

Job Interview in the AI-Era

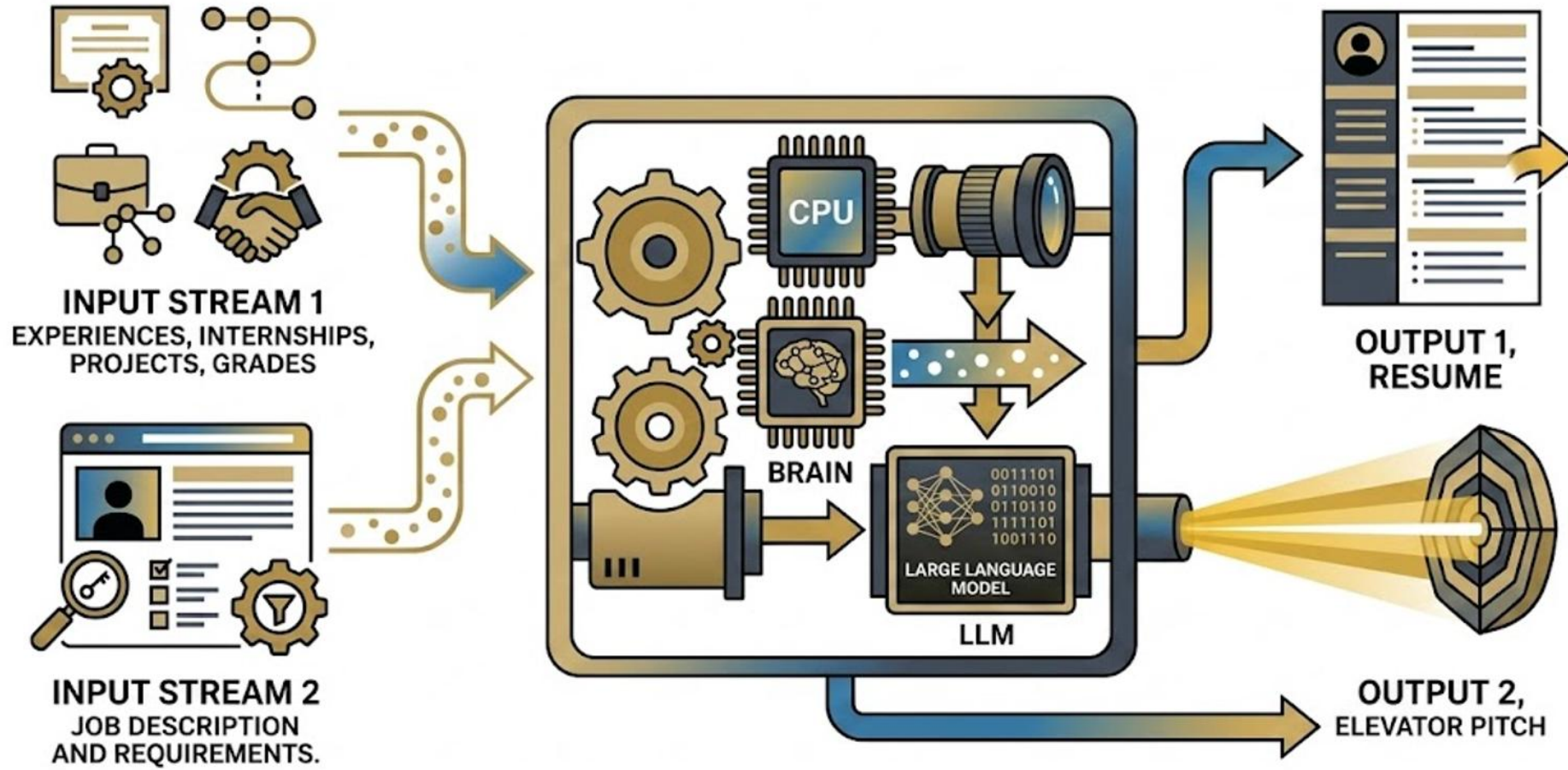
Coding, Systems, Agents

Strategic Resume Engineering

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Resume Engineering

Session Agenda

Strategic Resume Engineering

- **Crafting elevator pitch:** Effectively selling oneself
- **Resume tailoring:** Job description analysis

