

there was a story about a spacecraft being sent on a mission to a far away planet only to find the system malfunctioned because of a silly coding mistake? Was that a true story?

Thought for 12s >

Yes—there are a few **real, well-documented spaceflight failures** that get retold as “a silly coding mistake doomed a far-away mission.” The one you’re thinking of is probably one of these:

1. Mars Climate Orbiter (1999) – *unit mix-up to Mars*

This spacecraft traveled ~10 months to Mars, then was lost because one part of the ground software produced thrust data in **pound-force (imperial)** while the navigation software expected **newtons (metric)**. The mismatch made the probe dip far too low into the Martian atmosphere and it burned up or skipped away. This is a true story and a classic case study in software + systems engineering.

Los Angeles Tim... +3

2. Mariner 1 (1962) – *a tiny typo on a Venus mission*

Mariner 1 was headed to Venus but veered off course minutes after launch. Investigations traced it to an error in the guidance program—often described as a **missing hyphen/overbar** in the formula, causing the rocket to mishandle a noisy signal. Range safety destroyed the vehicle. Also true, though historians note the “missing hyphen” phrasing is a simplified way to describe a transcription/logic error.

Wikipedia +2

3. Ariane 5 Flight 501 (1996) – *integer overflow from reused code*

Not a planet probe, but a rocket that exploded 37 seconds after liftoff. A software module reused from Ariane 4 tried to convert a large floating-point value to an integer, overflowed, and both the primary and backup inertial systems shut down. The rocket interpreted diagnostic data as flight data and steered itself apart. True story, very famous in software safety circles.

SmartBear Softw... +2

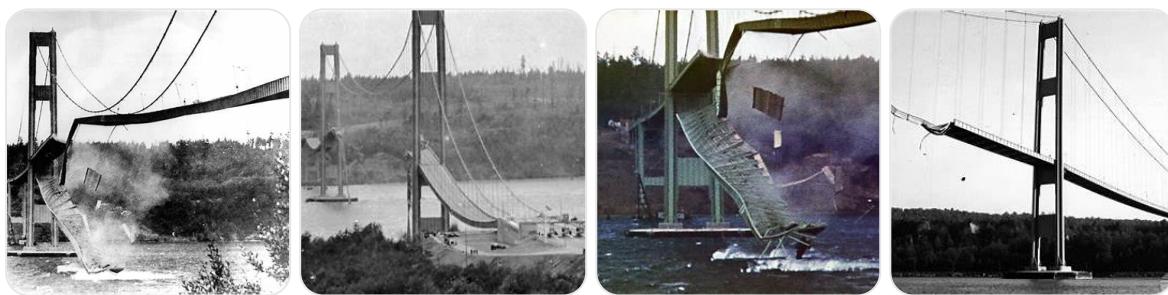
So the short answer: yes, that kind of story is true—but popular retellings often make it sound like only a “goofy one-line bug.” In reality, each accident also involved **process and verification failures** (reviews missed, tests didn’t catch it, interfaces weren’t checked).

If you remember any extra detail (Mars vs Venus, "metric error" vs "missing symbol," exploded right after launch vs failed on arrival), tell me and I'll pinpoint which one matches your memory.



how about a story about a bridge collapsed because of a trong wind causing vibrations at certain resonating frequencies, accumulating the dorce to shaken the bridge down

Thought for 15s >



You're almost certainly thinking of the **Tacoma Narrows Bridge** collapse in 1940 ("Galloping Gertie"). That is a true story. In steady winds around **40 mph (≈ 18 m/s)** the bridge started twisting with larger and larger oscillations until the main span tore apart and fell into Puget Sound. Wikipedia +2

A really important nuance, though:

people often say it was "resonance at the bridge's natural frequency," but modern analyses show the main culprit was **aeroelastic flutter**—a *self-excited* instability. In simple terms:

- The bridge deck's shape (solid plate girders, very narrow and flexible) made wind flow around it in a way that **fed energy into a torsional (twisting) mode.** Wikipedia +2
- Instead of a periodic external push matching a natural frequency (classic resonance), the wind–structure interaction created "**negative damping**": each twist changed the airflow so that the next twist got amplified, over and over, even with nearly constant wind. Wikipedia +1

- So the amplitude grew until components like hanger cables failed and the deck broke apart. Wikipedia +1

Why it matters: this disaster basically rebooted long-span bridge engineering—forcing wind-tunnel testing, aerodynamic shaping of decks, and explicit aeroelastic stability checks for new bridges. Wikipedia +2

If you want, I can sketch a quick conceptual model (like a 2-DOF torsion–heave flutter system) or relate it to resonance/forced vibration in Signals & Systems terms.

      ...  Sources

yes do it

Awesome, let's sketch a compact but useful conceptual model of the Tacoma Narrows–type flutter, and relate it to Signals & Systems.

1) Two key ideas: forced resonance vs aeroelastic flutter

Forced resonance (the “storybook” version)

You have a structure with natural frequency ω_n .

A periodic wind load $F(t) = F_0 \sin \omega t$ hits it.

If $\omega \approx \omega_n$, amplitude grows (limited by damping).

This is **external forcing** matching the structure's frequency.

Aeroelastic flutter (what actually happened)

Wind is not just “forcing.” The bridge motion **changes airflow**, which changes aerodynamic forces, which push the bridge **in phase with its motion**, adding energy every cycle.

That's **self-excited oscillation**, i.e., a feedback instability.

Amplitude grows because **effective damping becomes negative**.

