Take a closer look!
EXPLORE
ENGINEERING
Turn Your Ideas into
Reality
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What is **Engineering**?

Facts

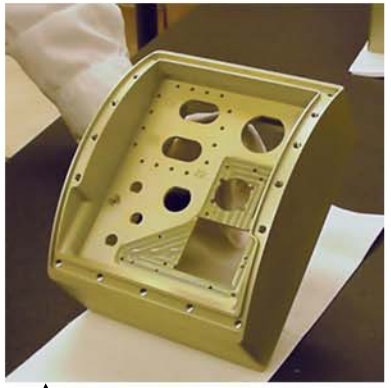
Ideas

Theories

Designs

Scientist

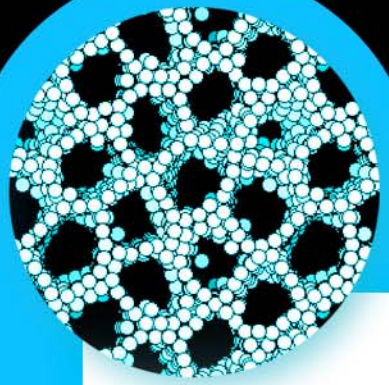
Engineer



Final Product

Technician or Factory

A practical inventor who uses science and nature to make life better.



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If you **like to…**

- Solve problems
- Design things
- Build things
- Work puzzles
- Figure out how things work
- What makes people click?

And if you like to help others…

Consider engineering!

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Did you know that engineering teams designed…

- the rides at amusement parks (at Disney they're called ***Imagineers***)?

- the incubators that hold the premature babies at the hospital?

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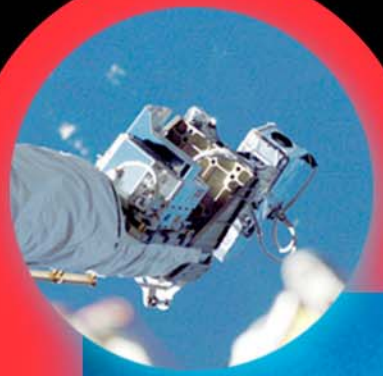

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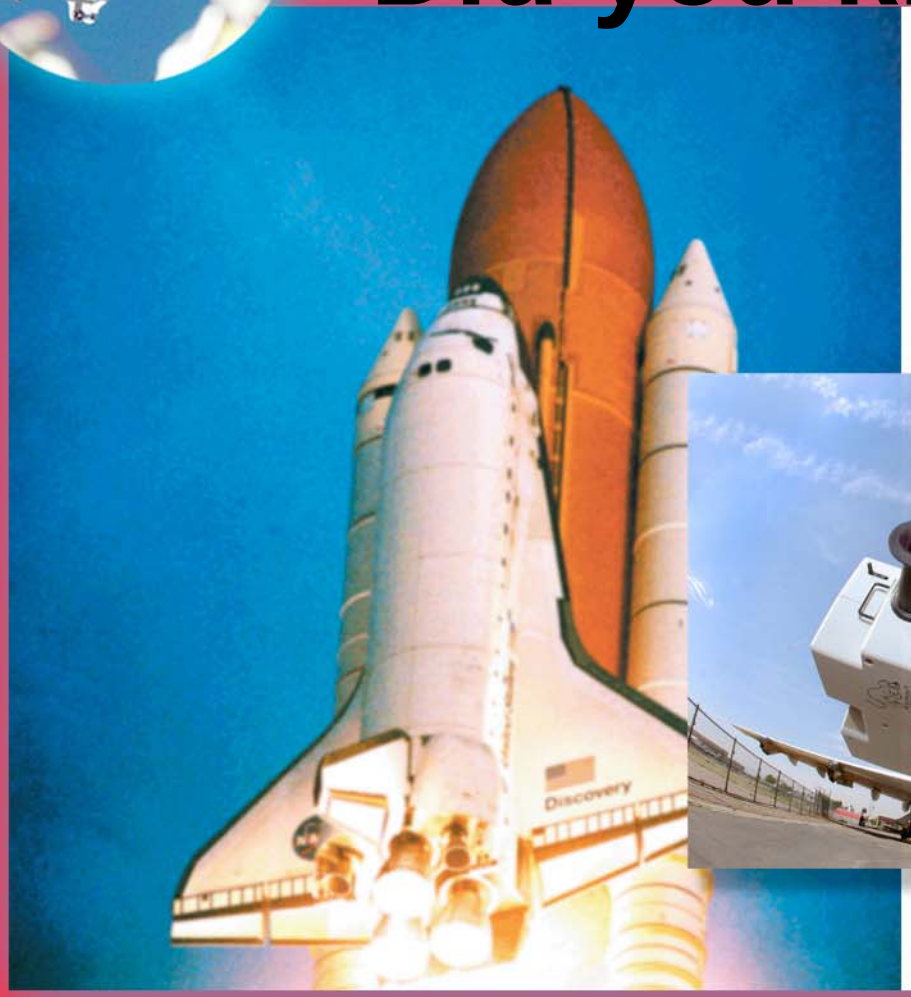
Did you know that engineers here in Albuquerque…



- designed a camera to watch for cracked tiles on the Space Shuttle on its last launch?

