**Bass Connections: Reconstructive Surgery in Palestine - Midterm Portfolio Narrative**

**UPDATE 4/20**:

Now that we’re in the manuscript drafting stage, I’ve been thinking a lot about how far we’ve come. It’s honestly kind of wild to realize just how much work we’ve done over the past year—especially looking back at everything we tackled over the summer. I feel really lucky to have landed on such a productive, interdisciplinary team where everyone genuinely cares and puts in the effort. It’s been amazing to work on a project that not only pushed me to grow as a researcher but also feels meaningful—like we’re contributing to something that could actually help people in need and promote humanitarian peace. I’ve learned so much along the way, not just about coding or data science, but about research as a whole—problem-solving, collaboration, and staying resilient when things don’t go as planned. The Fortin Foundation Bass Connections Showcase was such a fun and rewarding experience too—it felt great to share our work and see what other teams have been up to. All in all, I’m just really grateful to be part of this team and this project.

**ORGINAL**:

Before joining this Bass Connections project, I had never been part of an interdisciplinary research team. Additionally, while I had some experience with coding, applying it in a real-world research setting—especially in a project with such high stakes—was entirely new to me. I quickly realized because there was no straightforward path, this research required me to independently determine how to approach problems without direct instruction. One of the most challenging yet transformative aspects of this experience was learning to function as a semi-independent researcher, where the responsibility to execute tasks, troubleshoot errors, and refining methods fell on me. Instead of relying on purely step-by-step guidance, I had to take the initiative to seek out resources, iterate through failed models, and teach myself what I didn’t know.

Despite these challenges, this experience has been one of the most rewarding research opportunities I’ve ever had. Not only are we committed to an extremely important humanitarian cause—bringing healthcare to suffering people in Palestine—but throughout this process, despite all the setbacks, disparate data, and statistical roadblocks, we were able to deliver a well-developed and meaningful model. Looking back, I am proud of how much I was willing to push through the learning curve, even when computational tasks seemed intimidating. Even though many of the models I built weren’t statistically significant or completely failed, the fact that I contributed meaningfully to this project and grew as a researcher all for an important societal and humanitarian cause makes this experience deeply personal and fulfilling.

Key Contributions:

1. Proactivity in Finding Outside Resources  
   One of my most significant contributions was actively searching for external datasets, papers, and references to ground our research in existing literature and methodology, as well as assisting in curating those datasets. I located Gaza Projections (.org), ACLED and other datasets, and key research papers (e.g. Lancet) that provided insight into previous injury modeling approaches, gaps in the literature, and methods we could adapt—we needed to contextualize our work within previous research, understand limitations, and identify where we could contribute something novel.
2. Computational and Statistical Modeling  
   A significant portion of my work revolved around building the preliminary multivariate models, which served as a baseline for what our final predictive framework became. I explored various regression techniques, including Least-Squares Regression, Generalized Poisson, and Generalized Negative Binomial Models, to determine which best accounted for overdispersion in the injury count data. Additionally, I performed extensive statistical analysis on independent variables, testing which factors were most significant in predicting injury rates. I also contributed by writing up analyses and reports and documenting our findings.
3. Conceptual and Structural Contributions  
   Beyond technical execution, I played an active role in shaping the project conceptually. I brought in ideas from previous research projects, helped structure and outline our manuscript, and contributed to discussions on model selection and interpretation. I also helped refine our approach by considering how to better categorize and encode attack types and other factors to enhance predictive accuracy.

This project has deepened my appreciation for interdisciplinary research. Working on something that merges data science and humanitarian impact has shown me how computational modeling can be a powerful tool for real-world applications while also developing empathy for the populations we’re focused on. Moving forward, I want to continue building on these skills, refining our predictive framework, and ensuring that our research can meaningfully contribute to post-war medical response planning.

This project has been challenging, frustrating, and at times overwhelming—but ultimately, incredibly meaningful.

**APPENDIX**

The following github page includes my cumulative work done over the 24-25 year including my interactive showcase display slide:

<https://github.com/emilychensong/bassconnections_reconsurg>