

# **C-BYTES**

Research Showcase and Student Competition

Guidance and Q&A Session



## **C-BYTES** Resources

Main C-BYTES Page:

<u>https://www.unomaha.edu/college-of-information-science-and-technology/research-labs/collaboratoriums/cbytes.php</u>

C-BYTES Resources and Guidelines page:

https://www.unomaha.edu/college-of-information-science-and-technology/research-labs/collaboratoriums/cbytes\_resources.php

• 3 Minute Thesis (3MT) previous winners (video):

https://threeminutethesis.uq.edu.au/watch-3mt





## **C-BYTES 2025 Official Rules**



COLLEGE OF INFORMATION SCIENCE & TECHNOLOGY

# C-BYTES Research Showcase and Student Competition Official Rules

While Quick-Share and Poster-BYTES challenges are completely different in their execution, both need visual elements to enhance understanding within the framework and limitations given. Visuals must be clear, relevant, and well-organized, contributing to the overall communication of the project.

**Code of Conduct**: All participants are expected to uphold the <u>University of Nebraska at Omaha</u>
Student Code of Conduct and maintain professionalism throughout the event.





# **Poster-BYTES Tips**

- Create a well-designed research poster
- Prepare a verbal "pitch"
- Prepare to have the "conversation" with your audience.

https://catalyst.harvard.edu/writing-communication-center/visualize-science/posters/





# **Poster-BYTES: Poster Design**

WRITING AND COMMUNICATION CENTER HARVARD CATALYST AND TRANSLATIONAL



### **QUALITIES OF A STRONG SCIENTIFIC POSTER**



SCIENCE CENTER

### Poster Headlines Are Visible From 15-20 Feet Away.

(Headline is minimum size 85.)

1. Poster navigation is explicit. (uses numbers or visual anchors)

The study objectives are clearly stated and main points are labeled and easy to find.

1.5 inches of white space is around all poster edges.

White space is organized and only 30-50% of the poster features text.

2. Images are properly edited, prepared, and inserted.



Each image or data visualization tells a part of the overall story.

3. Graphics are visible from 3-5 feet away.

Charts and graphs communicate the major results and implications.

Charts and graphs have descriptive text and axes are labeled.



Color is used to highlight important points or convey quantitative information.

4. Section headers use bold type.

Text is "aligned left" or "iustified."

The average number of words per line is limited to 8-12.

Poster uses common, sans serif fonts (e.g. Arial, Calibri).

5. Headings are visible from 3-5 feet away. (minimum size

QR codes help clean up visual clutter and link to additional information.



Information is adapted from presentations by Cheryl Vaughan, Beth Beighlie, and Graham McMahon in Harvard Catalyst's Effectively Communicating Research course.





# **Poster-BYTES: Poster Design**



### An Exploratory Study of HopeCare: A Generative Al-Powered Chatbot Supporting **Caregivers of Children with Hypoxic-Ischemic Encephalopathy**



Srishti Gupta<sup>4</sup>, Gargi Nandy<sup>1</sup>, Farhad Mohammad Afzali<sup>1</sup>, Eric Peeples<sup>2</sup>, Betsy Pilon<sup>3</sup>, Chun-Hua Tsai<sup>1</sup> University of Nebraska Omaha<sup>1</sup>, University of Nebraska Medical Center<sup>2</sup>, Hope for HIE<sup>3</sup>, University at Albany SUNY<sup>4</sup>

**Research Questions** 

### **Background**

- Caregivers of children with Hypoxic-Ischemic Encephalopathy (HIE) face emotional stress and communication barriers with healthcare providers.
- Challenges include limited appointment time, medical jargon, and emotional burdens.
- Many caregivers seek online support but encounter issues with information overload, conflicting advice, and finding reliable resources.
- Research collaboration between UNMC and UNO.

### Significance

- After an HIE diagnosis, parents often feel overwhelmed and lack access to dependable resources.
- Introducing HopeCare, an Al-driven chatbot providing personalized, accurate support to caregivers.
- HopeCare aims to bridge the information gap, reducing caregiver stress and empowering them with informed decision-making.
- Study explores how AI can improve caregiver-provider communication and enhance information flow.

