

Spring E295, Week 2 Handout – Kolb

1. Project speed networking: in one minute or less, introduce your project.
2. Team debrief. What did people understand? What did people get confused by?
3. Today, we'll continue working on introducing your project by drafting the Project Overview. Recall that your project overview is the first of your public facing, more visual materials.

What is a Project Overview?

Project Title + Visual Asset + **Project Objective**

These materials are geared towards professional networking (e.g., LinkedIn profiles; resumes; portfolios) and end-of-the-year events (e.g., Fung Institute Showcase).

We'll start with written materials; we'll talk about visuals next week. As always, before you begin, define your audience, goals, and constraints. Then, take a look at some examples:

EXAMPLES

Injectable Hydrogel

Around 20% of people who suffer from a heart attack eventually suffer from heart failure caused by damage to the cardiac tissue. Our team is working on an injectable hydrogel that provides mechanical support to the injured cardiac tissue, thereby improving heart function. This mechanical approach to a biological problem will change the future of cardiac therapy.

3D Microscope

Microscopes have remained relatively unchanged since the 17th century. They rely on bulky, fragile glass lenses and produce simple two-dimensional images. Team NoScope is taking the microscope into the modern age. We replace free-space optics and lenses with cutting-edge tomographic and light processing techniques. The result is a robust, portable, and inexpensive microscope which generates 3D images in seconds.

Microfluidic Cooling

The cooling of data centers consumes nearly 1% of the world's energy. Currently, cooling is achieved by a technology that is not much different from industrial-scale air conditioning systems. These systems cannot keep up with the heat dissipation requirements of new microprocessors. Our team is working on a cooling mechanism consisting of microfluidic channels placed on top of the microchips. This new mechanism dissipates heat much more efficiently than traditional air cooling.

The examples above rely on this basic formula

First Sentence: What's the context?

Second Sentence: What's the goal?

Third Sentence: What do you hope to accomplish, and with what tools?

Good news: you have already begun writing your overview by drafting titles! As you revise, here are some good questions to ask about your title:

How **much** can my audience understand about our project, just based on the title?

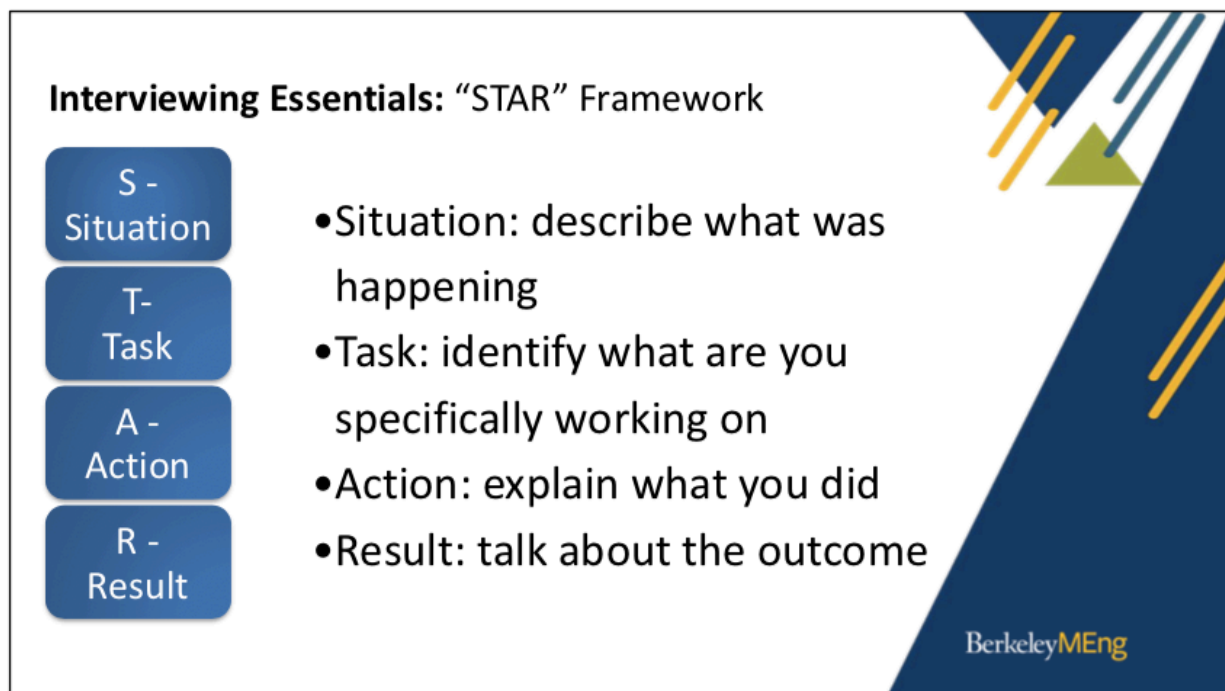
How **wide an audience** can understand the title? Are technical insiders and outsiders **both included as audience members** in my title?