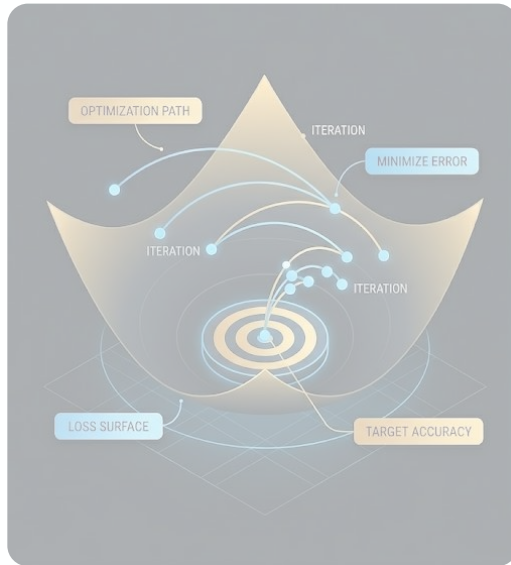


Interactive Execution

- **Hands-on activity:** LLM use for resume stress-testing and creating an elevator pitch



The Overarching Theme of Optimization



Algorithmic Optimization

- **Target:** Ground-truth training data
- **Error metric:** “Distance” from target
- **Optimization engine:** Iterative weight updates to minimize errors



Career Optimization

- **Target:** Job Descriptions (JDs)
- **Error metric:** Employer Risk
- **Optimization engine:** Iterative framing of raw experience to align with JD

Precision beats Volume *(Don't list everything)*

The Candidate Trap

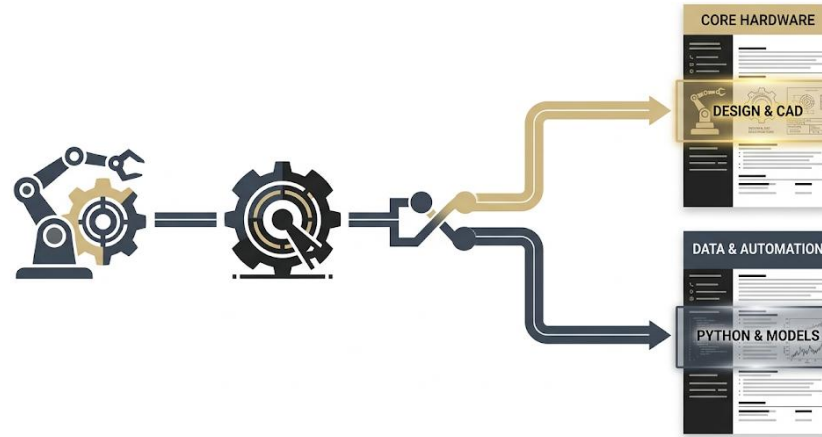
- **Feature Dumping**
- **Mindset:** “If I list every minor class project, software language, and framework, they will see vast potential”
- **Execution:** Resume is often an exhaustive log file, burying core strengths
- **Result:** High Noise, Low Signal

The Recruiter Reality

- **Risk Minimization**
- **Mindset:** “I have 6 seconds to find explicit, undeniable proof that this person can execute well in this specific role”
- **Execution:** Pattern-matching against a strict set of requirements
- **Result:** High Signal expected. Anything else is a distraction / liability



A Resume is Dynamic



The Project Core

- **Shared Foundation:** A hands-on engineering project or internship
- **Unrefined Data:** Raw technical details of project

The Job Description Filter

- **Role Type A:** Looks for physical design, domain knowledge, traditional tools
- **Role Type B:** Looks for data pipelining, predictive modelling, automation

Targeted Output

- **Core Engineering View:** Highlight physical aspects of the project more
- **ML & Data View:** Highlight data and software aspects of the project more

