CV of C. Richard Compeau, Jr.

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EDUCATION

University of New Mexico, Albuquerque, NM
Ph.D. Electrical Engineering (Applied Electromagnetics - Antennas), May 2014
California State University Long Beach, Long Beach, CA
Secondary single subject teaching credential in Physics, 2003
Massachusetts Institute of Technology, Cambridge, MA
M.S. Materials Science & Engineering - Metallurgy, 1978
B.S. Materials Science & Engineering, 1976

TEACHING EXPERIENCE

Texas State University, San Marcos, TX, 2015-present
Professor of Practice, 2017 – Present; ***Senior Lecturer,*** 2015-2017
Courses Taught:
EE 2300: Circuits-1
EE 2420: Digital Logic Design
EE 3150: Microelectronics Lab
EE 3340: Electromagnetics
EE 3350: Electronics-I & EE 4350: Electronics-II
EE 3370: Signals & Systems
EE 4357: Intro to Power Systems
EE 4360: Linear Control Systems
EE 4390: Senior Design-I & EE 4391: Senior Design-II
ENGR 3373: Circuits & Devices
ENGR 4395: Independent Study.

The University of New Mexico, Albuquerque, NM, 2010-2015
Instructor of Record; Visiting Lecturer-III 2014-2015 & ***PhD Student*** 2010-2013
ECE 101: Introduction to Electrical & Computer Engineering
ECE 101-Online: Introduction to Electrical & Computer Engineering
ECE 203: Circuit Analysis-I
ECE 213: Circuit Analysis-II
ECE 360: Electromagnetic Fields & Waves
ECE 419 & 420: Senior Design I & II
ECE 490: Mentorship
ECE 491: Independent Study
ECE 494: *Honors Study*
ECE 495: *The Truman Project,* outreach program to local middle school
ECE 595: *Instructional Methods for Engineering Education*
ECE 651: *Independent Study*
UHON 401& 402: Innovative Design Clinic

Teaching Assistant, PhD Student, 2010
ECE 321L: Electronics I – 1 semester

La Cueva High School, ***Level-II Teacher,*** Albuquerque, NM, 2003 – 2007
La Cueva Science Department Co-Chairperson, 2005 – 2007
Physics-1 Analytical
AP Physics-B
AP Physics-C
Chemistry-1 Analytical

SERVICE

Ingram School of Engineering, Texas State University
Senior Design Day Coordinator, 2015 – 2022
EE Senior Design Course Coordinator, 2017 – 2025
EE Academic Program Coordinator, 2017 – 2021
Faculty Advisor, Bobcat Amateur Radio Club, 2016 – Present
Faculty Advisor, National Society of Black Engineers, 2017 – 2024
Member, Scholarship Committee, 2016-Present
School of Engineering (SOE), University of New Mexico
Committee Chairperson, responsible for the inaugural **SOE Capstone Design Expo**, 2014 – 2015
ECE Department, University of New Mexico
Director of Master Scheduling, 2014 – 2015
Undergraduate Committee, 2013 – 2015
Faculty Advisor of Undergraduate Students, 2014 - 2015
Faculty Advisor of UNM IEEE Student Branch, 2010-2012
ABET Accreditation Contributor - 2010 - 2015
Recruiting Committee Member, 2007-2009
ECE Emergency Response Planning Team, 2015 - 2015
La Cueva High School, Albuquerque Public Schools
National Science Teachers Association
Science Olympiad Coach and ***Science Fair*** Mentor at La Cueva
Department re2015ative to La Cueva's ***Tech Committee***
La Cueva Faculty Sponsor of ***Asian Club, Black Student Union***, and ***Classic Rock Club***

TEACHING AWARDS & RECOGNITION

Nominated for **2014-2015 Lecturer or Affiliated Teacher of the Year Award:** *UNM, 2015*
Albuquerque Journal: *Class Act, Teaching lessons out of school,* May 20, 2008
College Board: *Excellence in Teaching, AP Physics*, 2007

National Society of High School Scholars: *Claes Nobel Teacher Appreciation Award*, 2003, 2004
La Cueva Parent Association: *Teacher Appreciation Award*, 2003, 2004, 2005, 2006
California State University Long Beach: *Distinguished Science Student Teacher of 2003*

PUBLICATIONS

Speak Loudly and Carry a Small Stick: Applying Classicle Sticks Across the Engineering Curriculum, R. Compeau, K. Talley, A. Talley, 2025 ASEE Annual Conference & Exposition papers