2) Minimal 2-DOF flutter model (heave + torsion)

Let

- $h(t)$: vertical motion (heave)
- $\alpha(t)$: torsional rotation (pitch/twist)

Structural dynamics (linearized):

$$m\ddot{h} + c_h\dot{h} + k_h h = L_a(h, \dot{h}, \alpha, \dot{\alpha}, U)$$

$$I_\alpha \ddot{\alpha} + c_\alpha \dot{\alpha} + k_\alpha \alpha = M_a(h, \dot{h}, \alpha, \dot{\alpha}, U)$$

Where:

- m = mass per unit length
- I_α = torsional moment of inertia per unit length
- c_h, c_α = structural damping
- k_h, k_α = stiffness
- U = wind speed
- L_a = aerodynamic lift force
- M_a = aerodynamic moment (torque)

Linear aerodynamic coupling (typical flutter form)

For small motions, write:

$$L_a \approx a_1(U) h + a_2(U) \dot{h} + a_3(U) \alpha + a_4(U) \dot{\alpha}$$

$$M_a \approx b_1(U) h + b_2(U) \dot{h} + b_3(U) \alpha + b_4(U) \dot{\alpha}$$

Now move terms to the left:

$$m\ddot{h} + (c_h - a_2(U))\dot{h} + (k_h - a_1(U))h - a_3(U)\alpha - a_4(U)\dot{\alpha} = 0$$

$$I_\alpha \ddot{\alpha} + (c_\alpha - b_4(U))\dot{\alpha} + (k_\alpha - b_3(U))\alpha - b_1(U)h - b_2(U)\dot{h} = 0$$

Flutter condition (conceptual):

When wind speed U is high enough that

$$c_h^{\text{eff}} = c_h - a_2(U) < 0 \quad \text{or} \quad c_\alpha^{\text{eff}} = c_\alpha - b_4(U) < 0$$

you get **negative effective damping**, so oscillations grow exponentially.

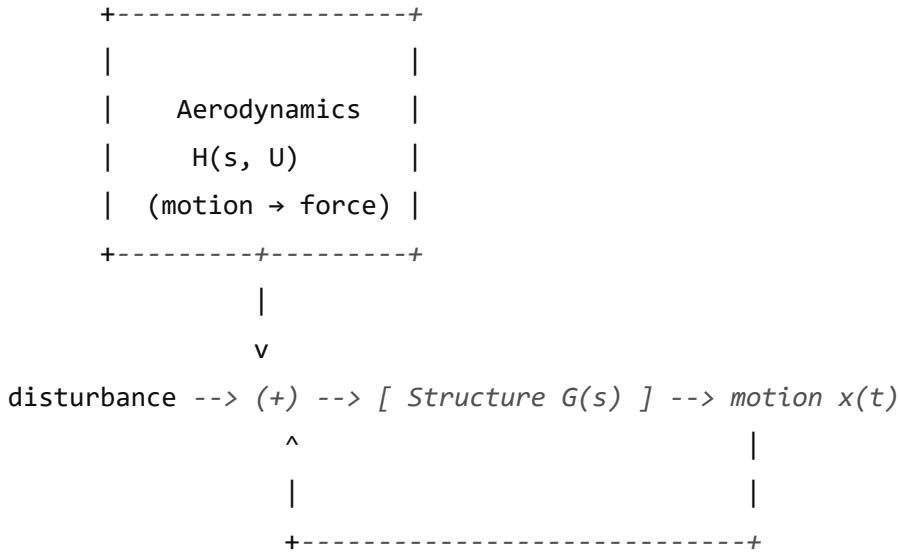
That's why a *steady* wind can cause runaway motion.

3) Feedback / block-diagram view (Signals & Systems lens)

Think of the bridge as an LTI(ish) plant $G(s)$ (structure), and aerodynamics as feedback $H(s, U)$ that depends on wind speed:

lua

Copy code



- If feedback is **energy-adding** (phase aligned), loop gain increases with U .
- Flutter = **closed-loop instability**: poles cross into RHP.

Mathematically, closed-loop characteristic equation:

$$1 - G(s)H(s, U) = 0$$

As U rises, effective poles move right. At the critical wind speed $U = U_c$, poles hit the imaginary axis (zero damping). For $U > U_c$, poles are in RHP \rightarrow **growing oscillation**.

4) Why torsion mattered so much on Tacoma Narrows

- The original deck was **very slender and had solid plate girders** \rightarrow wind couldn't pass through.
- That geometry made aerodynamic coefficients $a_i(U), b_i(U)$ large in the torsional channel.
- So the feedback into $\alpha(t)$ became strongly destabilizing.

Once torsion took off, heave and torsion coupled, accelerating failure.

5) Quick “engineering takeaway” in one sentence

Resonance is “wind pushes at the right frequency.”

Flutter is “wind + structure form a feedback loop that creates negative damping.”
Tacoma Narrows was the second.

If you want, I can:

1. write this as a neat lecture slide (with a clean diagram),
2. show a tiny numerical example where poles move with U , or
3. connect it to your Sinyal & Sistem course via root locus / Nyquist stability.



what were other disasters that prompted changes in
engineering and software development practices

Thought for 45s >

Here are several real disasters (software + physical engineering) that *directly reshaped* engineering and software development practices. I'll keep each to **what happened** → **what changed**.

Software / cyber-physical disasters

1) Therac-25 radiation overdoses (1985–1987)

- **What happened:** A race condition and weak safety interlocks in a medical linear-accelerator allowed massive overdoses; multiple patients died.

SmartBear Softw... +2

- **What changed:** Medical-device software shifted toward **safety-critical engineering**: hazard analysis (FMEA/FTA), independent V&V, higher FDA scrutiny, explicit software safety requirements, and “defense in depth” (software + hardware interlocks).

AIAA Journal +2

2) Patriot missile failure at Dhahran (1991)

- **What happened:** A tiny fixed-point/rounding error in time computation accumulated during long runtimes; the system “looked in the wrong place,” missing a Scud that killed 28 soldiers.

U.S. Governmen... +2

- **What changed:** Real-time/defense systems adopted stricter **numerical error budgeting**, runtime limits/reboot procedures, better assumptions tracking, and more rigorous testing of edge-case operating durations. U.S. Government... +1

3) Ariane 5 Flight 501 (1996)

- **What happened:** Reused Ariane-4 code overflowed when converting a large float to a 16-bit integer; both inertial units failed, rocket self-destructed 37 seconds after launch. cse.unsw.edu.au +2
- **What changed:** Space/avionics software hardened around **requirements-based reuse**, explicit range proofs, exception-safe design, and independent redundancy that fails *gracefully* instead of synchronously. cse.unsw.edu.au +1

4) Mars Climate Orbiter (1999)

- **What happened:** Ground and flight software used different units (imperial vs metric), corrupting navigation; the probe was lost at Mars.
- **What changed:** Became a flagship case for **interface control documents**, unit/contract checking, end-to-end simulation, and configuration management across teams. ResearchGate +1

5) Denver International Airport baggage system (1990s)

- **What happened:** A “big-bang” rollout of a highly coupled software-mechanical system failed, delaying opening and costing hundreds of millions. Wrike +2
- **What changed:** Popularized **incremental integration**, realistic scope control, and “test as you build” for large cyber-physical projects. Wrike +1

6) Knight Capital trading glitch (2012)

- **What happened:** A bad deployment/legacy feature flag triggered runaway automated trades; ~\$440M lost in ~45 minutes. CIO +1
- **What changed:** Industry doubled down on **safe deployment**: enforced code review, staged rollouts, kill-switches, configuration/version control for *scripts too*, and pre-trade risk limits. CIO +2

Physical engineering disasters (with big process shifts)

7) Hyatt Regency walkway collapse (1981)

- **What happened:** A late design change to hanger-rod connections doubled the load on a critical joint; two walkways collapsed, killing 114.