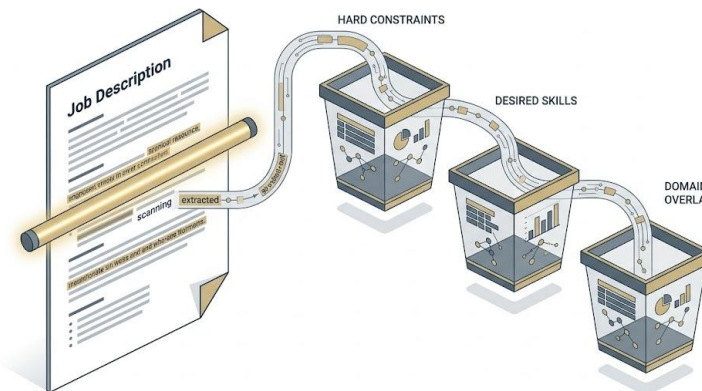
Deconstructing the JD

The Hard Constraints

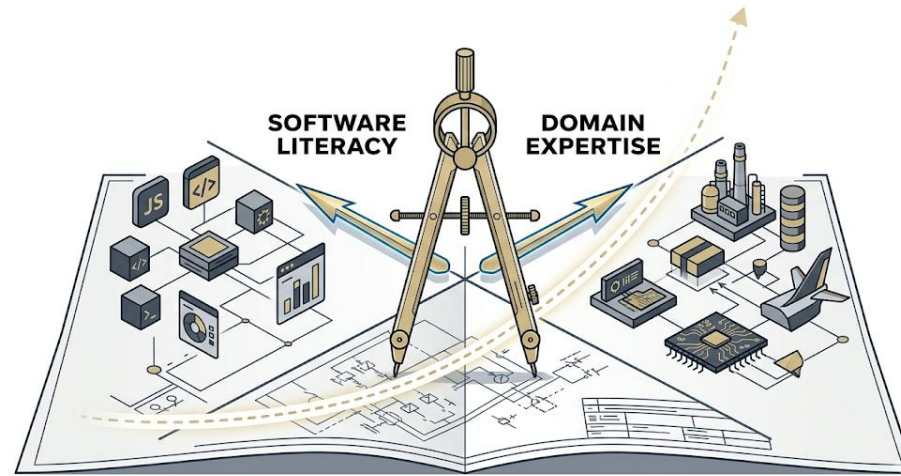
- **The Baseline:**
 - Years of Experience
 - Specific Degrees
 - Non-negotiable Domain Knowledge
 - Non-negotiable Technical Skills
- **The Filter:** If you don't hit 70-80% of these, you are "too far", both for human and automated recruitment filters

The Preferential Weights

- **The Competitive Edge:** Nice-to-have skills beyond baseline requirements
- **The Domain Bridge:** How your primary engineering major overlaps with the software problems
- **The Optimization:** This is where you can differentiate yourself - think "Extra Credit"



Decoding the Modern Industry Trend



The Shifting Landscape

- **The Technical Shift:** Engineering roles increasingly interface with automated data, scripting, and predictive tools
- **The Industry Expectation:** You are not expected to replace pure Software/ML engineers – but you can provide valuable domain knowledge.

The Strategic Launchpad

- **Lowering the Barrier:** Generative AI tools serve as an interactive tutor, helping you learn and prototype incredibly fast
- **Building your Repertoire:** This bootcamp is obviously not a magic fix, but it provides you the frameworks needed for independent learning and building

Contextual Framing in Practice

The Baseline Experience

Completed an undergraduate lab or design team task: "Wrote a MATLAB script for a project to process temperature data from a solar heater and wrote a report"

Thermal/Mechanical Engineer

- **JD:** Ability to validate thermal performance against system constraints
- **Your Resume should say:** "Analyzed experimental thermodynamic data using MATLAB to evaluate solar heater efficiency against design constraints; drafted technical documentation validating thermal output for the final project review."
- **The Strategy:** Highlights core domain and system constraints

Data-Driven Systems Analyst

- **JD:** Experience in building data pipelines and predictive models
- **Your Resume should say:** "Developed an automated MATLAB data pipeline to process raw sensor telemetry; implemented predictive logic to estimate thermal output trends, reducing manual data cleaning time for a 4-person team."
- **The Strategy:** Highlights pipeline automation, algorithmic logic, and efficiency metrics

Data-driven Substantiation

[ACTION VERB] + [SPECIFIC TOOL/SKILL]
+ [QUANTIFIED OUTCOME/IMPACT]



