



Electrical Engineering, 136-93, Pasadena, California 91125

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Sample Cover Letter

I am seeking a faculty position at the assistant-professor level in Electrical Engineering, Computer Engineering or Computer Science. I completed my Ph.D. in Electrical Engineering at Caltech in June 2004. My dissertation establishes a counterintuitive, yet fundamental, new construct for digital systems: combinational circuits with feedback. Conceptually, my results challenge the underpinnings of circuit theory; practically, they provide a means for designing significantly smaller and faster circuits. In recognition for this work, I received:

- the **Best Paper Award** at the Design Automation Conference, the premier conference in the field with over 10,000 attendees;
- the **Charles H. Wilts Prize** for the Best Doctoral Dissertation in E.E. at Caltech.

As a postdoctoral fellow at Caltech, I have been moving into new research areas. In addition to topics in logic synthesis and verification, I am pursuing research in **novel platforms for computation** as well as in **systems biology**. I am exploring the design of digital circuits that can cope with noisy signals and the failure of logic gates. Noise- and fault-tolerant constructs will be crucial for emerging platforms such as electronic nanotechnology. Also, I am collaborating with researchers at the Molecular Sciences Institute in Berkeley on the development of computational models for genetic regulatory networks and signaling pathways in biological systems. My expertise in algorithms and data structures for circuit design can be brought to bear on this line of research. (I have received funding for this work through an NIH grant for the “Alpha” Project, a Center of Excellence in Genomic Sciences.)

I have a strong background in diverse fields such as circuit complexity, error-correcting codes, and distributed computing. My early years in graduate school were devoted to projects in cluster computing and data storage that led to the formation of a successful start-up company, Rainfinity, based in San Jose, CA. I turned to the topic of my dissertation in 2001 after my involvement in these projects had run its course. I have acquired solid teaching experience at Caltech, first as a teaching assistant for several courses in E.E. and C.S., and now as the **instructor** of a graduate-level course titled “Computation Theory and Neural Systems”.

I have asked the following professors to serve as references (please see my C.V. for contact information):

1. Jehoshua Bruck, my advisor at Caltech
2. Ali Hajimiri, an expert in high-speed integrated circuits at Caltech
3. Alain Martin, an authority on asynchronous circuits at Caltech
4. John Savage, an authority on computational complexity and nanotechnology at Brown University
5. Andrew Viterbi, co-founder of Qualcomm and now Presidential Chair Professor in the engineering school that bears his name at the University of Southern California

Professors Bruck, Hajimiri, Martin, and Viterbi served on my doctoral committee. I have been collaborating with Prof. Savage on problems in circuit complexity.

You can obtain copies of my publications and my dissertation from my web site: www.paradise.caltech.edu/riedel/research

Thank you very kindly for your consideration.

Sincerely,

Marc D. Riedel