Classicle Sticks: An Activity to Improve Student Engagement, R. Compeau, K. Talley, A. Talley, 2024 ASEE Annual Conference & Exposition papers

(Wave) Guiding EE's Out Of The Capstone Box, A. Talley, R. Compeau, 2022 ASEE Annual Conference & Exposition

Work in Progress: Senior Design Day During a Pandemic: Virtually the Same as In-person? R. Compeau, A. Talley, 2021 ASEE Annual Conference & Exposition

Work in Progress: Is Our Capstone Mentorship Model Working? A. Talley, R. Compeau, 2020 ASEE Annual Conference & Exposition

Active Learning in Electrical Engineering: Measuring the Difference, R. Compeau, A. Talley, P. Tran, 2019 ASEE Annual Conference & Exposition papers, June 16-19, 2019.

Work in Progress: Senior Design Day – Multi-discipline and Multi-department Capstone Presentation Event, A. Talley, R. Compeau, 2018 ASEE Annual Conference & Exposition, June 23-27, 2018, ASEE 31304.

Emissive Probe in the HelCat Linear Plasma Device, R. Magallanes, A. Sanchez, R. Compeau, M. Gilmore, American Physical Society, 52nd Annual Meeting of the APS Division of Plasma Physics, November 8-12, 2010.

Air Force Data Assimilative Photospheric Flux Transport (ADAPT) Model, C. N. Arge, C. Henney, J. Koller, R. Compeau, S. Young, D. MacKenzie, A. Fay, J. Harvey, Twelfth International Solar Wind Conference 03/2010; DOI:10.1063/1.3395870.

New Global Solar Magnetic Field Maps Using the ADAPT Data Assimilation and Flux Transport Model, C. N. Arge, C. Henney, J. Koller, S. Young, R. Compeau, D. MacKenzie, J. Harvey, AGU Fall Meeting Abstracts 12/2009; Abstract SM54A-06.

Alfven wave Measurements in Helium using the HelCat Device at UNM, **R**. Kelly, C. Watts, Y. Zhang, R. Compeau, M. Gilmore, A. Lynn, American Physical Society, 50th Annual Meeting of the Division of Plasma Physics, November 17-21, 2008.

Triple probe signal detection electronics for systems lacking a well defined ground, R. Compeau, M. Gilmore, C. Watts, Rev Sci Instrum. 2008 Oct; 79(10):10F128. doi: 10.1063/1.2971208.

CURRICULUM DEVELOPMENT

Texas State University, Ingram School of Engineering

ENGR 3373: Circuits & Devices: Enhanced lectures, created presentations, graphical aids

EE 3340: Electromagnetics – Created presentations & set of in-class exercises

EE 3370: *Signals & Systems* – Created set of in-class active learning exercises

EE 4357: *Intro to Power Systems* – Created new course

EE 4360: *Linear Control Systems* – Created new course

EE 4390 & 4391: Senior Design I&II – Created the curriculum and sequencing

The University of New Mexico, Department of Electrical & Computer Engineering

ECE 101 and ECE 101-Online: Introduction to Electrical & Computer Engineering

Lectures, Matlab & LabView assignments, Entrance/Exit Survey Instruments

Contributor to NSF-TUES Grant to offer ECE classes online to CNM, NNMC & UNM

ECE 213: Circuit Analysis-II – Incorporated SPICE simulation, a project, and a series of tutorials

ECE 321L: Electronics I – Created hands-on lab Activities

ECE 419 & 420: Senior Design I- Sponsor Handbook, Lectures, Assignments & Rubrics, Exams

ECE 595: Applied Electronics - Assisted in the creation of a new course: Syllabus, Lecture Notes, Homework Assignments, Projects, Lab Activities

ECE 495/595: Instructional Methods for Engineering Education – Created the course: Lectures, Practicums, Research Papers, Assignments

ECE 495/595: Analog Design Laboratory - Created a new course: Syllabus, Lecture Notes, Homework Assignments, Projects, Lab & Simulation Activities

UHON 401 & 402: Innovative Design Clinic – Created a university-wide multidisciplinary capstone program

La Cueva High School, Albuquerque, NM

AP Physics-B (equivalent to UNM PHYC 151 & 152) and AP Physics-C (equivalent to PHYC 160 & 161): Wrote the Curriculum Framework for Albuquerque Public Schools and developed course materials