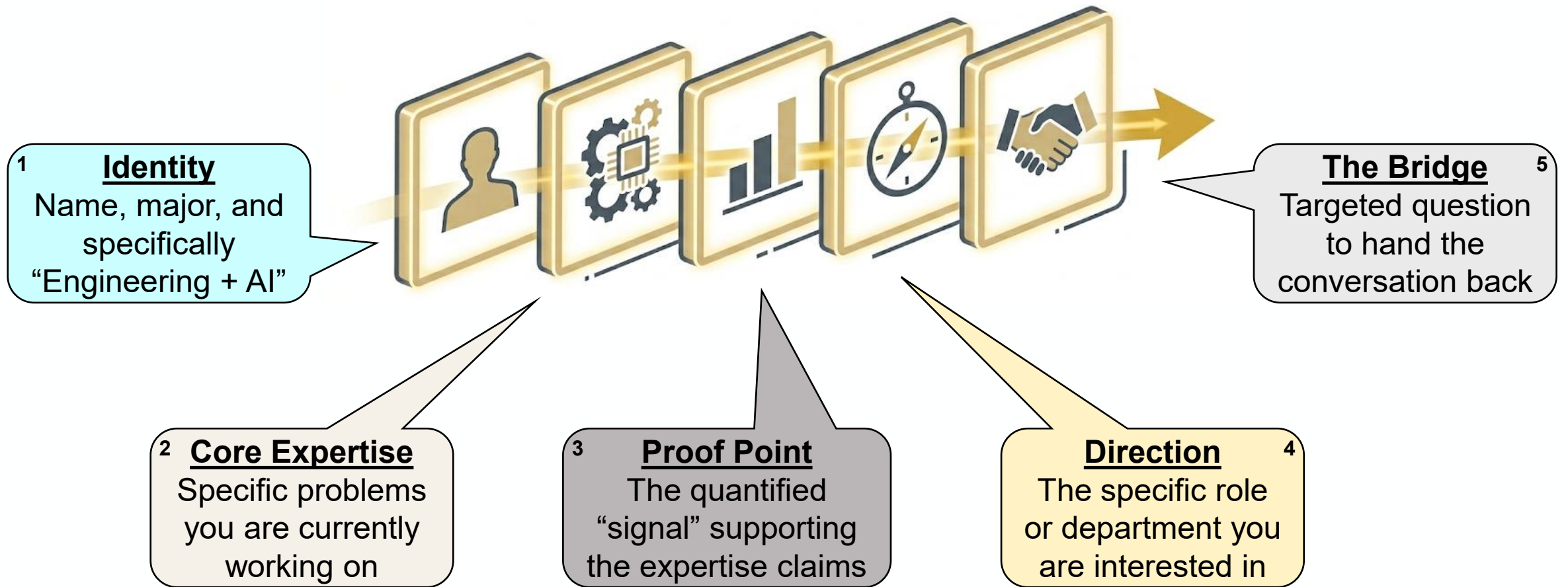
The Vague Claim

Learned Python and did a project to analyze data for a solar heater lab.

The Engineered Proof

Automated a solar telemetry pipeline using **MATLAB**, reducing manual processing time by **40%** for a 4-person team.

Sell Yourself to the Recruiter



Example Elevator Pitch #1

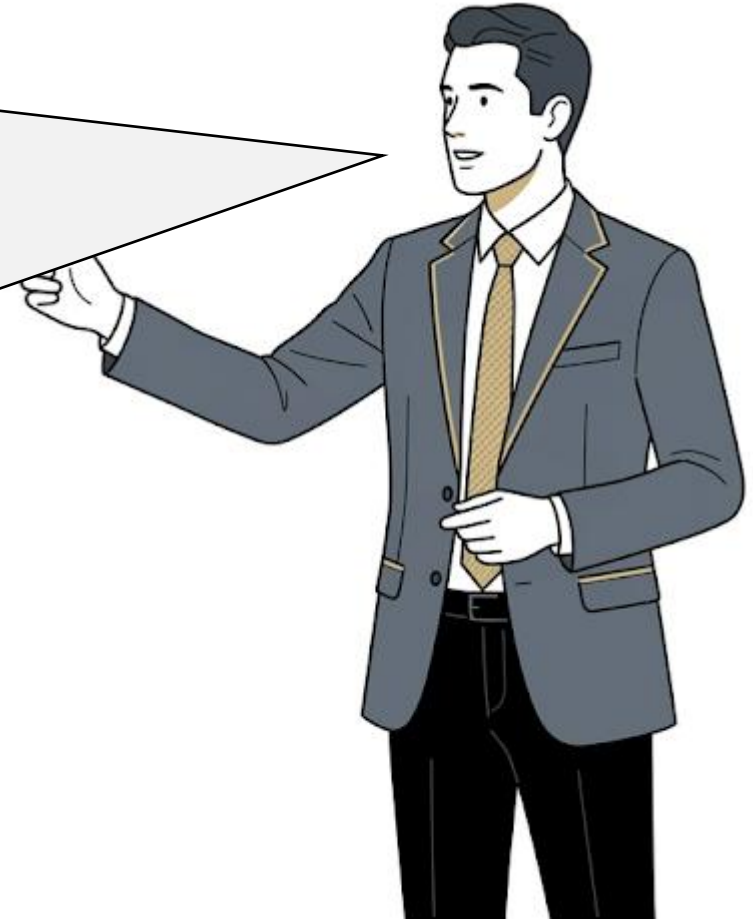
[Identity] "Hi, I'm [Name], a Senior in **Civil Engineering** currently focused on integrating AI into structural health monitoring."