### Can an Al-powered chatbot support caregivers of children with HIE? Can an Al-powered chatbot improve communication between caregivers and **Experimental Design** Overview of the System and Study Design Study 2: Caregivers (N=6) and Providers (N=3) HopeCare Chatbot Interface and Sample Conversation How long will my baby need to stay in the NICU? I'm not a doctor, but I can try to help you estimate the length of your baby's stay in the The duration of a baby's stay in the NICU depends on various factors, such as their birth weight, gestational age, and overall health. Generally, bables with Hypoxic-ischemic Encephalopathy (HEE) may require longer stays in the NICU to receive close monitoring and It's also important to remember that every baby is different, and their recovery pace may vary. Your healthcare team will work closely with you to develop a personalized plan for you baby's care and will keep you updated on their progress throughout their stay in the NICU.

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### Result

- HopeCare shows promise in addressing caregiver needs by filling information gaps and simplifying medical jargon.
- Caregivers and providers found the chatbot's personalized information helpful.
- Noted areas for improvement include refining chatbot responses. integrating with healthcare systems, and ensuring data privacy.

### Conclusion

- · This study highlights the potential of generative-AI chatbot to support caregivers of children with rare conditions like HIE.
- Such technology can empower caregivers, facilitate shared decisionmaking, and enhance communication without undermining the role of healthcare professionals.
- This research is generalizable and can be applicable to populations that have pediatric and chronic care needs and use AI to improve patient-doctor communication.



### **Elevating LLMs Use in Medical Student Training for OSCE**



Val Mirzac, Thi Nguyen, Chen Yu-Ting, Alyssa Thallemer, Chun - Hua Tsai Collaboratorium: Artificial Intelligence & Advanced Computing Systems

### Summary

We are developing a chatbot assistant tailored to medical students' needs of improving physician-patient communication.

Inspired by the Objective Structured Clinical Examination (OSCE), a clinical skills assessment used in medical training, the chatbot offers an interactive learning environment where students interview a simulated patient chatbot and receive feedback on their conversation. This tool enables students to enhance patient-centered interviewing skills. preparing them to communicate

### Introduction

strong communication skills, particularly when interacting with patients. Effective physician-patient communication helps to enhance healthcare quality by improving patient understanding, reducing stress and promoting compliance. Hence, patients would be more inclined to concede health problems, understand their treatment options, modify their behavior accordingly, and comply with their medications. However, in practical contexts, it is not common that medical students get to practice this essential skill on a frequent basis as to limited resources. Via this application, students are provided with more opportunities to practice this essential skill with high flexibility and instant feedback.





And what's the plan for scheduling the tests and getting a diagnor

Figure 1. Unsuccessful communication

they clid some basic tests like blood work and an EKD. They told me

Figure 2. Successful communication

effectively in professional settings. Do you think there's any way to rale out the possibility of occupational

Working in medical field demands

### What's the Question?

- How can an Al-powered assistant improve physician-patient communication for medical students?
- What methodologies can be used to build such a system, and how can its effectiveness be assessed?

### Methodology

- · Utilize Dify for its LLM integration and drag and drop interface to implement the workflow between two Al-powered chatbots
- · Use standardized patients' case reports as knowledge base for the simulated patient chatbot and AAMC's documentation on Core Entrustable Professional Activities (EPA) for the evaluator chatbot
- Collaborate on live interviews with medical students and medical training educators to assess the usability and accuracy of the workflow for the purpose of medical training.

- The project aims to leverage the use of LLMs in medical training process.
- The outcome of the project is to provide an accessible solution for medical students to practice one of the most essential skills in their training and effectively prepare them for the OSCE assessments.





# **Poster-BYTES Presentation: Pitch**

- Open with your Name and Role
- What motivates the research? State the Problem and Why it Matters.
- Give just enough background: what's Known, the Gap, and your Hypothesis/Approach.
- Share the "news": your Key Result or Insight and what Impact that has.
- Land the takeaway: What's Next (next steps, collaboration, or specific support).