- invented a hand-held sensor that sniffs for explosives, chemicals, and drugs?

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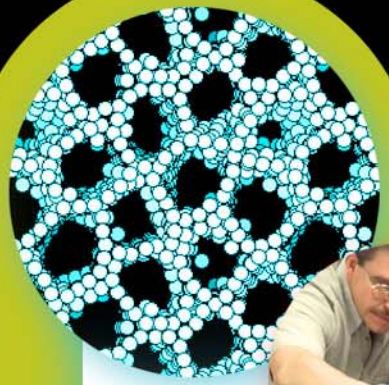
Did you know that they also…

- design & install solar energy systems on Indian reservations?

- create computer models of the bird flu virus to study how to lessen its effects?



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Many engineers **specialize.**

Transportation Engineering

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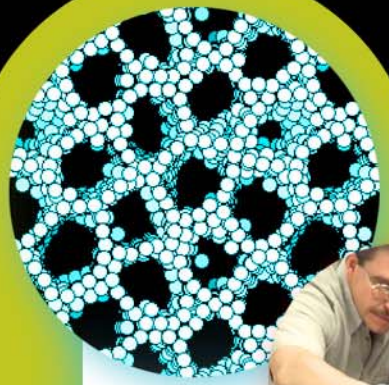

Take a closer look!

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Many engineers **specialize.**

Aerospace	Ceramic	Metallurgy
Air conditioning	Chemical	Mineral
Agriculture	Civil	Naval
Architectural	Computer	Nuclear
Astronautical	Electrical	Ocean
Automotive	Environmental	Optical
Bio-chemical	Fire protection	Petroleum
Bio-mechanical	Forensic	Pharmaceutical
Bio-medical	Geological	Plant
	Geothermal	Plastics
	Heating	Robotics
	Industrial	Safety
	Manufacturing	Software
	Materials	Transportation
	Mechanical	Ventilation

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What is it like to be an engineer?

Meaningful & Challenging Work

You'll never be bored!

Solve World Problems

Good Pay and Benefits

You'll often work in a team.

Fun and Exciting Work

Enjoy a flexible schedule with time for friends and family.

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What about becoming a **scientist?**

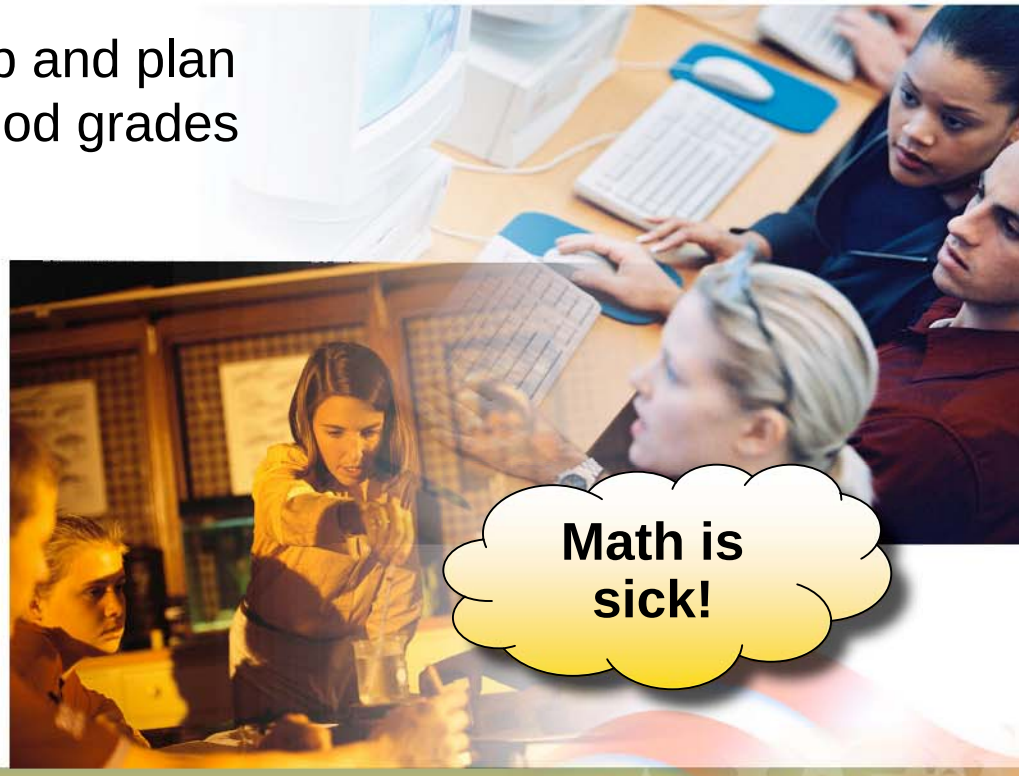
- **The difference between Engineers and Scientists is that**
  - Engineers apply science to solve problems.
  - Scientists keep expanding what we know about the world.