- **What changed:** Structural practice strengthened **peer review and shop-drawing approval**, explicit change-control, and reinforced professional ethics/liability in ASCE guidance. Practical Engine... +1

8) Space Shuttle Challenger (1986)

- **What happened:** O-ring seal failure in cold weather + decision/communication breakdown led to breakup after launch. ASME
- **What changed:** NASA revamped **risk acceptance, launch commit criteria, independent safety authority, and “stop-the-line” culture** for engineers.

ASME

9) Space Shuttle Columbia (2003)

- **What happened:** Foam strike on launch damaged wing; re-entry destroyed the shuttle; organizational normalization of deviance was a factor. ASME
- **What changed:** Mandatory **on-orbit inspection/repair capability**, better debris modeling, and deeper safety-culture reforms. ASME

10) Chernobyl (1986) and Fukushima (2011)

- **What happened:** Design vulnerabilities + operator/procedural failures caused catastrophic releases. ASME
- **What changed:** Global nuclear engineering adopted **“safety culture” as a formal requirement**, severe-accident management, probabilistic risk assessment (PRA), and stronger international oversight. ASME

11) Bhopal gas tragedy (1984)

- **What happened:** Toxic MIC gas leak from poorly maintained safety systems killed thousands. ASME
- **What changed:** Drove modern **process safety management**, community right-to-know rules, and stricter multinational safety-standard parity. ASME

12) Deepwater Horizon (2010)

- **What happened:** Blowout preventer and cementing failures triggered explosion and massive spill. ASME
- **What changed:** Offshore industry moved to tighter **well-integrity standards, BOP verification, risk-based regulation, and system-level hazard reviews**.

ASME

13) Boeing 737 MAX crashes (2018–2019) + MAX-9 door-plug blowout (2024)

- **What happened:** MCAS depended on a single sensor and was insufficiently communicated/trained; two crashes killed 346. Later, a production-quality

lapse (missing bolts) caused a mid-air panel blowout. Harvard Busines... +2

- **What changed:** Big push toward **redundancy for safety-critical automation, clearer human-in-the-loop design, stricter certification/oversight, and renewed focus on production QA and safety culture.** Harvard Law For... +2

The common thread (across all of these)

Each disaster exposed a missing layer of rigor, leading to practices we now take for granted:

- **Explicit requirements & interface contracts**
- **Independent verification/validation**
- **Change control & configuration management**
- **Redundancy + fail-gracefully design**
- **Safety culture as an engineering artifact**
- **End-to-end testing under real operating envelopes**

If you want, I can turn this into a neat lecture module: timeline + a unifying “systems-engineering lessons learned” framework and a few problem-set questions for your class.

Recent related news

 Reuters

Boeing failed to provide training, oversight to prevent MAX 9 mid-air emergency, NTSB says

Jun 25, 2025

 Reuters

FAA will not require immediate 737 MAX engine action after bird strikes

Nov 27, 2024

was it true that hellen keller accomplished extraordinarily despite being blind?

Thought for a few seconds >

Yes—Helen Keller's accomplishments were real, documented, and widely verified. She wasn't "extraordinary despite being blind" though; she was **deafblind** (lost both sight and hearing after an illness at about 19 months old). Wikipedia +1

Here's what she genuinely accomplished:

- **Learned multiple communication methods:** braille, finger-spelling, and speech; she also used the Tadoma method to "read" spoken language by touch. Wikipedia +1
- **Graduated from Radcliffe College (Harvard's women's college) in 1904,** becoming the **first deafblind person to earn a B.A.**, and she did so **cum laude**. Wikipedia +2
- **Published 12 books and many essays/articles**, including her autobiography *The Story of My Life*, using braille and typewriters. Wikipedia +2
- **International public speaker and activist:** traveled widely advocating for disability rights, education access, and social causes. Wikipedia +2
- **Major social-justice figure:** supported women's suffrage, workers' rights, racial justice (including the NAACP), and was a **co-founder of the ACLU**.

Encyclopedia Bri... +2

You might've seen some internet claims that her story was exaggerated or impossible. Historians and disability organizations have repeatedly debunked those—there's extensive archival evidence: letters, manuscripts, eyewitness accounts, and film footage. The Guardian +1

So the grounded take is:

Yes, it's true she achieved extraordinarily—but not as a "miracle exception." Her life shows what becomes possible when **good teaching (Anne Sullivan), accessible tools, and relentless effort** meet a powerful mind. Wikipedia +1

who was a woman who survived the nazi and lived to write a book

Thought for 7s >

Several women fit that description. Here are some of the most well-known, all genuine survivors who later wrote books about their Nazi/Holocaust experiences:

1) Corrie ten Boom (Netherlands)

- **How she survived:** Her family hid Jews; she was arrested and sent to Ravensbrück concentration camp, where she survived while her sister died.
- **Book:** *The Hiding Place* (1971), a memoir of her wartime resistance and imprisonment. [Amazon](#)

2) Edith Eva Eger (Hungary → U.S.)

- **How she survived:** Deported to Auschwitz as a teenager; her parents were murdered. She survived the camp and a death march.
- **Book:** *The Choice: Embrace the Possible* (2017), memoir + reflections on healing and resilience. [Wikipedia](#)

3) Gisella Perl (Romania/Hungary → U.S.)

