Universiteit Antwerpen

January 2, 2012

Dear Sir/Madam:

I make this advisory opinion to express my strong support of Dr. Romulo Pinho in his application for a research position at the CNRS.

I am associated professor at the University of Antwerp in Belgium and head of the Vision Lab, department of Physics. My research group, currently consisting of 20 researchers, is focused on biomedical image processing, mainly in the field of magnetic resonance imaging and computer tomography.

I know Dr. Romulo Pinho since I was his advisor during his PhD research trajectory (2006-2010). To my view, Dr. Pinho is a very talented researcher with substantial contributions to the field of segmentation of tubular objects in medical images. During his PhD trajectory, Dr. Pinho built a decision support system for the assessment and stenting of tracheal stenosis. He created an Active Shape Model (ASM) of healthy tracheas for the automatic assessment of the stenosis and the suggestion of a stent. In addition, he was able to quantify parameters of diseased tracheas (e.g. with stenosis) based on adapted Active Contour Model (ACM). His method is now used in clinical to aid physicians in the diagnostic process and to reduce the usually observed operator dependency. His findings were published in *Medical Image Analysis*, which is a top journal in medical image processing.

Furthermore, Dr. Pinho showed strong motivation. When needed, he worked very hard and made long days. For the project he was involved in, Dr. Pinho had to do a lot of programming and was able to show very good demos. In the development of his methods, a couple of extra challenges needed to be solved. One of these was the manipulation of large medical image files. Dr. Pinho developed a new cache and prefetching strategy for out-of-core image processing. His strategy uses a sliding window protocol to prefetch image data from disk, taking advantage of a priori knowledge about the access pattern of the algorithms. His method is now used within Johnson&Johnson, one of the largest pharmaceutical companies worldwide, to smoothly view large images acquired by a confocal microscope.

In summary, based on my objective observations of Dr. Pinho's scientific achievements, I give my strongest support for research position application. He is an outstanding researcher in the field of biomedical imaging and image processing. He is well motivated, hardworking, and independent. With his determination I have no doubt that that he will succeed in all his scientific endeavors. During his stay at the Vision Lab, he demonstrated excellent work ethic and interpersonal skills. Finally, Dr. Pinho has an extraordinary positive and pleasant attitude.

I hope that the above remarks will help you in your decision-making regarding Dr. Pinho's eligibility for your vacancy. If you wish any further information, please feel free to contact me.

Sincerely,

Jan Sijbers

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