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Dr. ir. C.V. Verhoosel
Department of Mechanical Engineering
Eindhoven University of Technology
P.O. Box 513
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Utrecht, 15 October 2012

Dear Mr. Verhoosel,

In this letter I would like to apply for the position of PhD Student Computational Mathematics & Mechanics for the project *Phase-field modeling of hydraulic fracturing using isogeometric analysis*. I found this position on www.indeed.nl.

I am applying for this position since I have a strong interest in the modeling and development of models of phenomena which are related to physics. I would like to work in a dynamic research group within a technical university, since my goal is to do applied modeling-based research. During my master years I have been in close contact with the PhD group in Computational Science in Amsterdam, and I have seen which kind of work they are doing and how the general atmosphere is in such a group. Their focus is on computational biology however, which is not my field of choice. I do like to work in the field of computational physics or finance, which are remarkably closely related.

I have obtained a bachelor degree in physics in Utrecht and a master degree in computational science in Amsterdam, both with excellent results. I have an extensive knowledge of applied mathematics due to my years in physics, during which I also followed a large number of courses at the mathematics department. During my master years I have developed skills in algorithmic design and code development, specifically in Python and C. I worked on several problems related to flow fields and phase transitions, which I found very interesting, also from my physics background. My master thesis involved writing an application on a GPU using CUDA, a parallel programming language from nVidia. Together with courses in parallel computing (Concurrent Programming) and parallel computing applied to Finite Element Methods this makes my knowledge of parallel programming also considerable and I believe this might be of use in the field of phase-field models.

I wrote my thesis at ING, where I worked together with two different teams and had to communicate with both to meet their demands in terms of the application. Also I had to communicate with my supervisor from the university to make sure that the academic requirements of the thesis were met. During this process I improved my communication skills with different parties and I improved my analytical skills by working together closely with a team of experts in the field of computational finance and parallel code development.

Hoping that my motivation for the position is sufficient, I would like to give a verbal explanation regarding this letter and my CV.

Sincerely,

Jeroen Hofman