flight testing, as well as familiarity with stealth aircraft design or systems engineering processes like DOORS. Additionally, there is no indication that he has experience with composite structures or propulsion integration, which are preferred qualifications for the position.

Predicted Schedule as an excel table

Inputs

Upload SQLite DB

Drag and drop file here
Limit 200MB per file • DB, SQLITE

Browse files

uploaded_factory.db
10.9MB

Minimum rows per item to keep

1

ML test size

0.28

0.05

0.40

Random seed

Validation (Predicted vs. Actual)

MAE (finish, min)

141,090

MedAE (finish, min)

133,215

Finish error histogram (minutes)

Predicted vs Actual duration (minutes)

Finish error vs Due date

Worst 20 items by finish error

Download validation results (CSV)

Download schedule as CSV

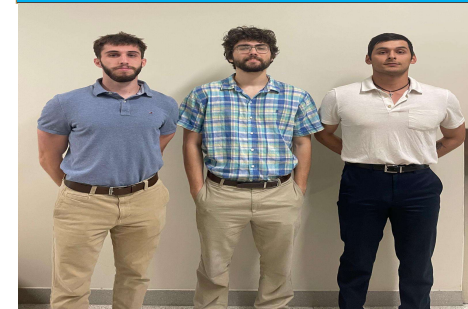
Future Plans (VIA)

- ±6 hr accuracy
- Higher on-time rate
- Lower tardiness
- Less manual planning
- Cloud/Server deployment
- Real-time DB integration
- New key scheduling factors

Future Plans (Match)

- Dynamic rotating background
- Industry-grade scaling
- AI chat assistant for preference-based matching

Team Members



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