- **How she survived:** Jewish gynecologist deported to Auschwitz; forced to work as a camp doctor and saved many women under horrific conditions.
- **Book:** *I Was a Doctor in Auschwitz* (1948). [Wikipedia](#)

4) Sabina Wolanski (Poland/Ukraine → Australia)

- **How she survived:** A child during the Nazi invasion; lost much of her family and survived through hiding and help from rescuers.
- **Book:** *Destined to Live: One Woman's War, Life, Loves Remembered* (memoir).

[Wikipedia](#)

5) Margot Friedländer (Germany → U.S. → Germany)

- **How she survived:** Hid in Berlin, later deported to Theresienstadt and survived; her family was killed.
- **Book:** She published a memoir and spent decades educating about the Holocaust. [The Washington...](#)

Quick note: **Anne Frank** is often the first name people recall because *The Diary of a Young Girl* is world-famous, but she **did not survive**; her diary was published posthumously. A Mighty Girl

If you remember any detail—country, whether it was a diary vs. later memoir, or even a scene you recall—I can narrow to the exact person/book you're thinking of.



what are spirit inside those women that stregthem
them? whare things in common?

Thought for 21s >

What strengthened those women wasn't one single magical "spirit." Survivors varied a lot, and many carried deep, lifelong wounds while *also* showing resilience. Studies on Holocaust survivors stress that resilience and pain often co-existed, and there's no one-size-fits-all profile. ResearchGate +2

That said, across many women's memoirs and resilience research, there are clear *shared inner forces*:

1. Meaning and purpose (a "why" bigger than the camp)

Many survivors held onto a future task, loved one, or calling—something that made suffering *not the final word*. Viktor Frankl famously described meaning as the core survival fuel; resilience interviews echo the same theme of purpose and hope. ebsco.com +2

2. Relational love and social bonds

Even tiny islands of friendship, sisterhood, or mutual care helped people endure. Research repeatedly finds social support and attachment—before, during, and after the war—among the strongest protective factors.

openjournals.bs... +2

3. Agency and self-reliance in small acts

Survivors often focused on what they *could still choose*: a decision, a helpful act, a way to stay clean, to share bread, to protect someone. Resilience studies highlight personal agency and self-reliance as central. Academia +1

4. A moral/spiritual core that stayed intact

For many women, faith or deeply held values acted like an inner compass—sometimes religious, sometimes humanistic—helping them interpret suffering and keep dignity. Research notes “changes in values” and spiritual frameworks as common resilience resources. Izb.lt +1

5. Refusal to be dehumanized (dignity as resistance)

Women’s testimonies often frame survival not just as staying alive, but as *resisting erasure*: keeping identity, caring for others, holding onto decency and womanhood under brutal conditions. Scholars call testimony itself a form of resistance. SciSpace +1

6. Ability to adapt creatively to chaos

Many memoirs show flexible, quick learning: reading danger, improvising shelter, negotiating help, switching roles fast. Resilience research describes this as adaptive coping and integration of experience. openjournals.bs... +1

7. Post-war “bearing witness” as continuation of purpose

Writing the book wasn’t only reporting history; it was healing, reclaiming voice, and serving future generations. Survivor studies repeatedly mention transforming memory into contribution. Academia +2

In one line:

Their common “spirit” was a blend of **meaning, connection, agency, moral inner life, dignity, adaptability, and a drive to turn survival into testimony**—even while carrying real grief.

If you want, I can map these into a compact framework for a lecture (e.g., *Purpose–Bonding–Agency–Values–Identity–Adaptation–Witnessing*) and relate it to resilience theory or even your Triune-Intelligence / value-creation lens.



wars are tragic, costly, and unleash all evils you cannot even imagine. is it true in this century, going to war is still justified, given communication advancements shod reduce misunderstanding and dehumanizing other? who are 21st century philosophers that stil promote the ideas of wars

Thought for 1m 4s >

You're raising a hard, timeless question. In the 21st century, most philosophers don't "celebrate" war, but some argue that war can still be morally justified in rare, tightly constrained cases—even with today's communication tech. Let me unpack both parts.

1) Is war still justified in this century, given better communication?

There isn't a single consensus answer. Contemporary debate clusters into three big families:

A) Pacifism / war abolitionism: war is never justified

Pacifists argue that the predictable horrors of war (mass killing, moral injury, civilian devastation) make it morally impermissible *as a practice*, and that we must build nonviolent systems instead. Stanford Encyclo... +2

Recent pacifist work even claims the "war system" reproduces itself and can't be "ethically improved," only dismantled. elac.ox.ac.uk +1

B) Just War Theory: war can be justified, but only as last resort

This tradition says some wars *might* be justified—typically self-defense against aggression or stopping mass atrocities—but only if strict criteria are met (just cause, proportionality, last resort, reasonable chance of success, etc.).

Stanford Encyclo... +2

Many modern philosophers in this camp emphasize: *war is a moral tragedy even when justified.* PhilPapers +1

C) Realism / tragic necessity: morality doesn't decide, survival does

Realists doubt that moral theory can tame war's brutality; states sometimes fight because power, deterrence, or survival leave no alternative. Still, even realists usually acknowledge that war is awful—just sometimes unavoidable.

Stanford Encyclo... +1

So why hasn't communication tech ended war?

Better communication **reduces some misunderstandings**, but wars persist because:

- **Conflicts are often about incompatible interests**, not mere miscommunication (territory, resources, regime survival, security dilemmas).
- **Tech also amplifies propaganda and dehumanization**. Social media can spread hate, fear, and conspiracy faster than diplomacy can correct them.
- **Leaders may benefit domestically from conflict** (rally-around-the-flag effects, distraction from internal crises).
- **Information abundance ≠ shared truth**. More channels can mean more manipulation and mistrust.

Philosophers writing on contemporary war ethics note that modern conditions (information warfare, drones, autonomous systems) complicate *rather than dissolve* moral risk. OUP Academic +2

2) Which 21st-century philosophers still defend war as sometimes justified?

Again, these thinkers don't "promote war" as a good, but they defend conditional moral permission to wage war in some circumstances.

Traditional / "orthodox" Just War defenders

- **Michael Walzer** – still the central living reference for classical just-war thinking: wars may be justified for defense or to stop severe injustice, under strict rules. LSE Research On... +1
- **Yitzhak Benbaji** (often with Daniel Statman) – defends the traditional war convention and collective self-defense, pushing back against more radical anti-war revisionism. PhilPapers +2
- **David Rodin** – major contemporary just-war theorist, working on when resorting to force can be morally permissible and on the limits of self-defense in war. open.library.okst... +1
- **Henry Shue** – argues for justified defensive and humanitarian wars while stressing heavy duties to protect civilians. open.library.okst...