- **For example, to develop a new cancer drug**
  - a scientist **discovers** which chemicals can fight cancer cells, and
  - a chemical engineer **creates** chemical compounds needed to make the drug, and
  - a team of other engineers **builds** a factory to produce the drug.

What can you do **now?**

- Study math, science, and writing.
- Develop a good attitude about learning.
  - Keep your grades up and plan to go to college. (Good grades = scholarships)
  - Watch *Junkyard Wars*
- Participate in activities like:

  team activities, ham radio, rocket association, astronomy club, coach for pinewood derby, science fair, invention convention.



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What does it mean to **design**?

Designing means coming up with a scheme or plan for accomplishing something. It starts in your head and ends up on paper.

- If that “something” is to be built, the design is the drawings and words that show what parts need to be put together in what way.
- If that “something” is to be done, the design is the drawings and/or words that show what jobs to do in what order.

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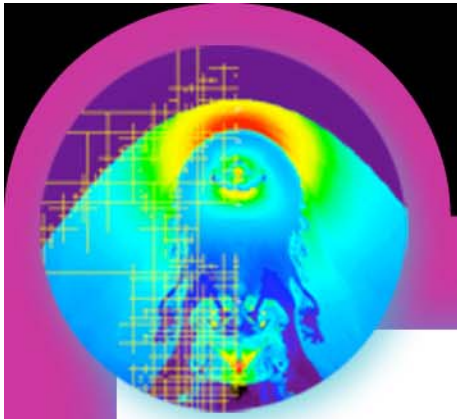

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Engineering teams have **many roles.**

- Project manager
- Quality control
- Cost manager
- Team leader
- Sales engineer
- Tester
- Designer

- Applications engineer
- Computer modeler

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A real engineer?

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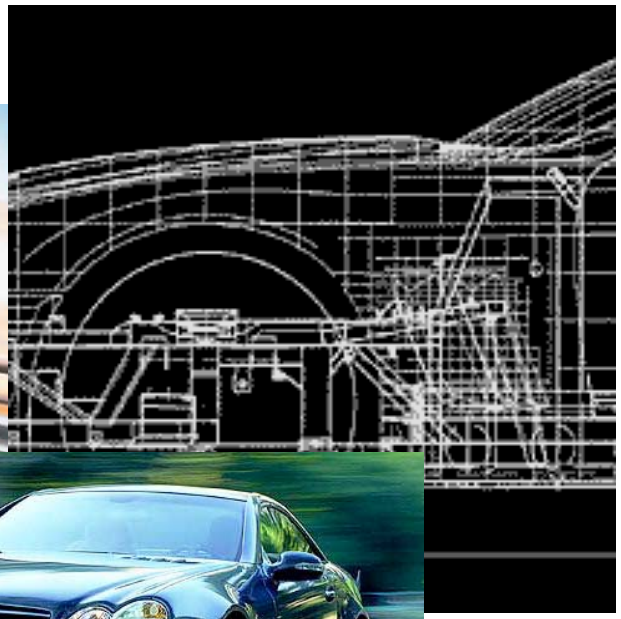
Automotive Engineer

Mercedes G-500



Ferarri 550 Maranello

Mercedes SL500

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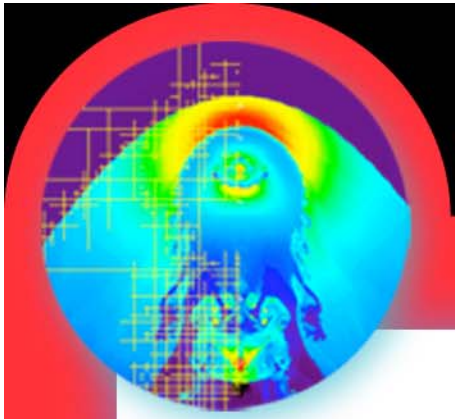