### Delivery:

- Clear voice, steady pace, eye contact, purposeful gestures—you're narrating your research story.
- Keep it to 45–60s ready to expand if asked.

https://catalyst.harvard.edu/writing-communication-center/visualize-science/posters/





## **Poster-BYTES Presentation: Conversation**

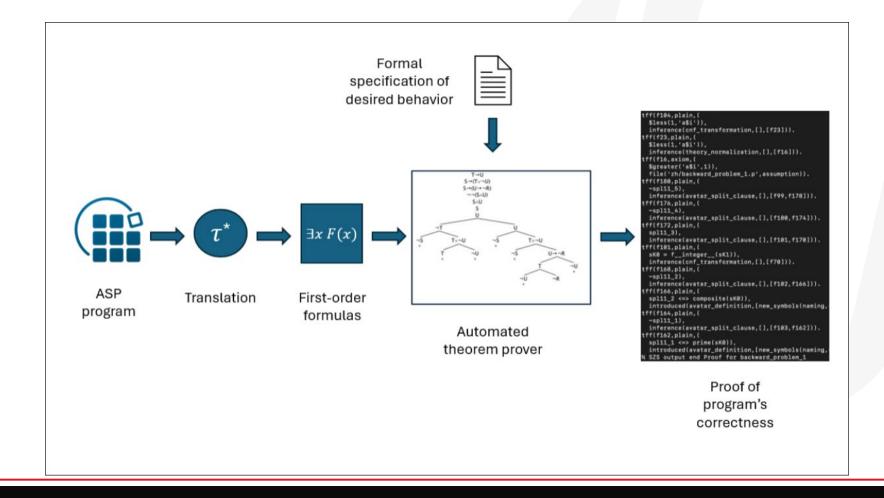
- Read the room: learn audience background and goals.
- Start warmly: smile, greet, introduce yourself, and ask them if they are familiar with your topic.
- Customize the depth for audience; avoid jargon; check for clarity as you go.
- Show, don't just tell: point to figures, use simple analogies or short stories.
- Welcome questions, pause to listen, and navigate to the relevant section.
- Pivot as needed: zoom out for big picture (irl why does this matter?) or dive deeper on methods/results.
- Close and connect with viewers: recap one takeaway and invite follow-up.
- Request viewers scan the competition QR Code and complete the assessment rubric.

https://catalyst.harvard.edu/writing-communication-center/visualize-science/posters/





# **Quick-Share Slide (Example)**









# Relating Answer Set Programming and Manysorted Logics for Formal Verification

Zach Hansen

-PhD Computing and Information Science (in progress)

Advisor: Dr. Yuliya Lierler



# **Quick-Share Presentation**

- Your presentation should
  - Engage us.
  - Inform us.
  - Communicate to a lay audience Why should we be excited?
  - Connect research to big picture Why is this important to the rest of us?
  - Touch on the most interesting aspect about your research.
- Making an impactful slide
  - Start with the visual. It is not an afterthought.
  - Don't let it be your presentation. It is an illustration to clarify your talk.
  - It should not distract attention away from your presentation.





# **Use 3 minutes wisely**

- Don't introduce yourself, don't do acknowledgements, don't show data.
- Start by introducing how your research relates to the bigger picture or why anyone else might be interested in your work.
- Carefully design your slide, don't overcrowd it or use too much color.
- Only include most relevant things.
- Make sure images are good quality.
- Use simple and familiar analogies.
- Use excited and engaged body language: smiling, gestures, movement, and eye-contact.
- Finish by bringing the audience back to the big picture.





# Use up your time, but don't go over it!

- Practice.
- Practice out loud.
- Practice standing up and performing the talk.
- Practice and get feedback from a variety of people.

https://threeminutethesis.uq.edu.au/resources/3mt-competitor-guide





### Resources

- Examples of single slides from 3MT®
  - <a href="https://ecampusontario.pressbooks.pub/scientificcommunication/chapter/the-3-minute-thesis/">https://ecampusontario.pressbooks.pub/scientificcommunication/chapter/the-3-minute-thesis/</a>
- Examples of research posters
  - <a href="https://www.unomaha.edu/college-of-information-science-and-technology/public-health-informatics-research-lab/posters/index.php">https://www.unomaha.edu/college-of-information-science-and-technology/public-health-informatics-research-lab/posters/index.php</a>
- View scoring/judging rubrics
  - <a href="https://www.unomaha.edu/college-of-information-science-and-technology/research-labs/collaboratoriums/cbytes.php">https://www.unomaha.edu/college-of-information-science-and-technology/research-labs/collaboratoriums/cbytes.php</a>

We will provide T-Shirts to wear during the competition. Not a requirement, but we hope you will!





### **Contact Information**

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