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ELECTRICAL ENGINEERING & COMPUTER SCIENCE

IRVINE, CALIFORNIA 92697-2625

Hung Cao, Ph.D.
Assistant Professor of Electrical Engineering
Department of Electrical Engineering and Computer Science
University of California Irvine, Irvine, CA
Telephone: +1 949-824-8478; E-mail: hungcao@uci.edu

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Re: Letter of Support for FEMA team's Application for BME-IDEA International E-Team Grant Program

Dear Honorable Committee Members,

It is my pleasure to write this letter in support for the proposal "*FEMA-BEAT: A home-based pregnancy monitoring system*" being submitted to the BME-IDEA International E-Team Grant Program.

I am Hung Cao, an Assistant Professor of Electrical Engineering at University of California Irvine (UCI). Prior to coming to UCI this Fall 2018, I was an Assistant Professor of Electrical/Biomedical Engineering at University of Washington (UW). Research in my HERO Lab focuses on flexible biosensors and bioelectronics as well as wireless systems for a host of biomedical applications. I am a recipient of the prestigious NSF CAREER Award (2017), the UW's Royalty Research Fund Award (2017), the NSF NCS Award 2019 (Brain Initiatives), and one of the only nominees under UW competing for the Moore's Inventor Fellow Award (2017).

The proposal's idea was originally developed by Mr. Le who joined at the UW as a graduate research assistant and then followed our group to UC Irvine to pursue his PhD in the areas of bio-circuits, bio-signal processing, and medical devices. Later on, with the participation of Mr. Ramses who led the mechanical design, the project was gone through several prototypes to test on healthy volunteers. As results, the project got funded from the proof of product (POP) grant ($80K) under UCI Beall Applied Innovation for product development and clinical trial at UCI medical center in 2021. Mr. Le and Mr. Trigo are talented PhD students and have been working effectively with many students in various projects in our Lab. Moreover, they have built on their distinctive background in commercialization translation from research studies by collaborating with cross-functional groups and writing grant proposals.

In the BME-IDEA International E-Team Grant Program, they aim to bring the project beyond the lab bench to implement in a developing country – Viet Nam. Being born and raised in Viet Nam before moving to the US, I fully understand how the proposed work would help to improve prenatal care in Viet Nam. In developing countries like Vietnam, the medical infrastructure is limited and under-developed which is already overburdened with crowding pregnant women and pediatric patients. Especially, during the Covid-19 pandemic, due to the strict policy from the government, many clinics and/or hospitals were lockdown. Vietnam becomes seriously lack clinics and health staff, especially during the nationwide lockdown. Going to hospital for any

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health checkup and prenatal checkup would be extremely difficult. Facing pandemic, losing jobs and lockdown, many people get into an anxiety attack, and may get depression, especially pregnant women. Telemedicine and m-Health have been mentioned for more than a decade. However, only till recently, when wearable technology, IoTs, computation power as well as telecommunication (going to 5G and beyond) are mature, those would become possible. Obviously fetal and maternal care being carried out remotely would help significantly reduce labor, cost and overcrowding at hospitals, and improve the quality of prenatal care services.

Collaborating with VinUniversity (VinUni) as a local partner for the project is a great choice as the VinUni is part of VinGroup's ecosystem covering variety of sectors from economy to healthcare in VietNam. This would greatly bring resources to successfully implement in Viet Nam. Two other members of the FEMA team are Miss. Nguyen and Miss. Lam from VinUniversity, represent for talented young Vietnamese students with relentless aspiration to build a Viet Nam more prosperous in the future. Moreover, our Lab recently collaborated with another research group in Viet Nam and successfully granted $250.000 from Vin Innovation Foundation. Serving as a local partner in this project, it would strengthen our fruitful collaboration between our Lab and the VinUni.

In conclusion, I am very happy to witness the team formation and this proposal. I truly believe in its success with the support form BME-IDEA International E-Team Grant Program and I am hereby committed to endorsing this application as the E-Team PI for the project.

Please let me know if you have any further questions or request. Thank you!

Yours Sincerely,

Hung Cao