[Expertise] "I'm interested in how we can use automated vision to detect defects in aging infrastructure faster than manual walk-throughs."

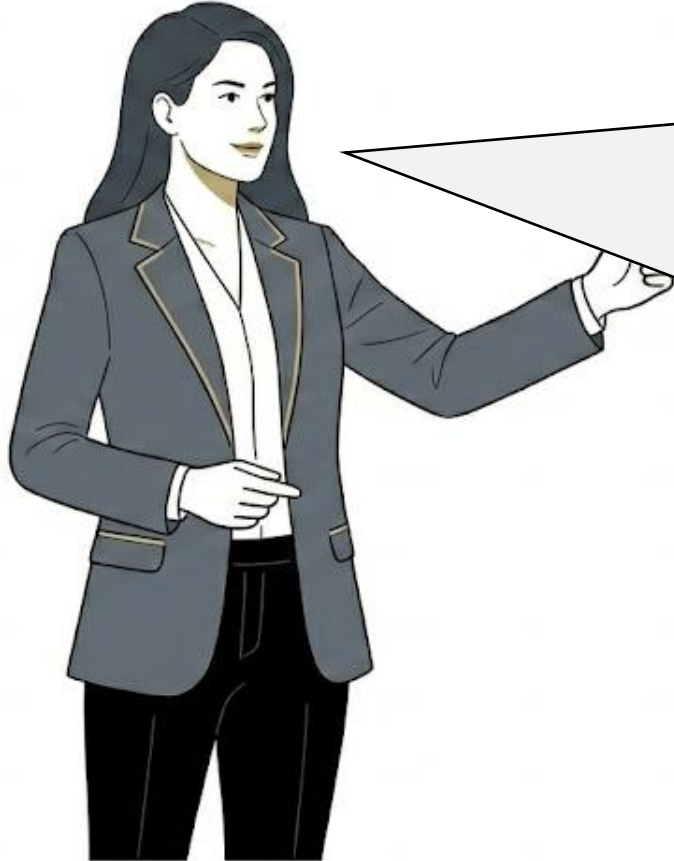
[Proof] "I recently used an AI-assisted Python workflow to analyze 500+ site photos, identifying pavement crack patterns with **90% accuracy** compared to manual logs."

[Direction] "I'm looking to bring this data-driven mindset to a firm like yours that's innovating in **Smart Cities** and infrastructure."

[Bridge] "How is your team currently bridging the gap between field inspections and digital data analysis?"



Example Elevator Pitch #2



[Identity] "Hi, I'm [Name], a Senior in **Industrial Engineering** focused on the intersection of human factors and automated assembly."

[Expertise] "My goal is to minimize workplace injury and maximize throughput using data-driven ergonomics."

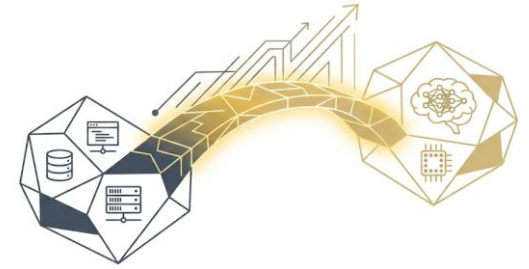
[Proof] "I used an AI tool to analyze video of a manual assembly task, identifying high-strain movements that allowed us to redesign the workstation and reduce ergonomic risk scores by **25%**."

[Direction] "I'm looking to bring this systems-optimization mindset to your **Advanced Manufacturing** group."

[Bridge] "How is your team currently using computer vision or sensor data to improve safety on the production floor?"

