



## Heartflow Announces Collaborative Research Agreement with Imperial College London

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Joint research in medical imaging and deep learning to help improve treatment planning for patients with heart disease

**REDWOOD CITY, Calif. – March 7, 2018** – [Heartflow, Inc.](#) today announced that it has entered into a collaborative research agreement with Imperial College London. The collaboration will enable experts from Heartflow and Imperial to work side-by-side on joint projects in the areas of medical imaging and deep learning. The company's non-invasive Heartflow® FFR<sub>CT</sub> Analysis leverages deep learning to create a personalized 3D model of the heart to help clinicians diagnose and treat coronary artery disease (CAD).

"We are delighted to collaborate with the team at Imperial, who are globally recognized leaders in applying deep learning techniques to medical imaging," said John H. Stevens, M.D., president and chief executive officer, Heartflow. "I have no doubt that the combined expertise of the Heartflow and Imperial teams will help accelerate turning cutting-edge science into ground-breaking products that can positively impact how patients with suspected heart disease are diagnosed and managed."

The collaboration between Heartflow and Imperial will be led by Dr. Ben Glocker and Professor Daniel Rueckert and will involve co-locating a Heartflow team at Imperial's Biomedical Image Analysis (BioMedIA) group. The company also will fund additional research roles at the lab. The team will follow a joint project roadmap, initially focused on developing algorithms for extracting models of the coronaries from 4D computed tomography (CT) datasets, aligning images across modalities, and improving the precision of image acquisition and reconstruction.

"The collaboration with Heartflow will not only open new and exciting research directions, but it also will pave the path for bringing our latest deep learning technology into clinical practice and thus will have real impact on the healthcare of thousands of patients," said Dr. Glocker, scientific lead of the Imperial/Heartflow team. "This collaboration provides us with the optimal infrastructure to go beyond publishing papers and turn our ideas into new clinical solutions."

Professor Rueckert, head of the department of computing and head of the BioMedIA group, added, "The Heartflow collaboration is a new type of industrial collaboration and we see great mutual benefit from a truly embedded team of scientists that will work closely with our academic staff, postdocs and PhD students. This model provides us new ways of attracting the best talent and offering exciting research opportunities."

The mission of Imperial's BioMedIA group is to develop novel, computational techniques for the analysis of biomedical images. Key areas of research include developing algorithms for image acquisition, image analysis and image interpretation; and applying deep learning techniques to extract clinically relevant information from medical images.

### About the Heartflow FFR<sub>CT</sub> Analysis

Clinicians diagnosing someone with suspected CAD want to know as definitively as possible if the individual has a significant blockage in their coronary arteries. They also want to know the impact of that blockage on blood flow so they can best determine which treatment pathway is appropriate (e.g., medical management, stenting or coronary artery bypass grafting). Data from a patient's non-invasive coronary CT angiogram are securely uploaded from the hospital's system to the cloud. Heartflow leverages deep learning to create a personalized, digital 3D model of the patient's coronary arteries. The Heartflow Analysis then uses powerful computer algorithms to solve millions of complex equations to simulate blood flow and assess the impact of blockages on coronary blood flow. The Heartflow FFR<sub>CT</sub> Analysis is provided via a secure online interface to offer actionable information to enable clinicians to determine the optimal course of treatment. To date, clinicians around the world have used the Heartflow Analysis for more than 15,000 patients to aid in the diagnosis of heart disease.

This technology has been demonstrated to reduce unnecessary and invasive diagnostic coronary angiography procedures, which can be associated with bleeding, stroke, major blood vessel damage and other serious complications. It also significantly reduces healthcare costs for hospitals.<sup>1</sup>

### About Imperial College London

Imperial College London is one of the world's leading universities. The College's 17,000 students and 8,000 staff are expanding the frontiers of knowledge in science, medicine, engineering and business, and translating their discoveries into benefits for our society. Imperial is the UK's most international university, according to Times Higher Education, with academic ties to more than

150 countries. Reuters named the College as the UK's most innovative university because of its exceptional entrepreneurial culture and ties to industry. <http://www.imperial.ac.uk/>

### **About Heartflow, Inc.**

Heartflow, Inc. is a medical technology company redefining the way heart disease is diagnosed and treated. Our non-invasive Heartflow FFR<sub>CT</sub> Analysis leverages deep learning to create a personalized 3D model of the heart. By using this model, clinicians can better evaluate the impact a blockage has on blood flow and determine the best treatment for patients. Our technology is reflective of our Silicon Valley roots and incorporates decades of scientific evidence with the latest advances in artificial intelligence. The Heartflow FFR<sub>CT</sub> Analysis is commercially available in the United States, Canada, Europe and Japan. For more information, visit [www.Heartflow.com](http://www.Heartflow.com).

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1. Douglas PS, DeBruyne B, Pontone G., Patel MR, et al. One-year outcomes of FFR<sub>CT</sub>-guided care in patients with suspected coronary disease: The PLATFORM Study. J Am Coll Cardiol. 2016;68(5),435-45.