Broadcasting the voices of women in STEM
A podcast platform for female scientists, engineers and entrepreneurs

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Abstract— We present a broadcasting platform promoting the voices of women engaged in science, technology, engineering, and mathematics (STEM) fields. The podcast, titled “Beyond the (Micro)scope” is used as a motivating application to discuss the accessibility and usefulness of using podcasting as a platform to engage public audiences in STEM fields. In particular, how can outreach be effective with regards to targeting young girls and women interested in STEM.

Keywords—STEM, science, media, platform, engineering, podcast, audio, media platform, technology, women

I. INTRODUCTION AND MOTIVATION

Beyond the (Micro)scope is a podcast that was created in February 2015. The goal of the podcast is to provide a platform for women in STEM fields to share their work, their experiences and their aspirations. The episodes, which are released on a regular bi-weekly schedule are approximately 30 minutes in length. The episode structure features questions and answers between the co-hosts and the guest.

As podcasts have been growing in popularity in recent years, notable science podcasts such as StarTalk, Professor Blastoff, and Probably Science have gained traction among general audiences [1]. One reason for this has been an entertainment-like approach, with the inclusion of comedians and science personalities such as Neil DeGrasse Tyson and Bill Nye. However, the lack of female guests on the shows has been a noticeable detraction from these podcasts. The gender gap is STEM fields has been an area of concern in both the general public and the STEM community [2]. The lack of women represented in “popular science” further propagates this disparity. Beyond the (Micro)scope aims to fill the gap in the podcast medium by interviewing women in a thoughtful, detailed discussion that focuses on the technical challenges of work in science, technology, engineering and math (STEM).

II. PODCAST PLATFORM

A. Advantages of the podcast medium

The podcast is an approachable medium that is both cost-effective and easy to adapt to varying situations. Moreover, podcasts have been shown to be an effective aid in mobile learning [3]. A podcast can be created while guests and hosts are in different locations and do not require special equipment or technological knowhow. Podcasts are also easy to distribute and can reach a wide audience in variety of formats. Podcasts have also become widely popular as mobile devices have made it easy to access audio on demand.

B. Guests

Podcast guests are all women who have, in some way, engaged or participated in STEM fields in their careers or personal projects. Recruitment of guests was performed in two phases. In the first phase, the hosts initially identified guests by reaching out through personal and professional networks seeking willing participants. Many guests and listeners have furthermore suggested other women who would be good candidates to interview. Once these initial interviews were conducted and a broad sampling of episodes were made available through social media channels, the second phase of recruitment involved reaching out to women with whom the hosts have no connection with, i.e., these women might be mentioned in news articles, university press releases, etc.

While the term STEM may be interpreted as solely technical, we approach the definition in a holistic manner. Guests cover a broad spectrum of subject matter, ranging from quantum mechanics and virus replication to sexual fidelity, politics, and television shows. One goal is to highlight the variety of ways in which people, and women in particular, interact with and are engaged in STEM.

C. Podcast Production

Podcast episodes are recorded remotely over Skype, with each individual recording separate audio files. The audio is then mixed together to ensure the clearest audio quality possible. The interviews are then edited down for clarity and length. Guests have the option to listen to their episode before publication to ensure their statements are factually accurate. However, the podcast is recorded in a “live-to-tape” format, to give the listener a sense that they are sitting in on a conversation.

Once the episode is completed, it is scheduled and posted on social media channels, our website [4] and podcast aggregators such as iTunes and Stitcher [5]. One of the key methods of gaining listeners and attracting potential future guests is leveraging social media networks. While advertisement for the podcast has been through mostly “grassroots” efforts, we have been helped through personal connections. The Department of Aerospace Engineering at the
University of Maryland has aided in dissemination of the podcast by sharing through their social media channels, as well as advertising to the undergraduate and graduate email lists. In addition, contacts at such places as NASA Jet Propulsion Laboratory, the California Institute of Technology, Harvard University, Medill School of Journalism at Northwestern University, the Claremont McKenna College, Georgia Institute of Technology, and CERN have been valuable in sharing episodes. The website is also utilized as a way to feature the opinions and experiences of our guests. We encourage them to write blogs and opinions relating to current events and their field of expertise. Recently, a blog post concerning a new video comedy sketch produced by Smart Girls at the Party was found by a journalist at Forbes [6][7][8]. The post criticized the efficacy of comedy and satire in a web series targeted toward empowering young girls. The website and blog posts by the hosts and guests provide a way to share and discuss STEM topics as well as form a network of expertise. When a scientific article appears in a popular news site, we reach out to this network and ask for a scientific opinion or additional insight into the subject matter [9].

III. DISCUSSION

The response we have received from the podcast has been overwhelmingly positive. Many listeners and guests have told us that a platform for women in STEM is a much needed idea.

A. Benefits for guests

Guests benefit in a number of ways by appearing on the podcast. They are given a platform to showcase unique skills, experiences and opinions on subject matter that is often dominated by singular voices on the national scale. Because podcasts are so versatile and sharable, it is an easy way for women in STEM to discuss their research or ideas and be able to refer back to the discussions. The podcast is also a way for women in STEM fields to gain experience communicating complex ideas in a way that is concise and casual.

B. Benefits for listeners

The goal of this podcast is to not only provide a platform for women in STEM fields but to also engage and inform others about what research and work is going on in the “real world” of science. Individuals in non-STEM fields often over-generalize professions, for example, assuming all biologists do similar things. We hope to provide unique insights and perspectives into careers that others may not know about. In one episode [10], we speak to a woman who is a trained forensic biologist who spent some of her career processing crime scene evidence. In her discussion of her day-to-day work, she addressed popular perceptions about her field and informed listeners about the disparities between forensic science in the lab and what we see on shows like “CSI: Crime Scene Investigation.” We aim to not only allow our guests to share their expertise but to also educate and inform others about what they are working on. On one occasion we assisted in introducing two of our guests to each other because they were interested in collaborating on future projects.

C. Trends

One of the biggest trends we have noticed is the interest of our guests to engage more in the communication of science. Many of our guests enjoy speaking about their work and yet, express hesitation about speaking in technical language or using jargon. We have discovered that it often takes several minutes for our guests to feel comfortable. We have also found that some of our most interesting interviews occur when our guest shares some personal anecdote that directly reflected their relationship with science. Personal connections and experiences often color the way that we pursue our interests and passions. Furthermore, the main goal of producing and hosting this podcast was to provide a way for female voices to appear in “popular science” without overtly mentioning the gender issue in every episode. The mere presence of these voices, and the technical subject matter which we discuss, solidifies the presence of women in STEM fields.

IV. FUTURE WORK

Our plan for this podcast is to expand it’s reach and to continue providing a platform for women in STEM to discuss their work. We believe it is an underrepresented field and that there is a large interest and market in featuring women in diverse fields. Future efforts include more data collection on listener demographics in order to quantify the effectiveness and reach of the podcast. We expect to continue producing episodes and blog content featuring accomplished women. Furthermore, we plan on experimenting with show format, as well as including visual media to share episodes and short “how-to” tutorials.

REFERENCES