A pivot could happen at anytime

A little about my own journey...



The Past

SWE / Data Engineer

Building traditional data pipelines, finance, and software architecture



The Present

The Transition

Focus on computational neuroscience, brain-to-speech decoding with deep learning



The Future

ML Engineer

Specific target to work on neural data processing and applied BCI

The Prompting Engine

The Persona (The Target)

Lock the AI into a specific mindset. This is a good pattern in general.

Example: “Act as the Hiring Manager for the Machine Learning Infrastructure team at Neuralink.”

The Boundary (The Truth Anchor)

Prevent hallucinations and buzzword soup. Another good pattern in general.

Example: “Do not invent new metrics or skills. Only re-frame my existing experience based on my resume and the target.”

The Friction Test (The Audit)

Force the AI to find your weaknesses. Take advantage of the emulated “persona”.

Example: “Based on my resume, what is the weakest point in my application for this role, and how can I pivot around it?”

Tailoring the Resume

The Persona:

1 Act as the Hiring Manager for the Machine Learning Infrastructure team at Neuralink.

!! Here you can also provide the JD

Resume

“Deliver Datasets is too passive”

- _____
- Utilized Java, Python, and SQL to deliver wide foundational datasets to modeling and trading for business needs.
- _____
- _____

2 Based on my resume, what is the weakest point in my application for this role, and how can I pivot around it?

“A Neuralink ML Lead may not care about this”

Resume

- _____
- Architected reliable data pipelines using Python and SQL to deliver foundational datasets, ensuring robust data ingestion for downstream predictive modeling.
- _____
- _____
- _____

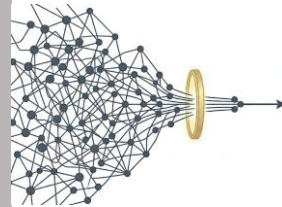
3 Fix these flags to align with an ML Infrastructure role. Constraint: Use only my existing Java/Python/SQL pipeline experience. Do not fabricate new skills.

Generating the Elevator Pitch

- Translate my BCI research into a 30-second elevator pitch.
- Constraint 1: Structure it explicitly using the 5-Part Pipeline (Identity, Expertise, Proof, Direction, Bridge).
- Constraint 2: Maintain technical credibility while making it accessible to a non-academic industry recruiter.

Resume

- _____
- Utilizing deep learning, linguistic, and ensembling techniques to decode text from Utah Array neural signals. Proposed leveraging neuroscience-backed articulatory and motor features to assist decoding. Achieved a 4.5% WER with a 125,000-word vocabulary.
- _____
- _____



[Identity] "Hello, I'm Suhas, an ECE Master's student at Purdue and a former software engineer."

[Expertise] "My focus is bridging the gap between raw neural data and real-time software applications."

[Proof] "Currently, I'm decoding text directly from Utah Array signals. By leveraging linguistic features in our deep learning models, we recently hit a 4.5% Word Error Rate on open vocabulary."

[Direction] "Given my background in both data pipelines and computational neuroscience, I'm targeting an ML Engineering role with your BCI team."

[Bridge] "What is the biggest infrastructure bottleneck your team is facing right now when scaling these decoding models?"



