Community resilience & infrastructure systems engineering

with Dr Christin Salley

Talking *points*

Knowledge
1. What is community resilience?
2. What is two-way communication?

Comprehension
3. How can social media facilitate two-way communication?
4. How can artificial intelligence (AI) help build community resilience?

Application
5. What methods can you think of for reducing bias and increasing equity in AI tools?
6. What real-life examples can you think of that show how social media can been utilised in response to a disaster?

Analysis
7. Aside from social media, what other communication channels do you think are used in disaster scenarios? Who do they target, what methods do they use and how could they be improved?
8. How can governments and disaster response organisations build 'disaster literacy' more effectively?

Evaluation
9. Though AI has many useful applications, it is also being used to drive misinformation, especially on social media. How might this affect disaster response, and what tools could we develop to mitigate this form of misinformation?
10. The world is changing, technologies are becoming more sophisticated, and climate change is increasing the frequency and magnitude of natural disasters. To what extent do you think community resilience will, on the whole, increase or decrease in the future, and why?

Activity

Think about the community you live in, and think about a (real or imaginary) natural disaster that it could face – for example, earthquakes, flooding or wildfires.

How could your community build resilience to lessen the potential impact of this threat? Go through the following activities individually or in a small group.

Start by imagining what the impacts of this disaster would be in a situation where your community has low resilience. How would this disaster impact:
• Infrastructure (transport, electricity, water, etc.)
• Health and well-being (food, disease, healthcare, etc.)
• Economic activities (businesses, trade, etc.)

Now, make a note of some ideas about how these impacts could be mitigated through prior planning and effective operations during and after the disaster. Consider:
• Stakeholders involved (local government, relief organisations, hospitals, schools, community leaders, etc.)
• Communications channels (social media, broadcast media, word of mouth, etc.)
• Use of technology (social media, AI, drones, etc.)
• Physical infrastructure (floodplains, firebreaks, earthquake-resistant buildings, etc.)

With these thoughts in mind, and using Christin's article to help, draft an 'action plan' for your community. Imagine that you are the central coordinator, in charge of designating responsibilities and timelines in order to make your community as resilient as possible before disaster strikes. Design and present your action plan however suits you best – via a slideshow, poster, mind-map or any other form of media.

Present your action plan to your class, clearly demonstrating how each step builds community resilience. Take questions and answer them as best you can. Watch other action plan presentations and consider how they compare to your own – if your whole class were to design an action plan together, which elements of each presentation would you incorporate?

More *resources*

• This article from the United Nations (UN) agency for digital technologies explains how AI could be better used to build community resilience: **itu.int/hub/2025/10/how-ai-can-help-fund-resilience-not-disasters**
• This video from the UN Office for Disaster Risk Reduction explores a new tool that aims to transform social media posts into usable data for disaster response: **youtube.com/watch?v=puJ_9I-clYs**
• Explore more of Christin's research through her Google scholar page, where you can learn more about her work addressing community resilience and infrastructure systems engineering: **scholar.google.com/citations?user=v4nd9kYAAAAJ&hl=en&oi=ao**