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TO WHOM IT MAY CONCERN:

I served as the administrative advisor, and the co-chair of the research committee for Arjang Hourtash, during his years here at UCSD in the doctoral program which led to his receiving the Ph.D. degree in 1999.

His dissertation research opened up a new method for path-planning and control of robots having many degrees of freedom, for example, one with a wrist, elbow, and shoulder joints. It took several years of hard work on his part to work out the details of this method, and to demonstrate convincingly that it not only performed as hoped, but saved considerable computation time in the process.

He and Dr. Mahmoud Tarokh, the other co-chair of his committee, wrote three papers on the method as the effort went forward. A fourth paper has just been submitted.

This work was theoretical in nature. It demanded a thorough grasp of automatic feedback control, linear and nonlinear system analysis, robotics, and optimal control.

To demonstrate that the theory worked, Arjang had to construct a major simulation program, consisting of twenty thousand lines of code. He programmed this in C, single-handedly, debugging as he went. His final product showed the benefits of the new approach in a variety of specific cases.

In addition to the disciplines already mentioned, Arjang is knowledgeable in neural networks, mechanics, materials, and elasticity.

Arjang's basic intelligence puts him in the top one or two percentile. His motivation is equally high. He had many obstacles to overcome to complete his doctorate, money being just one of them, but he found a way to surmount them all.

His dissertation defense was the best I've seen in my 35 years of teaching at UCSD. His talk was a model of clarity. (He would make an outstanding teacher if he ever should decide to move in that direction.)

To sum up, he has a brilliant mind, coupled with forceful determination and a willingness to work long and hard to accomplish his objectives— that's Arjang Hourtash.

Sincerely,

A handwritten signature in cursive script that reads "Alan M. Schneider".

Alan M. Schneider

Professor Emeritus