Revisionist Just War theorists (more restrictive, but still allow some wars)

- **Jeff McMahan** – rethinks just war from individual self-defense ethics; he allows some wars (e.g., genuine defense) but argues many soldiers in unjust

wars lack moral permission to kill. JSTOR +2

- **Cécile Fabre** – “cosmopolitan war”: defends some defensive and humanitarian wars grounded in individual rights, not state interests. Oxford Universit... +2
- **Helen Frowe** – extends moral self-defense rules to war; some killing in war can be justified under the same principles that justify defense between persons. PhilPapers +2
- **Seth Lazar / Susanne Burri** – within the revisionist debate; not pro-war, but argue war can be justified in limited cases and work to tighten permissions and civilian protections. open.library.okst... +1

Humanitarian-intervention / Responsibility-to-Protect philosophers

- **James Pattison** – argues that **humanitarian intervention can be justified** to stop mass rights violations, and studies who may legitimately intervene.

PhilPapers +2

A grounded bottom line

Yes, many 21st-century philosophers still think war can be justified—but only in extreme cases, usually defense against aggression or preventing atrocities.

Stanford Encyclo... +1

At the same time, a strong contemporary pacifist current argues that war's systemic evil overwhelms any attempted justification. Stanford Encyclo... +2

If you want, I can map these positions into a simple 2-axis diagram (Just-War permissive ↔ restrictive, Pacifist ↔ Realist) and relate them to your value-creation / Triune-Intelligence lens for a lecture.

< 1/2 > ... Sources

let me change the question: is starting a war justified? is military response justified to non military perceived attacks?

Thought for 11s >

Big picture: **starting a war is almost never justified**, and modern ethics + international law set a very high bar. A **military response to a “non-military” attack can be justified sometimes**, but only if that attack is severe enough to count like an armed attack and the response meets strict limits.

Let's take your two questions in turn, using the two main lenses people rely on: **moral philosophy (Just War / pacifism / realism)** and **international law (UN Charter + state practice)**.

1) Is *starting a war justified?*

Moral lens (*jus ad bellum*)

Just War theory says going to war can be morally permissible only if **all** these are satisfied:

just cause, right intention, legitimate authority, last resort, proportionality, and reasonable chance of success. Internet Encyclo... +2

In today's debate, "just cause" is basically limited to:

- Self-defense against aggression** (protecting people from being attacked).
- Defense of others from mass atrocities** (genocide/ethnic cleansing etc.), usually framed as humanitarian intervention. Internet Encyclo... +1

Even Just War theorists stress that a "justified" war is still a **moral tragedy**, not a positive good. Stanford Encyclo...

Pacifists go further and say war is **never justified** because the means (organized killing, predictable civilian harm, moral injury) overwhelm any good ends.

Stanford Encyclo...

So morally: starting war is justified only in **extreme, defensive, last-resort situations.**

2) Is a *military response justified to non-military perceived attacks?*

Legal lens (UN Charter)

International law bans the use of force except for:

- Security Council authorization, or
- Self-defense if an “armed attack” occurs.

United Nations ... +1

Crucial point:

Not every hostile act is an “armed attack.” The threshold is **scale and effects**—seriousness comparable to kinetic violence.

Neliti +1

And even if that threshold is met, self-defense must be:

- **Necessary** (no other way to stop it), and
- **Proportionate** (limited to stopping/repelling the attack, not revenge).

United Nations ... +1

What counts as a “non-military” attack that might justify force?

A) Cyber attacks

Consensus in the Tallinn Manual tradition: cyber operations can qualify as an armed attack if they cause death, injury, or physical destruction, or effects of similar gravity.

csef.ru +3

- Example: hacking a dam to flood a city; disabling hospital systems leading to deaths.
If the cyber harm is below that threshold (espionage, data theft, propaganda), it’s generally **not** enough for military force; responses should be non-forceful (sanctions, criminal prosecution, counter-cyber).

Cyberlaw +2

B) Terrorism / attacks by non-state actors

After 9/11, many states accept that large-scale attacks by non-state groups can trigger self-defense. But the same necessity/proportionality limits apply.

United Nations ... +1

C) Economic coercion, disinformation, political interference

These may be grave and destabilizing, but **normally don’t reach “armed attack” level** in law, and most ethicists say they don’t justify war either.

Neliti +1

D) “Perceived” or ambiguous threats

Both law and ethics are wary here. Preventive war based only on fear of future harm is broadly rejected. Some allow **anticipatory self-defense** only when an attack is truly **imminent and unavoidable**, not speculative.

csef.ru +1

A clean way to hold it all together

You can think of justification as a 3-gate filter:

1. Severity gate:

Is the attack (even if “non-military”) severe enough to be equivalent to armed violence?

—If **no**, war/force is not justified. Neliti +2

2. Necessity gate:

Are peaceful/non-force options genuinely incapable of stopping the harm?

—If **no**, force is not justified. Internet Encyclo... +1

3. Proportionality gate:

Will the military response likely prevent more harm than it causes, and be limited to that purpose?

—If **no**, force is not justified. Internet Encyclo... +1

Only passing all three makes military force even *possibly* justified.

Bottom line in plain words

- Starting a war: morally and legally justified only in **rare defensive or atrocity-stopping cases**, as last resort. Internet Encyclo... +2
- Military response to non-military attacks: justified only when the non-military attack is **so severe in scale/effects that it functions like an armed attack**, and the response is **necessary + proportionate**. Cyberlaw +3

If you want, I can translate this into a one-page lecture handout with a decision tree and a couple of case vignettes (cyber, terrorism, economic coercion) for class discussion.



based on what you describe, was first world war justified?

