

Choosing a Capstone Project Topic

Choosing a Capstone Project Topic

Key considerations, step-by-step process, and useful resources

1. Why the Topic Matters

Aspect	Impact on Your Project
Relevance	Aligns with current industry trends or academic gaps, making your work more valuable.
Interest	Keeps you motivated through months of research, design, and testing.
Feasibility	Determines whether you can complete the work with available time, data, tools, and expertise.
Scope	Balances depth (enough to be scholarly) with breadth (manageable within a semester/year).
Career Goals	Showcases skills that employers or graduate programs look for.

2. Initial Idea Generation

Technique	How to Apply
Brainstorming	Write every possible idea on sticky notes; group similar concepts; keep the list for later filtering.
Problem-Driven Scan	Look at recent news, industry reports, or academic journals for unresolved problems.
Passion Mapping	List subjects you enjoy, then ask “What unanswered question exists here?”
Consult Stakeholders	Talk to professors, industry mentors, or peers to surface real-world needs.
Technology Radar	Identify emerging tools/techniques (e.g., AI-generated content, edge computing) you’d like to experiment with.

Tip: Aim for **10–15 raw ideas** before you start narrowing them down.

Choosing a Capstone Project Topic

3. Filtering Criteria (Apply a Decision Matrix)

Criterion	Questions to Ask	Weight (1?5)
Relevance	Does it address a current gap?	4
Personal Interest	Will I stay engaged for 6?12 months?	5
Data Availability	Are datasets, APIs, or lab resources accessible?	4
Technical Feasibility	Do I have (or can acquire) the required skills?	3
Originality	Can I contribute something new?	3
Impact	Will the outcome be useful to others?	4
Time Constraints	Can I finish within the project deadline?	5
Resources & Cost	Are tools/materials affordable?	2

Scoring: Multiply each rating (1?5) by its weight, sum the totals. Prioritize topics with the highest scores.

4. Conduct a Mini?Literature Scan

1. **Search** – Use Google Scholar, IEEE Xplore, ACM DL, or subject?specific databases.
2. **Keywords** – Combine your core idea with terms like “survey,” “review,” “challenge,” “future work.”
3. **Read** – Skim abstracts; note recurring gaps or contradictory findings.
4. **Document** – Create a simple table:

Source	Year	Main Findings	Identified Gaps
Author A (2023)	2023	...	...
Author B (2022)	2022	...	...

5. **Outcome** – Confirm that a genuine research/implementation gap exists and that you can address it.
-

5. Define a Working Title & Problem Statement

Choosing a Capstone Project Topic

- **Working Title** – One sentence, specific, and descriptive.

Example: “Optimizing Energy Consumption of Edge AI Inference Using Adaptive Quantization.”

- **Problem Statement** – 2–3 sentences covering:

1. **What the**