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Aeronautical Engineer

Eclipse 500 Jet

B-2

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Robotics Engineer

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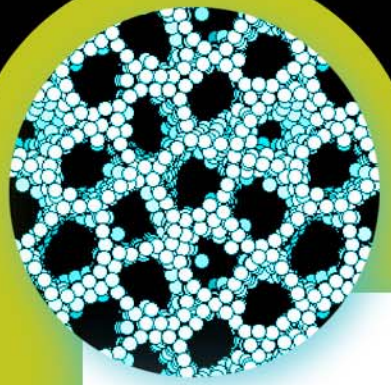

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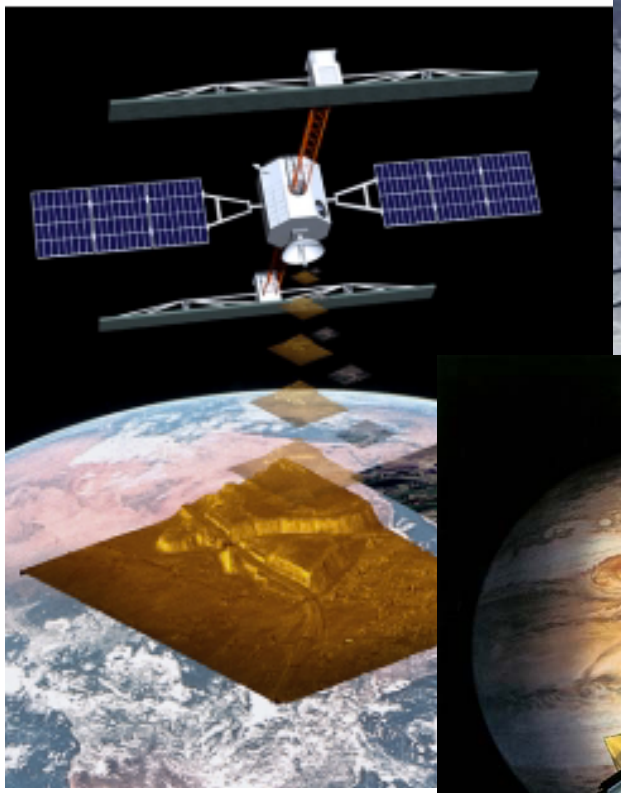
Astronautical Engineer



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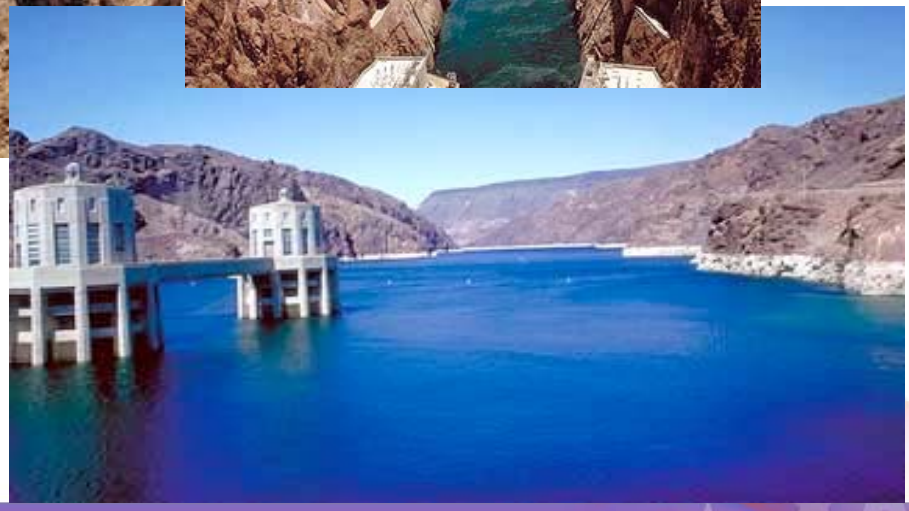
Civil/Geotechnical Engineer



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Civil/Transportation Engineer

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Civil/Structural Engineer

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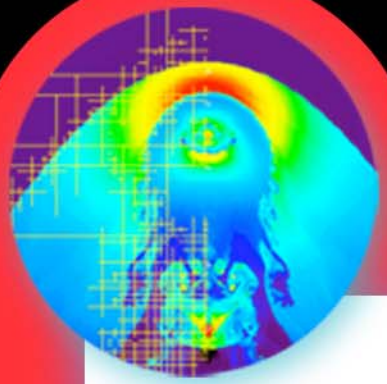