Thought for 18s >

Using the just-war yardsticks we talked about (just cause, last resort, proportionality, right intention, etc.), **the outbreak of World War I is very hard to justify as a “just war” overall**. And most historians/philosophers today treat 1914

as a case where **systemic rivalry + reckless decisions** produced a catastrophe rather than a morally clean defensive war. Cambridge Univ... +2

Here's a grounded way to see it:

1) The initial spark: Austria-Hungary vs. Serbia

Austria-Hungary had a **real grievance** after the Sarajevo assassination. So a *limited* coercive response could *look* like just cause. But:

- The ultimatum to Serbia was designed to be unacceptable and aimed at crushing Serbian sovereignty.
- Diplomatic off-ramps existed, and Serbia actually accepted most demands. So on **last resort** and **right intention**, Austria's choice to go to full war fails pretty quickly.

iwm.org.uk +2

2) Escalation into a European war

Once Russia mobilized to support Serbia, Germany treated that as an immediate threat and activated a time-sensitive war plan. But Germany then:

- Declared war on Russia and France,
- Invaded neutral Belgium to execute the Schlieffen Plan.

iwm.org.uk +2

Even if Germany *felt* encircled, invading Belgium is widely seen as **aggressive**, not defensive—so it violates just-cause and proportionality standards.

iwm.org.uk +1

3) "Who started it?" doesn't produce a single clean moral answer

Modern historiography doesn't pin guilt on one actor alone. The mainstream view is **shared but uneven responsibility**: Austria-Hungary and Germany made the most decisive escalatory choices, while Russia's rapid mobilization and other powers' alliance politics helped turn a regional crisis into total war.

Cambridge Univ... +2

That kind of multi-actor "sleepwalk into disaster" story is exactly the opposite of what just-war theory wants: a clear defensive necessity after peaceful options are exhausted.

1914-1918-Onli... +1

4) Some *entries* into WWI look more defensible than the *start*

Even if the war's **outbreak** is unjustified, particular states' later decisions can be closer to "defensive":

- **Belgium's defense of neutrality** against invasion fits self-defense.

iwm.org.uk +1

- Britain's entry was triggered chiefly by Germany's violation of Belgian neutrality (plus balance-of-power fears). That is at least *arguable* as defensive intervention. iwm.org.uk +1
- France and Russia each framed their entry as alliance-based defense, but because mobilizations and war plans were entangled, their cases are morally mixed. iwm.org.uk +1

So: parts of WWI can be argued as defensive, but the overall slide into war doesn't meet the just-war bar.

Bottom line

If we apply your criteria:

- **Just cause?** Not clearly for the war as a whole; punitive and preventive motives dominated early decisions.
- **Last resort?** No—real diplomatic exits existed in July 1914.
- **Proportionality/intent?** The scale of war chosen wildly exceeded any initial security aim.

So, WWI's start is best seen as an unjustified war, even though some nations later fought in ways they believed were defensive. [Cambridge Univ...](#) +2

If you want, I can do a quick "jus ad bellum scorecard" per major power (Austria-Hungary, Germany, Russia, France, Britain, Serbia) for classroom discussion.



how many casualties in WW-1? were the horror stories of the sufferings soldiers true?

Thought for 8s >

World War I casualties were enormous. The best-supported estimates today are:

- **Total casualties (killed + wounded + missing): ~37–40 million.** [Wikipedia](#) +2
- **Total deaths: ~15–22 million.** [Wikipedia](#) +1
 - **Military deaths:** about 9–11 million killed. [Wikipedia](#) +2
 - **Civilian deaths:** roughly 6–13 million, from starvation, disease, massacres, displacement, and war-related collapse of society. [Wikipedia](#) +2

- **Military wounded: about 23 million.** Wikipedia +1

So yes: WWI was among the deadliest events in modern history.

Were the “horror stories” about soldiers’ suffering true?

Largely, yes. The popular accounts of trench misery and industrial slaughter are backed by mountains of diaries, medical records, photographs, and official histories. The war introduced a scale and *style* of suffering that shocked even people who lived through earlier wars.

Key realities that are well documented:

1. Artillery as the main killer

Most battlefield deaths came from constant shelling, not heroic charges.

Artillery and trench mortars caused the majority of fatalities and injuries.

PMC +2

2. Trench conditions really were brutal

Soldiers lived for weeks/months in mud, freezing water, rats, lice, and disease, with little sleep and relentless bombardment. These conditions are described consistently across armies. history.com

3. Poison gas was terrifying (even if not the biggest killer)

Gas caused panic, blindness, burns, lung damage, and long-term trauma. It killed fewer than artillery, but its psychological horror was huge and lasting.

PMC +2

4. “Shell shock” was real and widespread

What we’d now call PTSD/traumatic brain and stress injury was common after sustained bombardment. Contemporary hospitals were full of shaking, mute, paralyzed, or terrified men—this is thoroughly recorded. iwm.org.uk +2

5. Massive mutilation and disability

Beyond deaths, millions survived with amputations, facial destruction, or chronic illness. The war left an entire generation injured or permanently disabled. Wikipedia

A small nuance

Some later retellings get *specific scenes* wrong (e.g., exaggerating how often men were ordered into totally pointless charges). But the **overall picture—industrial**

killing, physical misery, and psychological breaking—absolutely matches the historical record. history.com +2

If you want, I can pull a few representative, short firsthand excerpts (within safe quoting limits) to show the texture of what soldiers actually wrote about day-to-day life in the trenches.

⎙ ⌂ ⌄ ⌅ ⌆ ... w H Sources

yes

Thought for 38s >

Absolutely — here are a few *short, firsthand* snapshots from soldiers/witnesses. I'm keeping each excerpt tiny (they wrote much more), just to give you the texture.

1) British soldier after a week in the line (1915 letter)

"We have just come from the trenches... had a most awful time." National Archives
(From Lance-Corporal Richard Frederick Hull, writing June 19, 1915.)

