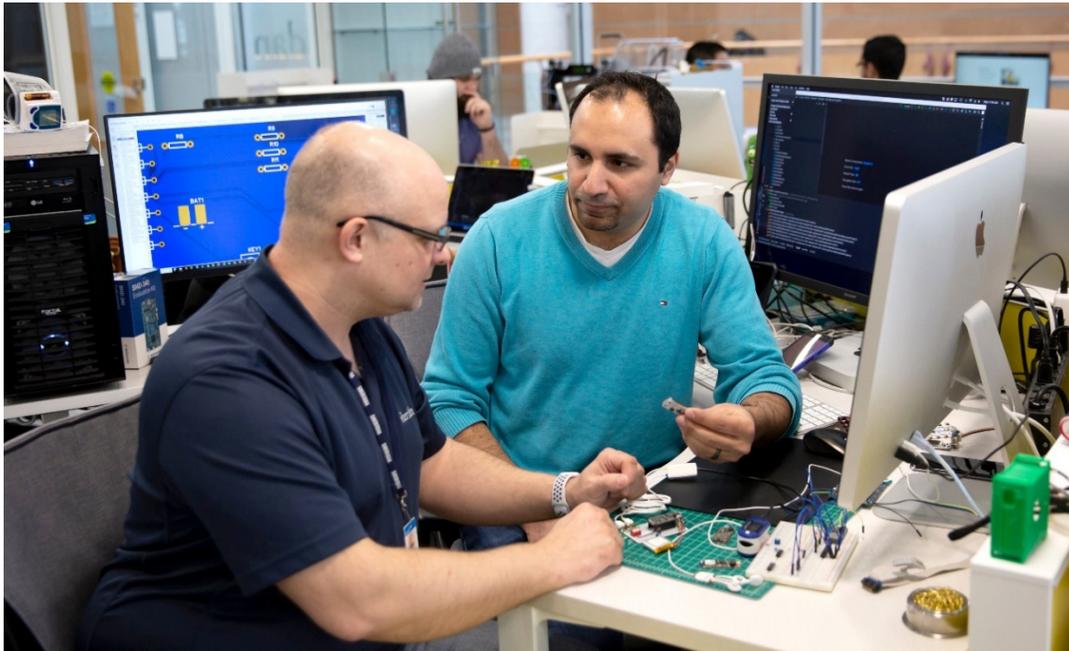


Student co-Presents Research Paper at an IEEE Conference in B.C.

Dr. Tarek El Salti, a Professor in the Mobile Computing program and his research student, Warren Zajac presented their work: "*NewPneu: A Novel Cost Effective mHealth System for Diagnosing Childhood Pneumonia in Low-Resource Settings*" at the 10th IEEE Annual Information Technology, Electronics, and Mobile Communication Conference University of British Columbia, Oct 17th to 19th.



Warren Aajac [left] with Terek El Salti working on the NewPneu device.

According to Professor El Salti:

Warren and I co-presented the full paper in the conference. He did an amazing job and conveyed the idea really well. This project has allowed him to significantly improve his knowledge of hardware design as well as learn more about how the research process works.

Abstract—Pneumonia is the leading infectious cause of death in children worldwide. In one year, pneumonia kills an estimated 900,000 children under five years of age, with most of these deaths occurring in developing countries. The current approach to diagnosing pneumonia in low resource settings involve the use of World Health Organizations (WHO) Integrated Management of Childhood Illness (IMCI). This algorithm is paper-based version and relies on health care providers abilities to count children’s breathing rates. To date, the IMCI and its later versions do not have the necessary point of care devices that detect significantly pneumonia in children. In this paper, we present NewPneu, a novel and low-cost easily deployed monitoring system. The goal of this system is to assist positively community-based health workers to monitor key signs of

pneumonia in children. Especially, the focus is on low-resource settings. Among these signs, SpO2 levels and breathing rates are the crucial factors for the detection of this disease. To meet this important requirement, a new and portable designed board as part of NewPneu collects this data and sends it via Bluetooth 5 to our Android app. Our real life analysis reveals that there are more than 70% significant correlations between NewPneu and a Contec device (i.e.,gold standard device). Furthermore, in some cases, there are even more than 90% strong correlations. To further justify the accuracy, the two methods demonstrate that they are within the Line of Agreements. In addition, the lifetime of our newly designed board lasts for seven days compared to twenty-four hour for PLUX - Wireless Biosignals - BioSignalPlux. Lastly, the board costs \$10 USD in comparison to BioSignalPlux and the Contec device that cost in the range of a thousand to six thousand US dollars.

[Read more about this project through the Sheridan News](#)