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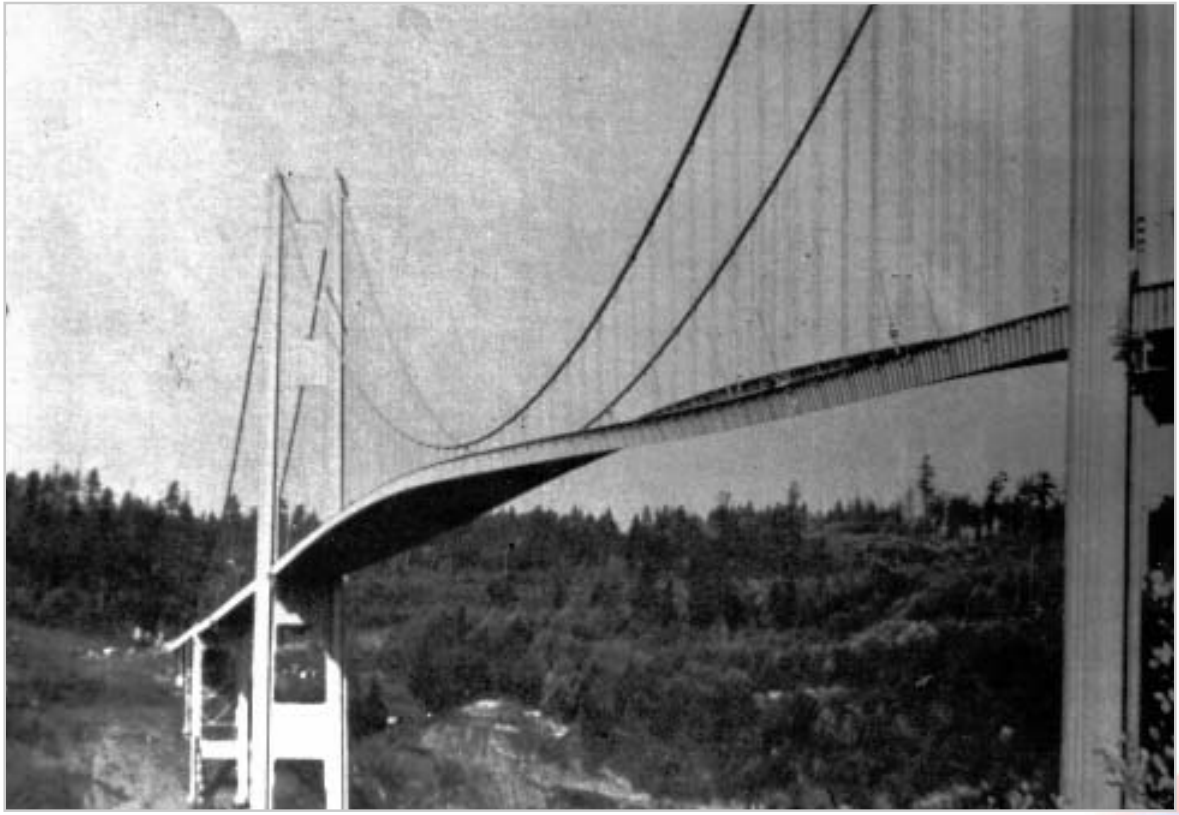
My First **Bridge?**