National Archives

2) Same letter, the scale of loss

"thirty five killed and one hundred and thirty eight wounded." National Archives
He says it was "an experience I shall never forget." National Archives

3) Another British soldier on hellish billets near trenches (1915 letter)

"constantly under shell fire." National Archives
"The rats... often have a free fight on top of us." National Archives
(Private R.C.S. Frost, May 22, 1915.) National Archives

4) French-army witness on Champagne front

"rain, mud, louses and rats." iwm.org.uk
"part of the parapet was made of... dead soldiers." iwm.org.uk
(Oral testimony collected by Imperial War Museums.) iwm.org.uk

5) British soldier on sleep in trenches

"You slept by sitting on the firestep." iwm.org.uk

"It was a very, very broken sleep." iwm.org.uk

(Charles Quinnell recalling Western Front trenches.) iwm.org.uk

6) A famous trench-poet's compressed image of exhaustion

"Bent double, like old beggars under sacks." The Poetry Foun... +1

(Wilfred Owen, writing from the front in 1917.) The Poetry Foun... +1

Put together, these line up with the overall record: **weeks of mud, vermin, cold, shellfire, shattered sleep, and mass casualties** weren't myth — they were daily life in many sectors. And what makes the memoirs so convincing is exactly this consistency across armies and fronts. National Archives +1

If you want more, tell me which angle you're after (gas attacks, boredom/"dullness," fear under artillery, comradeship, or the medical/"shell shock" side) and I'll pull a few more tiny firsthand bits in that direction.



can we say ww-1 is the most tragic human experience caused by ignorant leaders who bring millions of their subjects into hell bacause of self authored victimized narrations

Thought for 11s >

You can say something close to that, but it needs a couple of careful tweaks to be historically fair.

1) "WWI was one of the most tragic human experiences"

Yes — absolutely one of the great human catastrophes. The death toll was staggering (around 15–22 million dead and roughly 40 million total casualties) and it introduced industrialized slaughter on a scale people hadn't seen before.

Encyclopedia Bri... +1

So calling it "tragic" is not an exaggeration.

But “the most tragic human experience” is harder to defend *as a factual ranking*, because the 20th century also included WWII, the Holocaust, Stalinist and Maoist famines/purges, Rwanda, etc., each with death tolls and moral horror that rival or exceed WWI. Diffen +1

So a safer phrasing is: “one of the most tragic, and arguably the most senselessly self-inflicted in Europe’s modern history.”

2) “Caused by ignorant leaders”

Many historians agree WWI was not inevitable and was driven by **elite decisions under pressure, misjudgment, and fatal overconfidence**. Christopher Clark’s famous framing is that leaders “sleepwalked” into war — not stupid in IQ terms, but **trapped in rigid plans, honor politics, and bad assumptions**, making reckless choices they didn’t fully grasp. Wikipedia +2

So:

- Yes to **culpable miscalculation**.
- But not just “ignorance.” It was also **systemic**: alliances, arms races, nationalism, and war plans that turned a crisis into a continent-wide fire.

Masaryk Univers... +1

3) “Victimized narrations that dragged subjects into hell”

There’s a real truth here too. In 1914 **every major power told itself a story of being threatened, wronged, or forced to act**. Governments framed mobilization as defense of national honor/survival, and publics were fed narratives that made war feel necessary and even sacred. Historiography notes that no government wanted to appear the aggressor, and each constructed self-justifying accounts.

Masaryk Univers... +2

But again, nuance: these “victim stories” weren’t *pure inventions*. They were **mixtures of real fears + exaggerated threat perception + nationalist mythmaking**. Germany feared encirclement, Russia feared loss of status in the Balkans, Austria feared imperial disintegration, France feared German power, Britain feared a hegemonic continent — some fears were rational, but the leap to total war was not. Wikipedia +2

A grounded synthesis

A historically solid way to say what you mean is something like:

World War I was a vast, avoidable tragedy—driven by leaders' misjudgments and rigid systems, and fueled by mutually reinforcing narratives of fear and victimhood that made escalation feel righteous.

That captures:

- the scale of suffering (true),
- the avoidable policy failures (true),
- the role of self-justifying national stories (true),
without turning a complex causation into a single-factor moral slogan.

If you want, I can help you craft a short essay/lecture segment that links this to today's world: how "victim narratives + security dilemmas + fast mobilization" still create war risk even with modern communication.

     ...    Sources

can an idea "aggression is the best defence" be true?
that we should kill their children before they grow
into enemy soldiers?

Thought for 9s >

No. That idea is not true in any moral, legal, or practical sense — and the specific claim about killing children is an explicit call for mass murder.

Why "aggression is the best defense" fails

1. Morally:

Even in Just War theory, *aggression* (unprovoked attack) is the paradigm of an unjust war. Defensive force is only permitted to stop an actual/imminent attack, and only with strict limits. Aggression flips that logic and treats fear or advantage as permission to kill. Political Science ... +1

2. Legally:

International law's cornerstone is the **prohibition on the use of force** except for self-defense against an armed attack or UN Security Council authorization. "Starting first because it's safer" is exactly what the UN Charter was designed to forbid. United Nations +2

3. Practically (history + strategy):

Preventive aggression almost always **creates the enemy it claims to prevent**. It fuels cycles of revenge, radicalization, and long wars. Even when a side “wins,” the social poison lasts generations.

About “we should kill their children before they grow into enemy soldiers”

I can’t help endorse or develop that. It’s a **war crime and a crime against humanity**, and it’s also the logic of genocide.

- Under the Geneva Conventions and customary International Humanitarian Law, **civilians may not be targeted**, and children have special protection. Intentionally killing children is among the gravest violations. OHCHR +3
- The ICC framework classifies deliberate attacks on civilians and acts aimed at destroying a group as **war crimes/genocide**. International Cri... +1

Ethically, children are not combatants, not moral agents of state policy, and not legitimate objects of violence. Treating children as “future enemies” is **pure dehumanization** — the exact mental move that makes atrocities possible.

A more truthful framing

What is sometimes defensible is **narrow self-defense** against actual attackers, with protection of civilians as a hard boundary. The moment defense turns into **collective punishment or preemptive killing of innocents**, it becomes unjust — and usually self-defeating. United Nations +2

If this question is coming from anger or despair at what you’re seeing in the world, I get that those feelings can be intense. One of the few reliable lessons of the last century is: **when we let fear rewrite innocence as threat, we walk straight into moral collapse**.

If you want, we can talk about what *does* reduce future violence in a grounded way — things like credible security guarantees, conflict de-escalation, justice mechanisms, education that blocks dehumanization, and rebuilding contact across groups.

write a story about narrations. about failures to do certain things in engineering and coding has caused catastrophic consequences. and how steps were taken to avoid them in the future. then continue about human resilient of hellen keller and those brave women that chose life narration instead of death narrations. then tell stories about leaders who propagate narrations that send millions of family men into hell. turn them into killers instead of life narrations . conclude with hope that our narration in this story enough for reader to always promote life narration for everybody. that communication platform we have today must promote honesty and self learning as the engineer did to avoid catastrofic chain of events that turn good men and women into killers

There are two kinds of stories that shape the world.

