



Education:

Pennsylvania State University – BS in Electrical Engineering, 1985

Academic Experience:

University of Colorado at Boulder, CO – Senior Instructor (part time from January – August 2016, full time August 2016 to present)

IoT Embedded Firmware, ECEN 5823 – January 2016 to present

<https://sites.google.com/colorado.edu/ecen5823/home>

Low Power Embedded Design Techniques, ECEN 5023-001 – August 2016 to present

<https://sites.google.com/colorado.edu/ecen5023-002>

Computer Organization, ECEN 4593 – January 2017 to present

<https://sites.google.com/colorado.edu/ecen4593/home>

ASIPs and IP Processor Core Design, ECEN 5013-003 – January 2018 to present

<https://sites.google.com/colorado.edu/asips/home>

Internship for Credit, COEN 3930-571 – January 2019 to present

<https://sites.google.com/colorado.edu/coen3930ecee/home>

Embedded Software Engineering, ECEN 2370 – January 2019 to present

Director of Internship for Credit, ECEE Department, May 2018 to present

Associate Chair of Undergraduate Education, ECEE Department, October 2018 to present

Non-academic experience:

Personal member of RISC-V Foundation

October 2017 to 2019

- The RISC-V non-profit foundation is established to maintain and manage the RISC-V Instruction Set Architecture as well as promote the development of the RISC-V eco-system
- Attended the November 2017 RISC-V workshop

Vice President of Sales at Thorson Rocky Mountain

January 1999 to August 2015

- Participated in acquiring suppliers, hiring sales people, developing corporate sales strategies, and managing the sales team for \$100+ million sales organization, \$25 million line management, and \$15 million in sales.
- Managed 3x industry sales growth for Thorson supplier's Texas Instruments, Silicon Labs, HiFn, and Vitesse.
- Lead initiatives in the startup, Alternative Energy, Solar EPCs, and Internet of Things markets to grow Thorson's account base.
- Orchestrated factory VP, FAE, and Marketing visits as well as factory engineering resources to secure key business opportunities.
- Products sold include DSPs, microcontrollers, ASICs, digital, analog, mixed signal, interconnect, and board/system level products.
- Ran Thorson's 401k retirement program, NBO system, computers, and VOIP/internet services.

Technical Field Sales at Thorson Rocky Mountain

September 1991 to January 1999

- Sold solutions into applications spanning workstations, industrial controls, wireless radios, mass storage, and telecommunications.
- Covered accounts included Hewlett Packard, StorageTek, Avaya, Woodward Governor, DEC, SpectraLink, and Advanced Energy.

Engineering Program Lead at Quest Computers

January 1991 to June 1991

- Led the engineering of the first PC notebook with integrated cellular modem.
- Managed the engineering team to coordinate the development of the system architecture, mechanical design, and system layout.



Lead Project Engineer at Solbourne Computers

September 1987 to January 1991

- Led the technical project of the first Sun compatible workstation including team lead for the system architecture and system validation which included 4 ASICs and a custom CPU.
- Co-designed the first Sun compatible multi-processor server which led the way for virtual cache based multi-processor systems.
- Coordinated the product transfer of Solbourne's Sun compatible server and workstation projects to manufacturing.

Electrical Engineer at Hewlett Packard

July 1985 to September 1987

- Co-developed first Floating-Point Accelerator for HP's workstation platform.
- Defined product objectives with Marketing, developed and designed board architecture, coordinated software integration, and transferred product to production

Certifications or professional registrations:

None

Current membership in professional organizations:

IEEE - Institute of Electrical and Electronic Engineers

Honors and awards

- Pennsylvania State University Schreyer Honor College Graduate (1985)

Service activities:

- Faculty advisor to the University of Colorado at Boulder IEEE student chapter (August 2019 - Present)
- Pennsylvania State University Schreyer Honor College Interviewer (December 2013 - 2019)
- Pennsylvania State University Schreyer Honor College Mentoring with Honors (November 2016 - Present)
- Pennsylvania State University Schreyer Honor College Scholar Alumni Society Board (November 2016 - Present)

Publications and Presentation:

- IEEE Denver Chapter presentation, "Modernizing Computer Architecture Education After the Death of Moore's Law," September 2019
- Signal Integrity Journal article, "Ten Tips for Best Board Design Practices for IoT Applications," authored by Eric Bogatin, Keith Graham, Vivek Sankaranarayanan, and Sairam Muttavarapu. Published March 27th, 2017 via the web link, <https://www.signalintegrityjournal.com/articles/379-ten-tips-for-best-board-design-practices-for-iot-applications>.
- Embedded World 2018 paper and presentation, "Precisely engineered RISC-V embedded processors in 30 days," Nuremberg, Germany on February 27th, 2018
- RISC-V Rocky Mountain Meetup, "Benefits of Modifiable Cores," at Sparkfun on July 12th, 2018



Professional Development Activities:

- Researching efficient replacement of VLSI/FPGA hardware state machines with specialized programmable micro-controllers. These dedicated processors provide benefits of minimizing timing verification on state machine changes, reduces hardware development cost by reutilization of the microcontroller on multiple different state machines, and enables in situ state machine updates that would normally not be possible such as in an ASIC or an FPGA that cannot be completely disabled while the state machine is being updated.
- Investigating the use of Energy Harvesting technologies with Low Energy through Event Driven Firmware techniques
- Co-host the RISC-V Rocky Mountain Meetup. This group sponsors a meetup every two months where RISC-V leading industry companies present the latest technologies and tools
- American Society of Engineering Education (ASEE) Membership Chair of the Cooperative Education & Experimental Division (CEED) from January 2020 to present
- Schreyer's Alumni Society Board (SASB) of Pennsylvania State University Chair of the Career & Mentorship Committee from July 2017 to present