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Galloping Girdy

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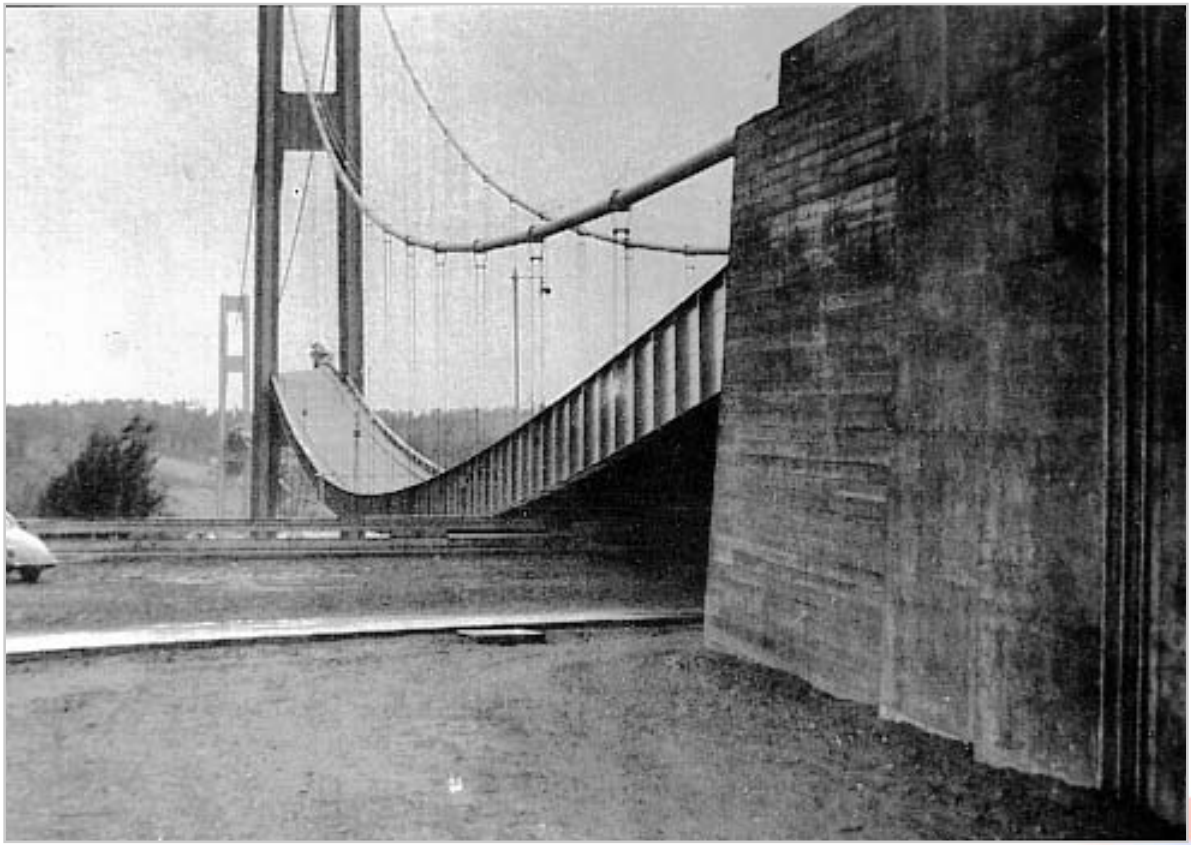
Sagging….Undulating….



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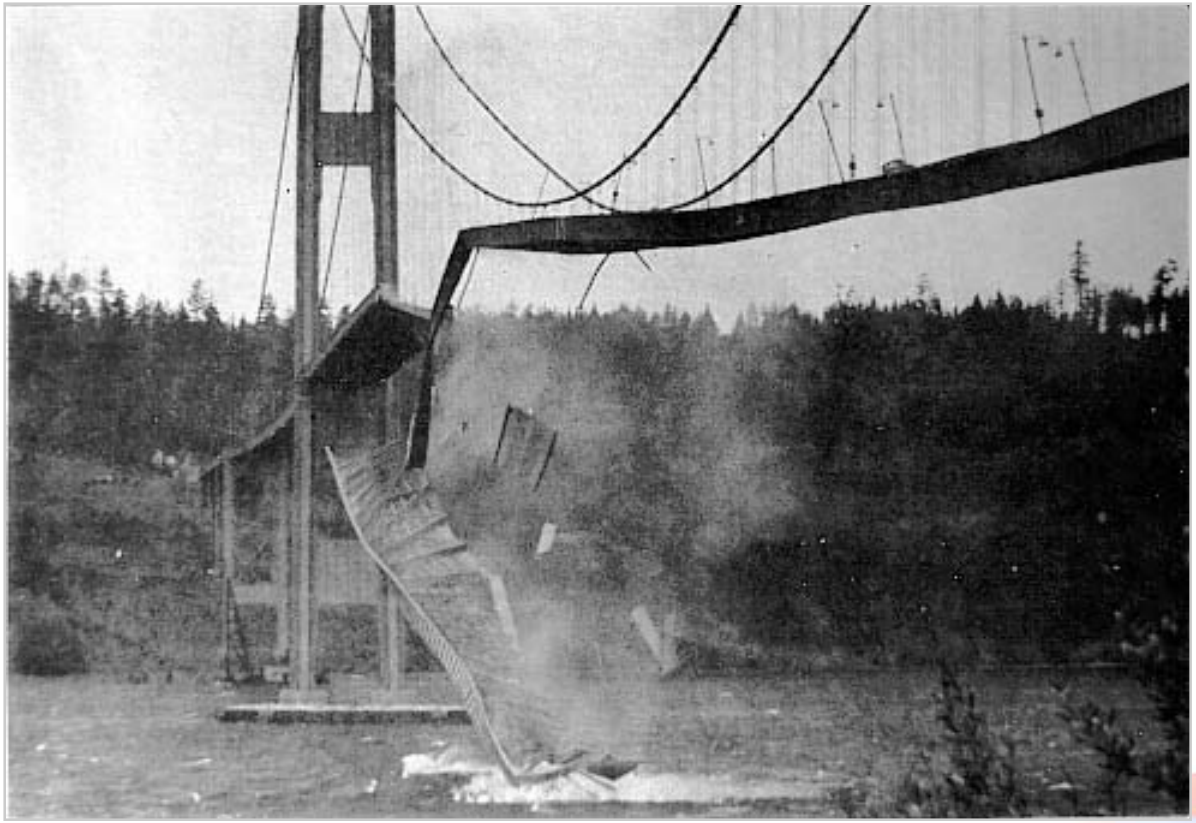
Failure Analysis Engineer