One kind is quiet, technical, almost boring when you first hear it: a checklist, a line of code, a design assumption. The other kind is loud and human: who we think we are, who we think “they” are, what we tell ourselves is necessary, noble, unavoidable.

We usually pretend these two kinds of stories are separate. But they aren’t. They braid together. And when a narration goes wrong—inside a machine or inside a nation—the cost can be the same: lives.

1) The engineering narrations that broke, and the new narrations that followed

A spacecraft drifts for months toward a red planet. Teams work nights, papers pile up, simulations run. Everyone is proud. And then, at the finish line, it vanishes.

Not because of some cosmic mystery—because two groups used different units. One wrote thrust in pound-force, the other read it as newtons. A tiny mismatch, a

silent assumption, and a machine worth hundreds of millions became a meteor.

The narration behind that failure was simple: “*We already agree on what this number means.*”

And the new narration that followed had teeth: **interfaces must speak one language; assumptions must be written down; end-to-end tests must be real, not polite.**

Another day, another launch. A rocket lifts beautifully, like a silver sentence rising into the sky. Thirty-seven seconds later it turns, breaks, and blooms into fire.

The cause wasn’t fuel or weather. It was a reused module that tried to squeeze a large number into a smaller box. An overflow. The software panicked. The backup panicked in exactly the same way. The rocket believed nonsense and obeyed it.

The old narration: “*This worked before; it will work again.*”

The new narration: **reused code must be re-proven for new conditions; exceptions must fail safely; redundancy must be independent, not identical.**

And then there was a bridge that danced.

People like to say a wind found a resonant note and played the bridge like a guitar string. That’s close, but not quite. The wind and the bridge entered a feedback loop; each twist made the next twist bigger. The bridge wasn’t merely pushed—it was *taught to swing by the air around it.*

The old narration: “*If it stands still in calm air, it’s fine.*”

The new narration: **structures must be tested against the world they live in, not the world we wish they lived in; aerodynamics is not optional; stability is a dialogue with nature.**

On the wards of a hospital, another kind of machine harmed people more quietly. A medical device delivered medicine made of energy. Its code had a race condition. A state that should never have been reachable became reachable. The screen said “normal.” The body said otherwise.

The old narration: “*Software is flexible; we can fix it later.*”

The new narration: **safety comes in layers; no single safeguard is enough; hazard analysis and independent verification are part of the device, not paperwork about it.**

Do you see the pattern?

Catastrophe rarely comes from evil intent in engineering. It comes from a narration that grew lazy:

- “We already agree.”
- “We already tested.”
- “We already know.”
- “It’s fine.”

And engineering, at its best, is the discipline of rewriting those narrations into harder, humbler ones:

- “Assume mismatch until proven aligned.”
- “Test the edges, not just the center.”
- “Expect the world to surprise you.”
- “Make failure survivable.”

That is what progress looks like: not perfection, but *better stories about risk*.

2) The life-narrations that refused darkness

Now walk with me into a different kind of laboratory—the human soul.

Helen Keller entered a world that was, for her, without sight and without sound. If there is any natural narration for such a life, it is silence. It would have been easy to accept the story: “*This is the end of what I can become*.”

But another narration arrived through Anne Sullivan’s hands:

“You are not finished. You are not shut out. We will build a language together.”

So Helen built one. She learned to read by touch, to speak, to write. She graduated from college. She traveled, argued, laughed, organized, testified. She did not deny her darkness. She refused to make it her definition. Her narration was life-shaped:

“What I cannot see, I can still know. What I cannot hear, I can still say. I am not my limits.”

And then there were women who survived the Nazis, and later sat down to write. Some wrote of hiding places, some of camps, some of flight, some of loss so heavy it bent time.

Each faced a choice no one envies:

- to let suffering be the last narrator,
or
- to become a narrator of life in the presence of suffering.

Their books are not cheerful. They don't pretend evil was small.

But they do something more radical than optimism:

They **bear witness**.

They say: "*This happened. I am still here. My memory will not be stolen. My humanity will not be edited.*"

That is resilience: not the absence of pain, but the refusal to let pain write the final chapter.

3) The death-narrations leaders poured into nations

Now we step into the loud arena.

War does not begin with bullets.

It begins with a story.

A leader stands before microphones and wraps fear in poetry:

"We are surrounded."

"We are humiliated."

"We must strike first."

"They are not like us."

"Your sons will be heroes."

A public, tired or angry or proud, repeats the narration until it feels like truth. And what was once unimaginable becomes "necessary."

Millions of family men and women—teachers, farmers, students, mechanics—are re-cast by a national script. The narration does a strange alchemy: it turns ordinary people into instruments of destruction while convincing them they are doing good.

The tragedy of the 20th century and beyond is not only that wars happened, but that **wars were narrated into inevitability**.

The script was often self-victimizing:

"We are forced."

"We have no choice."

"If we do not kill them, they will kill us."

And once that story hardens, it does what bad code does in a safety-critical system:

it **disables the safeguards**,

it **shrinks the moral number into the wrong integer size**,

it **overflows compassion**,

and it **fails catastrophically**.

This is how good people become killers against their own deepest nature—through a narration that taught them to stop seeing the other as human.

4) A hope built like good engineering

So what do we do with this?

We do what engineers learned to do after every disaster:

we rewrite the narration with honesty, tests, and humility.

- We **name assumptions** before they turn into explosions.
- We **seek alignment** before we ship power into the world.
- We **build feedback that stabilizes**, not feedback that spirals into hatred.
- We **keep civilians sacred**, the way safety engineers keep non-targets sacred.
- We **give ourselves a last resort**, not a first impulse.

And because we now live inside giant communication platforms—global, instant, relentless—our responsibility is doubled.

These platforms can be the wind that drives a bridge into flutter, or the wind that cools it into calm.

They can be the unit mismatch that guides us into atmospheric burn, or the shared standard that keeps us on course.

They can be propaganda engines, or they can be schools of self-learning.

The choice is not technological.

It is narrative.

Closing: the life-narration we offer you

This story has carried you through broken spacecraft, dancing bridges, hospital