PATENT APPLICATIONS

Western Digital (co-inventor): *Mixed 3V/5V Disk Drive*, 1992

Western Digital (sole inventor): *Power-down CMOS I/O With No Current,* 1996

University of New Mexico (co-inventor): *Diamond Feed Antenna,* 2013 Provisional Patent granted 2015

PROFESSIONAL MEMBERSHIPS

Institute of Electrical & Electronic Engineers (IEEE)
American Association of Physics Teachers
American Radio Relay League

HONOR SOCIETY MEMBERSHIPS

Kappa Mu Epsilon, 2008
Phi Kappa Phi, 2003

Psi Beta, 1999

FELLOWSHIP AWARDS

NASA/New Mexico Space Grant Consortium: *Graduate Research Fellowship,* 2008
Air Force Research Laboratory: *Space Scholar Fellowship*, 2008
UNM ECE Department: *Walter E. King Memorial Fellowship*, 2007
MIT: *National Science Foundation Fellowship*, 1976

EDUCATIONAL RESEARCH

University of New Mexico, Albuquerque, NM: *NSF-TUES Grant participant comparing online to classroom performance,* 2011
Wilson Classical High School, Long Beach, CA: *Learning environment surveys to develop new teacher skills*, 2003
California State University Long Beach, CA: *System model of special education referral*, 2002

WRITING EXPERIENCE

UNM ECE Department:
"*Senior Design Sponsor Handbook*"
"*Undergraduate Class Scheduling Policy & Procedure Handbook*"
"*Graduate Class Scheduling Policy & Procedure Handbook*"
UNM Press: Contract to write a book, "*Good Vibrations: The Science of Sound & Music,*"
Young Readers Series, 2009.
Albuquerque Public Schools: Physics curriculum writer, 2004-2006.
Western Digital Corporation: Corporate ISO9001 documentation, 1995.
Hughes Aircraft Company: Editor-in-Chief of corporate site newspaper, *Newport Views*, 1987-1989.
Silicon Systems, Inc: Staff writer for corporate newspaper, *InSSight*, 1985-1987.
MIT: Writer and photographer for school newspaper, *The Tech,* 1975-1976.

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ACADEMIC RESEARCH

Doctoral Dissertation, UNM in conjunction with the Air Force Research Laboratory: *An Ultrawideband Dual-Linear Polarization Feed for Solar Microwave Observation,* 2010-2014

Master's Thesis, MIT: *Hydrogen permeation in amorphous metals*, 1976-1978

Bachelor's Thesis, MIT: *Correlation between hydride texture and crystallographic orientation in Zircaloy-2 tubing*, **1975-**1976

Undergraduate Research Opportunities Program, MIT: Drive shaft failure analysis, 1975 – 1976

SOFTWARE & PLATFORMS

Languages: Matlab, IDL, LabView, Python

Applications: SPICE, CST *Microwave Studio*, Ansoft *HFSS* , Antenna Magus, Excel, Word, Powerpoint, Visio, Lantiv

Platforms: Windows, Linux

INDUSTRIAL EXPERIENCE

Air Force Research Laboratory, Albuquerque, NM

Student Electrical Engineer, 2008 – 2013

Designed a dual-linear polarization feed intended as a RSTN upgrade. Simulated from 0.9-12 GHz and tested from 2-8GHz, this feed demonstrates better illumination of a RSTN dish with excellent correlation between simulation and measurement. Patent in progress.

Performed design and SPICE simulation of multiple probe bias networks and log converter channels for the Hypervelocity Impact experiment.

Assisted with the mentorship of five Phillips Scholars on two projects. Designed a tunable VLF loop antenna for the Sudden Ionospheric Disturbance and assisted in constructing the support hardware and bringing two VLF receivers online. Designed a set of electronic low-pass filters for the Solar Luminance project and helped to design and construct a Unistrut support structure and to bring the instruments online. *Reason for leaving: was only funded through completion of PhD.*

Space Scholar, Summer 2008

Wrote IDL code to download solar magnetograms and perform image registration to enable move-like viewing of flux evolution and development.

Lucent Technologies / Bell Laboratories / Agere Systems, Irvine, CA

Site Manager and Technical Manager, 2000 –2002

Transitioned the facility, projects and design teams when Lucent acquired VTC, which included multiple logistical scenarios and first-line HR issues.