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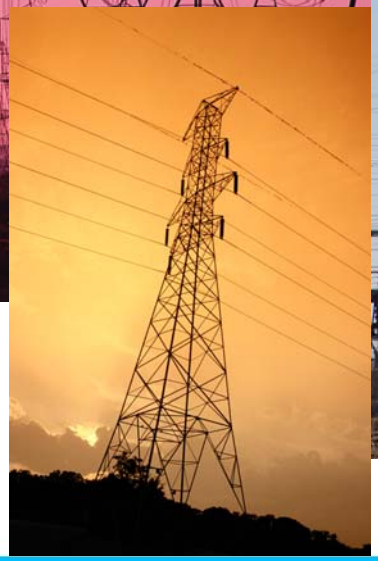
Electrical/Power Distribution Engineer



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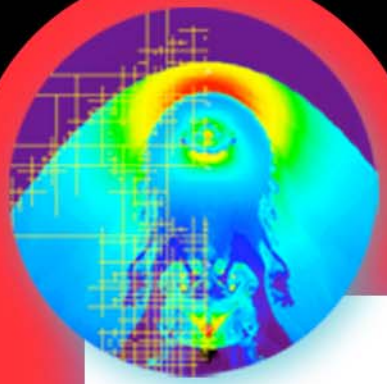
Electronics / Acoustics Engineer

Bose Speaker Components

Audio Re Quest Pro Digital Music System

Bose Wave/PC Interactive Audio System

Blaupunkt car stereo components



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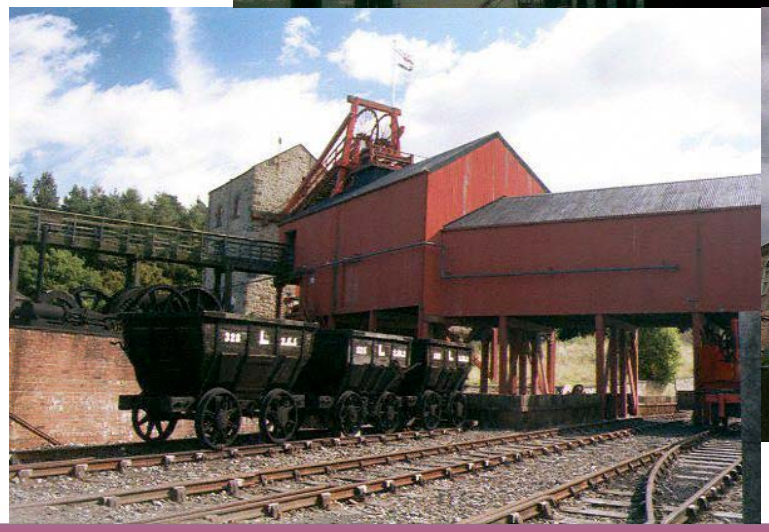
Mining Engineer



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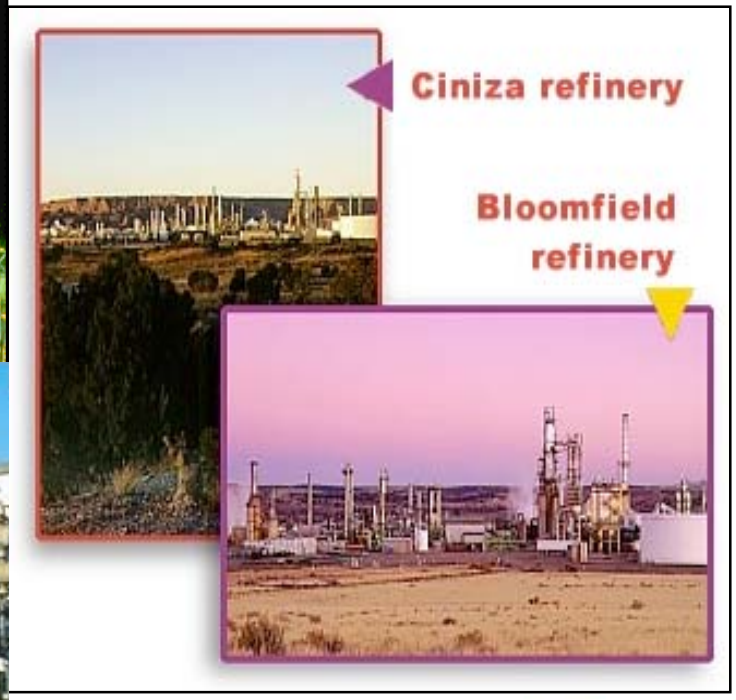
Chemical/Process Engineer



