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## MEDIA RELEASE

## Diagnosing heart conditions by smartphone

*Thanks to an SFU student's creation of a 3D computer model of the human heart and thorax (chest), heart condition diagnosing by smartphone could be possible one day.*

July 31, 2015

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**Photos:** <http://at.sfu.ca/fDVixN>

**Video:** This movie of the thorax vibrating represents a single heart beat. One minute of it represents 0.5 seconds of real life. <http://at.sfu.ca/AMwpOD>

In collaboration with an international scientific project team, a Simon Fraser University doctoral student is paving the way for us to be able to one day diagnose heart conditions using our smartphones.

Alexandre Laurin is working with the [Mathematical and Mechanical Modeling with Data Interaction in Simulations for Medicine \(M3DISIM\)](#) research group at École Polytechnique in Paris, France.

Laurin will graduate with his doctorate in [biomedical physiology and kinesiology \(BPK\)](#) this fall. He and the Paris team are programming a human heart's mechanics into a 3D computer model of the heart and thorax (chest, including the thoracic cavity and the thoracic wall) that they've developed.

"You need the model first to understand what's going on, then you can build the app for a smartphone," explains Laurin.

The model, built last year in Paris, simulates the vibration of a human thorax and then manipulates or pushes the vibration to evaluate the model's reaction.

Once they've finished programming their model with an actual heart's mechanics, Laurin and his collaborators will analyse how a beating heart affects the thorax.

Laurin stresses: "Precise self-diagnosis by phone is probably 10 years into the future."

He laid the groundwork for this research with the Paris group last summer after winning a Graduate International Research Travel Award from [SFU's Office of Graduate Studies and Postdoctoral Fellows](#). Laurin will return to France in October to devote a year to perfecting the model and finally developing an app.

**ABOUT SIMON FRASER UNIVERSITY:**

As Canada's engaged university, SFU is defined by its dynamic integration of innovative education, cutting-edge research and far-reaching community engagement. SFU was founded almost 50 years ago with a mission to be a different kind of university—to bring an interdisciplinary approach to learning, embrace bold initiatives, and engage with communities near and far. Today, SFU is a leader amongst Canada's comprehensive research universities and is ranked one of the top universities in the world under 50 years of age. With campuses in British Columbia's three largest cities—Vancouver,

Surrey and Burnaby—SFU has eight faculties, delivers almost 150 programs to over 30,000 students, and boasts more than 130,000 alumni in 130 countries around the world.

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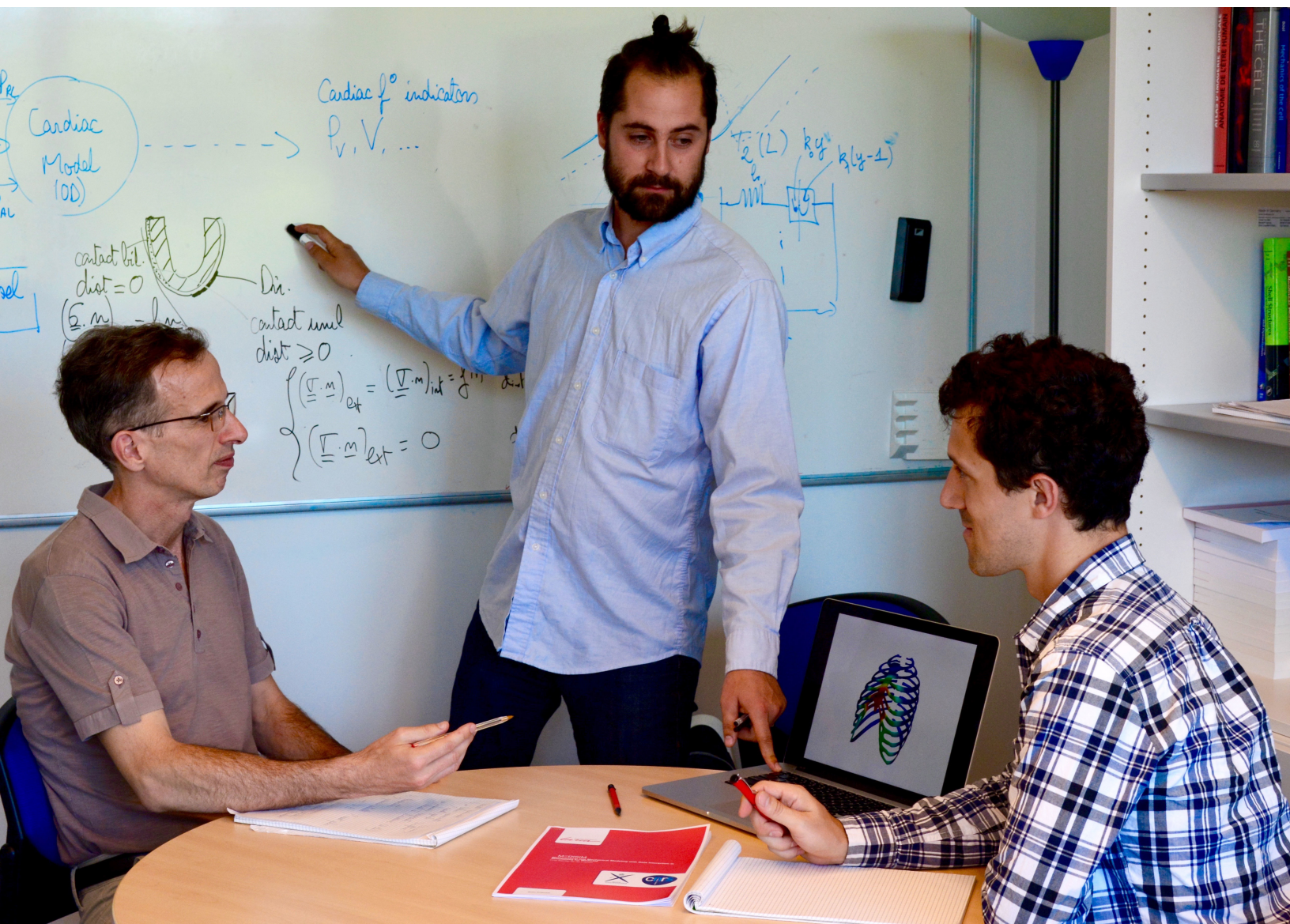
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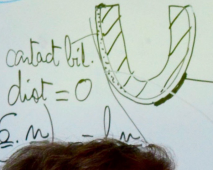
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Cardiac  $f^0$  indicators  
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Cardiac Model (OD)



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