Served as project manager for three developments: an advanced architecture read channel (RC) co-developed with the customer, a low-power RC for mobile applications, and a custom-interface RC as part of an effort to win a new customer. *Reason for leaving: wanted to teach.*

INDUSTRIAL EXPERIENCE, continued

VTC Inc., Irvine, CA

Site Director and Director of Product Development, 1998 –2000

Established VTC's California Support Center. Was responsible for selection and build out of the facility, all hiring, HR, and all product development. Forecasted, tracked, administrated, and met a $5M annual budget. Supervised and reviewed 28 direct reports, including the training of recent EE grads. Negotiated and secured the purchase of intellectual property and capital equipment. Managed three design teams that produced one mixed-signal CMOS read channel and five analog BiCMOS preamps, all of which were within two weeks of schedule and sampled on 1st silicon. Created management tools to track progress & issues. Created site level ISO document. Acted as staff writer for company newspaper. *Reason for leaving: company sold to Lucent.*

Western Digital Corporation, Irvine, CA**,** 1989 - 1998

Director of R/W VLSI Engineering, 1995 –1998

Responsible for design and development of mixed-signal CMOS read channel devices (200-450 Mbps). Managed a team of 50 employees and 23 contractors on three concurrent development projects. Performed functional and project management; supervised, trained, and reviewed managers, project leaders, direct and matrix reports, and external contractors. Assessed advanced channel technologies, developed product roadmaps, and staged projects and manpower per product requirements. Performed capital and compute resource projection and administration, and managed three laboratories (Characterization, VLSI, Signal Integrity). Led three cross-functional teams (VLSI Engineering Process for ISO-9000 Certification, Signal Integrity, PCB Modeling). Forecasted, tracked, and administrated a $15.5M annual budget, including a $1.5M capital budget. *Reason for leaving: division sold to VTC.*

Senior Engineering Manager, Controller VLSI Development, 1989-1995

Responsible for design, development, transfer to volume production, and support of WD's custom CMOS disk controller VLSI's and a real-time clock IC. Managed a team of 15 direct employees, the VLSI Lab, and an external consulting company performing design and layout services. Pioneered signal integrity (host interface and PCB) at WD. Performed hands-on VC-

SEM analysis, and the injection and detection of signals via microprobing. Awarded *Time To Quality Award* for role in WD's first embedded-servo product.

GM - Hughes Aircraft Company

Section Head, Hughes Microelectronics Center, Newport Beach, CA 1987 - 1989

Responsible for project and functional management, design, characterization, and transfer to production of CMOS mixed-signal automotive IC's. Managed eight direct reports and the VLSI & SEM laboratories. Editor-In-Chief of site newspaper. Secret clearance. *Reason for leaving: opportunity at WD.*

Technical Supervisor, Electro-Optical & Data Systems Group, El Segundo, CA 1982 - 1984

Designed two mixed-signal BiCMOS custom integrated circuits for infrared imaging applications. Secured a $1M R&D grant and administrated funding. Trained recent college EE grads. Secret clearance. *Reason for leaving: form start-up company.*

INDUSTRIAL EXPERIENCE, continued

Silicon Systems Inc., Tustin, CA

Senior Engineering Manager, 1985 – 1987

Performed functional and project management, project engineering, design, characterization, and transfer to production of mixed-signal CMOS spindle motor PID servo controller, and digital bipolar custom IC's for data separation. Responsible for design and documentation of SSi's CMOS standard cell library. Managed six direct reports and technically directed two layout designers. Conducted on-campus recruiting and trained new grads. Staff writer for company newspaper. Awarded *President's Check Award. Reason for leaving: RIF.*

Micronix Integrated Systems, Inc., Laguna Hills, CA

Co-Founder, 1984 – 1985

Responsible for technical operations of regional design center startup re2015ing seven semiconductor vendors' design services. Performed custom and semi-custom design in digital and mixed-signal technologies including bipolar, CMOS, and BiCMOS. Performed NMOS process compatibility selection. Hired and managed 10 design consultants. Installed and administrated Mentor Graphics design system. Conducted technical marketing. *Reason for leaving: lack of stability.*

TRW, Redondo Beach, CA
Member of the Technical Staff, 1978 – 1981

Designed, developed, and characterized bipolar fabrication processes, process & device test structures, and CML/ECL circuitry. Characterized radiation hardened circuits exposed to x- and gamma radiation for both upset and long term degradation. Performed process design (SUPREM-II), analog bipolar circuit design, spice simulation, polygon level layout, and verification. Trained new college grads. Secret clearance. *Reason for leaving: gain CMOS experience.*