There were six cornerstones to our BPC plan: customer support, data annotation and development, software engineering, high school mentoring, participation in IEEE SPMB, summer outreach. Progress towards these goals is summarized below:

1. **Customer Support:** we maintain a publicly accessible listserv, help@nedcdata.org, which we use to support all of our products. We typically handle about five external requests through this listserv per day. Most involve questions about the open source data and software resources that we deliver. We usually resolve these requests within the same day they are received. We have not had many requests specifically for our quantum computing software, though our Quantum RBM (QRBM) implementation will soon be published in our project web site (*https://isip.piconepress.com/projects/nsf\_fet\_quantum/*).
2. **Data Annotation and Development:** The two flagship applications we will use to validate our quantum approaches involve EEG and digital pathology data. With respect to our EEG resources, we are releasing v2.0.1 of our open source TUH EEG Seizure Detection Corpus. This is our most requested resource at present. This new release contains corrections to the annotations for approximately 40 sessions. The need for this release was triggered by questions from our subscribers, a good example of how valuable our customer support loop has been in improving our resources. We are also developing several variations of experiments that can be run on our digital pathology corpus including benchmarks on stain and tissue type detection. These subsets should fit within the computation capabilities of the current generation of quantum computers and will hopefully become popular community-wide benchmarks.
3. **Software Engineering:** All personnel involved in the project have been trained on our software development process and are now developing software based on these guidelines. One of the more unique things about our lab is the strict software engineering process we use to develop and release software. Students who learn this process, and assimilate this style of coding, tend to be successful at leveraging these experiences into summer internships and permanent engineering positions. As described below, we have trained several high school students, two undergraduates and one graduate student on our software engineering process.
4. **High School Student Mentoring:** In Spring2023, we hosted two high school students as part of a collaboration with Boys Latin High School (https://www.boyslatin.org/) in Philadelphia. In Summer 2023, we hosted three high school students as part of the "Pathway to Temple" ­– Philly High School Summer STEM Research Program. All five of these students were African American. These students were mentored by our undergraduate researchers, which creates a nice synergy between these two groups that are very close in age. We have also continued our relationship with a volunteer female high school student, Nidhi Ram, who has been working with us for two years now. Her association with our lab was instrumental in placing her in a prestigious summer program, the Governor’s School, hosted at CMU. She has been studying quantum computing and is collaborating with our team this academic year on machine learning experiments using quantum annealing.
5. **The 2023 IEEE Signal Processing in Medicine and Biology Symposium (IEEE SPMB):** We are again hosting IEEE SPMB on December 2, 2023. We submitted a paper to this conference on our preliminary quantum computing results cited in previous parts of this report. Unfortunately, the graduate student leading this work abruptly left the project, so this paper has been rescheduled for submission to IEEE SPMB 2024.
6. **The Women in Engineering Summer Workshop:** The College of Engineering at Temple University has shifted its focus from this activity to a formal summer program in which we host STEM students from underrepresented groups. These students typically come from high schools within the City of Philadelphia – both public and charter schools. It is a collaboration with Heights Philadelphia (https://heights.org/). We plan to continue hosting three students every summer. These students are typically trained on Python programming and how to run machine learning experiments on a Linux cluster. Next summer (Summer 2024) we hope to integrate a quantum computing component to this training.