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Naval Engineer

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Environmental Engineer

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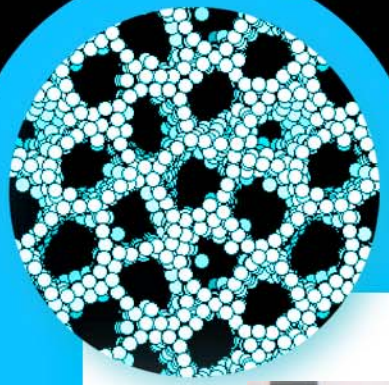

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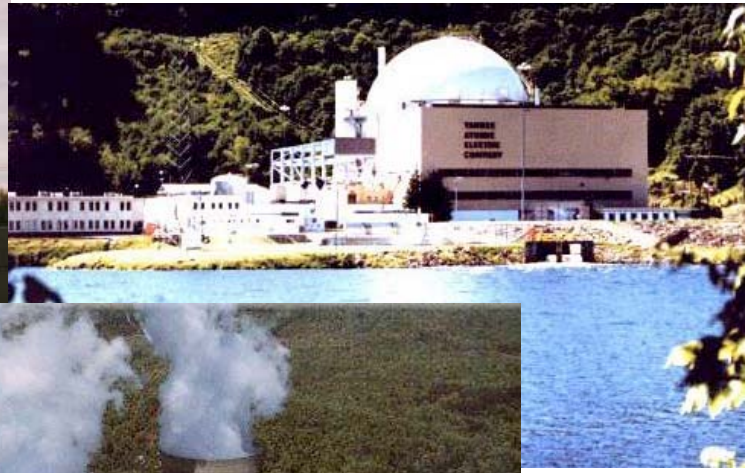
Nuclear Engineer



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Structural/Mechanical Engineer

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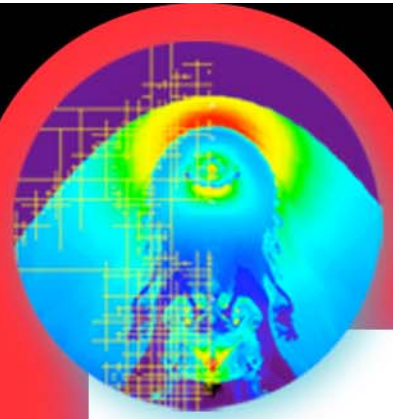

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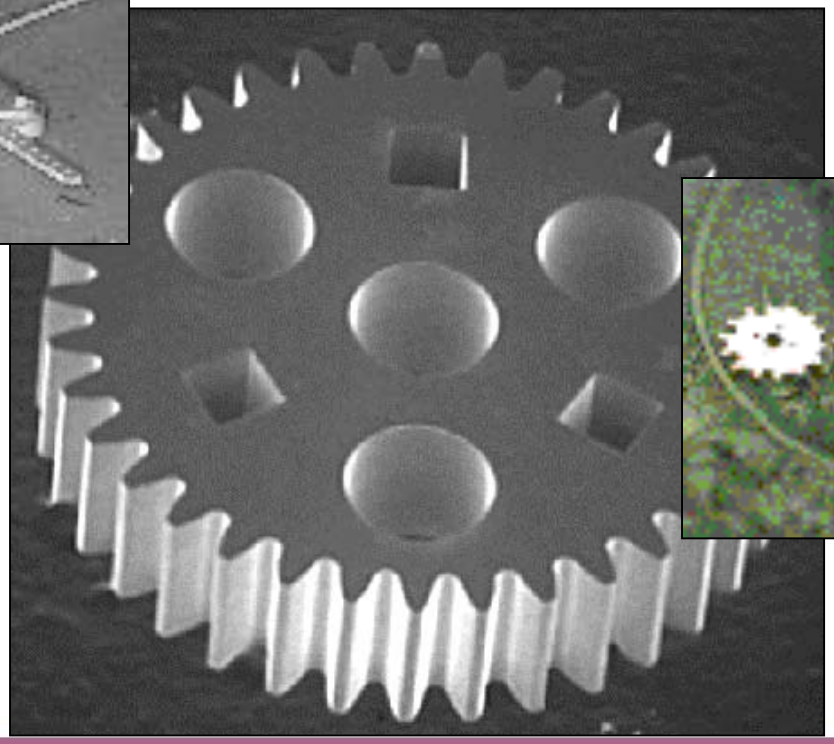
Microsystems Engineer

Systems Manufacturing Chemical
Mechanical Electrical



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