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Stimulating Hardware and Software Support for Interval Arithmetic

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***Abstract*— In November and December 1994, widespread media attention was devoted to a small hardware bug in Intel's Pentium processor. Yet for decades, both computer professionals and users have ignored the more serious errors that are routinely produced using normalized floating point arithmetic. Why?**

The answer to this question holds the key to stimulating the commercial development of interval hardware and software. In the process of exploring the answer to this question, the following propositions are presented:

1) **Errors that are hidden by normalized floating point arithmetic will continue to be ignored until a viable alternative, such as interval arithmetic, is perceived to exist.**
2) **Until hardware and software manufacturers perceive sufficient demand for interval arithmetic, neither will develop interval products.**
3) **One way to break out of this stable equilibrium of commercial inactivity is to make an interval software development environment freely available for the most significant high volume platforms.**
4) **Once interval arithmetic is perceived to be viable, applications will be developed and distributed. Then in response to user's demands, manufacturers will be forced to market interval arithmetic software development environments.**

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