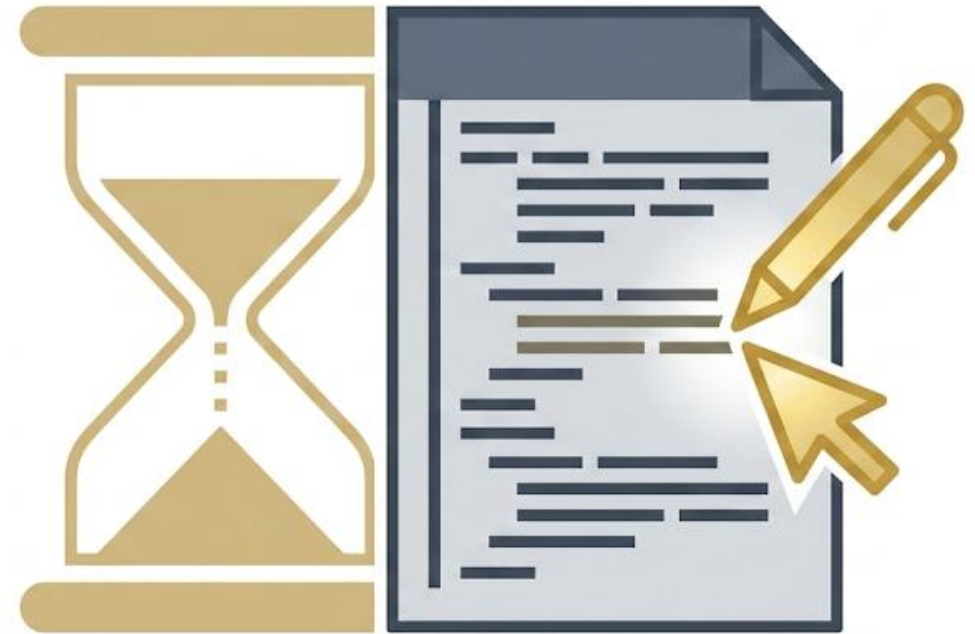
It's Your Turn #1

Setup

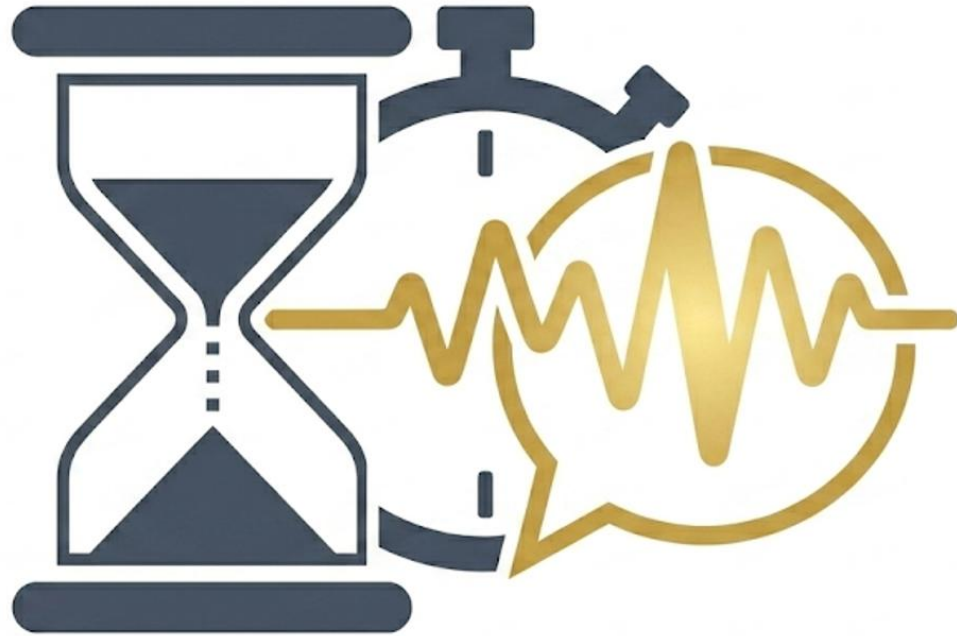
- Find a **Target Job Description** (or pick a dream role)
- Pick **one or a few** bullets from **your resume**, reflecting a past project, experience etc.
- Pick an **LLM** (ChatGPT, Gemini, Claude etc.)

The Execution

- Figure out a **Persona** for the LLM
- **Friction Test** the bullets from **your resume**
 - Hint: You could even ask it to pick the most relevant and/or poorly written bullets for you
- Apply the **Boundary Constraints** to the LLM and ask it to **rewrite** the bullets



It's Your Turn #2



Setup

- Continue using the previous **Target Job Description**
- Pick **one or a few** bullets from **your resume**, including the rewritten bullets
- Continue using the same **LLM Persona**

The Execution

- Ask the LLM to translate the points into a **30-second spoken elevator pitch**
- Set a constraint to use the discussed framework: **Identity, Expertise, Proof, Direction, Bridge**
- Get creative, set other constraints e.g. “make it conversational” or “end with a technical bridge”

Just some resources

- **Purdue CCO:** Plenty of different services available to all Purdue students and alumni including:
 - Drop-in hours
 - Mock interviews
 - Resume scoring
 - etc.
- LLM Prompts from these slides
- Use a written version of the new Elevator Pitch to reach out to people on LinkedIn who are currently in your target roles (**Targeted Networking**)
- Cool blog on using LLMs effectively: <https://sureprompts.com/blog/ai-prompt-cheat-sheet>

Thank You