Can my audience understand **why my project matters** by reading the title? In other words, does the title convey the **stakes** of the project?

Does this title make my audience **want to know more** about my project?

You've just practiced introducing your project generally, by speaking (speed networking) and writing (objective statement). For interviews and for the Comprehensive Exam, it is also important that you learn to speak about specific aspects of your project.

The STAR method offers you a way to talk about specific aspects of your project in an interview setting. STAR is a method for structure answers to specific, often behavioral questions, which will enable you to answer questions briefly and comprehensively without rambling.



The STAR framework which is often used when answering interview questions similar to the comp exam questions. The STAR technique helps frame stories in an organized way which is why interviewers are trained to listen for this style of conversation in the interview process, specifically when asking behavioral and situational questions. This approach works for more than just performing well in interviews; it is also an easy framework to follow when creating a compelling, in this case professional, story.

Employers ask behavioral questions like the ones you will find on your comp exam because they are looking for examples of your past actions that may be predictors of how you'll act when you face these situations again.

What is the STAR method?

The STAR framework is a technique that will help you prepare clear and concise responses using **real-life specific examples**. They should be specific and highlight details from what you experienced, accomplished or challenges you faced, not theoretical examples. **Use "I statements" to stress what you, specifically, did.**

STAR stands for: **S**ituation, **T**ask, **A**ction and **R**esult – which gives your audience the sense of a story arc, and gives you the safety of a structure. Prepare a sentence or two that touches upon each of these points. Describe the Situation you were in, the Task you were asked to accomplish, the Action you took and why, and the Results of your actions or the outcome

How to prepare?

Writing out your answer is a great method, practice and ask for feedback, from a roommate, friend, MEng career coach, or even with yourself in the in the mirror, time yourself to ensure you do go to off topic or take up too much time, staying concise it important. The more you practice your answers the more confident you will feel which usually also allows you to be natural and authentic when telling your stories.

Review

1. **Start by framing the Situation:** Once you hear a question, and you are sure you understand it, set up the story. Expect your audience not to be familiar with your capstone project. Therefore, most situations will start in the same way. "I am a member of a capstone team, and together with my team, I am aiming to ..."
2. The **Task** sets up the specific sub-project (collaborating with stakeholders, managing deadlines, including all team members, etc).
3. Then provide an explanation of specific **Actions** *you* took and why (use "I" statements)
4. Be sure to provide the **Results** or resolution even if it was a bad outcome (focus on what you learned or would do differently in the future). "R" alerts your audience that you are winding down your answer to the question and completing your story arc.

This year's questions

Describe a time when you managed conflicting demands or needs from project teammates or stakeholders.

Describe a specific way in which you have ensured that your team members felt included, valued, and trusted.

Describe a time you gave constructive feedback to one of your team members. What did you learn from the experience?

Describe a time when an unexpected problem derailed your planning in a major way. How did you manage this situation?

Describe specific ways in which diversity and inclusion within your capstone team translated into higher performance or better solutions.

What is an example of how you adapted your leadership approach to work with diverse team members and/or stakeholders?

Share an experience from your capstone that highlights the importance of engineering ethics.

Describe what you did in a situation where project goals were not well defined or there was incomplete data or information.

Describe a time you helped facilitate effective team work to meet project deliverables and deadlines.

Describe a time when you impacted the trajectory of your project by learning something substantial quickly (in days or weeks).

Describe a time when you took a calculated risk for your team. Whether or not successful, describe the impact on your team's trajectory.

Describe a time when you developed a simple solution to a challenging problem or you successfully reframed a challenging problem.

On bCourses, you will find **two short assignments** due Jan 30:

1. Project Objective + title (as teams)

2. STAR practice (as individuals)

3. *Looking ahead.* Please reread visual requirements in the Capstone Handbook (reprinted below). As a team, start considering what kinds of visual representations of your project will be most interesting, useful, or exciting. We'll discuss visuals in detail next week.

Visual asset

A visual representation of your desired outcome, your process, your team. Avoid stock images! Stock images have low informational density: they do not communicate anything specific about your project. These images may be a good fit for a marketing publication (which aims to create mood), however, they rarely work for a project One-Pager (which aims to make an argument).

Specifications:

Resolution: at least 100 DPI

Formats: .ai, .pdf, .psd are preferred; .jpg, .pnd will be accepted