

Alternate-universe FIE: an engineering education conference session from a world where the majority of engineers are Deaf

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Abstract—This special session constructs an alternate-reality FIE session where participants can experience what engineering education research might look like if Deaf culture had been a primary influence on engineering education culture.

Keywords—curricular culture, alternate ontology, Deaf culture, ASL, participatory theatre, diversity

I. GOALS OF THE SESSION

1. Via the medium of interactive theatre, experience a culturally Deaf engineering education space conducted primarily in ASL. What might engineering look like if Deafness and signing were the norm, and hearing/speech the exception? What different insights/approaches might Deaf engineers bring to the table, if they were able to develop their own ways of engineering?
2. For hearing/non-signing participants: access part of a conference via interpretation rather than direct communication, and jointly reflect on what this experience is like. (Full access to all signed content via simultaneous interpretation into spoken and written English will be provided.)
3. Explore our own habits and assumptions around what engineering education is and who is able to participate in it, extending the conversation beyond Deafness/disability to discuss broader issues of representation and engineering culture.

II. ANTICIPATED AUDIENCE

We (the authors) are all signing Deaf engineers and/or engineering education researchers. We anticipate an audience of primarily hearing non-signing engineers/educators who are interested in radical re-imaginings of classroom culture. This is not limited to those with an interest in Deafness and/or disability access; the session applies broadly to those interested in diversity/inclusion and the lived experiences of underrepresented groups in engineering more broadly. We also anticipate audience members who are interested in theatre,

storytelling, and the performing arts as a way to engage in engineering education scholarship.

III. JUSTIFICATION

Most engineering education rhetoric about inclusion of Deaf (and other underrepresented) engineers is about giving us access to the existing (hearing) engineering culture. Our session is novel and thought-provoking because it flips the question on its head; what if, instead of Deaf engineers “fitting in” to hearing engineering culture, we constructed an engineering culture that was culturally Deaf? What might we learn from spending some time in such a world?

The session format is also novel; it is designed as an immersive and interactive participatory theatre experience that simulates a conference session in a Deaf engineering world. We will temporarily take over a conference room and transform it into a Disneyland-style participatory theatre space, with local Deaf engineers filling in crowd roles and coaching the (hearing/non-signing) audience on how to interact on the shared stage.

IV. EXPECTED INTERACTION AND AGENDA

A. Minutes 0-20: arrival and enculturation

Upon entering the session, participants will find themselves in a “threshold” area that introduces and transitions them into the “Deaf engineering” world of the performance. They will be given a brief orientation on the alternate history timeline that led to a Deaf engineering culture, given guidelines for interaction, and introduced to one or more “hosts” (performers) they can look to for guidance within the space. Participants will be given some time to socialize and explore within this alternate universe before the scripted part of the performance begins; they can go to posters, ask questions, etc.

B. Minutes 20-60: performance of scripted conference presentations

During the scripted part of the performance, which simulates a conference session with a series of short

presentations, audience members will watch and respond to the performance. Presentations will be as follows:

(5 minutes) Introductory remarks by the Deaf session chair. These remarks will set the stage and explain performance access options and Deaf presentation norms to further orient the hearing audience to what they are about to experience, all while remaining in-character/in-world.

(10 minutes) Paper 1: New techniques for inclusive teaching in introductory engineering classes. This presentation by a Deaf professor illustrates how ASL linguistic features can be used to communicate complex technical information in entirely visual/spatial ways, the types of collaborative and kinesthetic learning that might take place in a culturally Deaf engineering classroom, and a tongue-in-cheek take on “the challenges of including hearing students in engineering.”

(10 minutes) Paper 2: Using the SpitBit to engage engineering students with the performing arts. This presentation by a Deaf engineer in industry exposes assumptions around speech as a dominant method of communication; the SpitBit (a wordplay on the Fitbit fitness tracker) is a (fictional) device used by enthusiasts engaging in the fringe hobby of “spoken language” to monitor and improve their performance. Within the alternate world of the performance, Ian’s company (which produces the SpitBit) will explain the work their multidisciplinary team of interns did on the device over the past year, and how their new development kit can be used in cross-disciplinary engineering classes.

(10 minutes) Paper 3: Access experiences as a Hearing engineering student. This presentation by a hearing graduate student is a role reversal of the typical “diversity in engineering education” talk, where the hearing student discusses their challenges in fitting into a majority-Deaf engineering program. This presentation will be delivered in spoken language and interpreted into ASL and real-time captions with deliberate and highly visible mishaps that will illustrate the kinds of access

and translation challenges Deaf engineers face daily on campus and in the workplace.

(5 minutes) Closing remarks and transition. The Deaf session chair will conclude the session-within-the-session, and the break the fourth wall to end the scripted part of the performance and the end of the alternate (culturally Deaf engineering) universe, returning the group back to the culturally hearing engineering education world.

C. Minutes 60-80: reflection and discussion

Audience members will engage in reflection and discussion in small groups facilitated by one or more performers.

V. EXPECTED OUTCOMES / FUTURE WORK

We expect participants to leave the session impacted on an affective level rather than a primarily intellectual one. Participants will have experienced a radically different kind of engineering culture, one that has been created in a way that does not fit their typical ways of being (unless they are fluent signers) and that they need to access via other (provided and well-rehearsed) means. This is a kick-off to our work on exploring Deaf culture and its potential contributions to engineering education; we intend for this session to foster discussion and awareness of a different way to frame cultural diversity within engineering curricular spaces. The theatrical piece itself is intended to be repeatable and can be performed at other institutions in the future; FIE will be its stage debut.

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