

## Justin B. Jackson

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**CONTACT INFORMATION** Department of Electrical & Computer Engineering  
Weber State University  
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**RESEARCH INTERESTS** While my area of expertise is in semiconductor physics and fabrication, my current research interests lie in software-defined radio (SDR), printed semiconductor materials, and Very-Large-Scale Integrated (VLSI) circuit design. I am currently working with undergraduate and graduate students on projects in these areas, including developing Networking Protocol Discrimination Techniques in SDR for Antenna Characterization and 3D Printed Solar Cells. I have recently worked with a graduate student designing a VLSI chip for a communication system to transmit and receive data from sensors implanted in a human body.

**EDUCATION** **University of Utah**, Salt Lake City, Utah, USA

- Doctor of Philosophy, Electrical Engineering, 2008
  - Advisor: Mark S. Miller
  - Dissertation: Junction Field Effect Transistors and Silicon Nanowires for Future Nanoelectronic Devices
- Master of Engineering, Electrical Engineering, 2004
  - Concentration: VLSI Design and Semiconductors

**Weber State University**, Ogden, Utah, USA

- Master of Business Administration, 2003
  - Concentration: Marketing and Technology
- Bachelor of Science, Electronics Engineering Technology, 2000
  - Concentration: Communications Systems
  - Minor: Computer Science

**ACADEMIC POSITIONS** **Weber State University**, Ogden, Utah USA

- Brady Presidential Distinguished Professor, 2023–Present
- MSEE & MSCE Director, Department of Electrical & Computer Engineering, 2021–Present
- Professor, Department of Electrical & Computer Engineering, 2018–2023
- Chair, Department of Electrical & Computer Engineering, 2018–2021
- Program Coordinator, Department of Electrical & Computer Engineering, 2011–2021
- Associate Professor, Department of Electrical & Computer Engineering, 2013–2018
- Assistant Professor, Department of Electrical & Computer Engineering, 2007–2013

**TEACHING EXPERIENCE** **Weber State University**, Department of Electrical & Computer Engineering

- ECE 1000 - Introduction to Electrical Engineering
- ECE 1270 - Introduction to Electrical Circuits
- ECE 2210 - Electrical Engineering for Non-Majors
- ECE 2260 - Fundamentals of Electrical Circuits
- ECE 2700 – Digital Circuits
- ECE 3000 – Engineering Seminar

ECE 3110 – Microelectronics I  
ECE 3120 – Microelectronics II  
ECE 3890 – Internship  
ECE 4010 – Senior Project I  
ECE 4020 – Senior Project II  
ECE 6010 - Graduate Project  
ECE 6110 – Digital VLSI Design  
ECE 6130 – Advanced Semiconductor Devices  
EEN 2600 - Engineering Economics

**Weber State University**, Computer & Electronics Engineering Technology Department

CEET 1110 – Basic Electronics  
CEET 1130 – Digital Systems  
CEET 2130 – PC Board Design  
CEET 2150 – Embedded Controllers  
CEET 3010 – Advanced Circuit Analysis  
CEET 3030 – FPGA and ASIC Design  
CEET 3060 – Real-Time Embedded Controllers  
CEET 4010 – Senior Project I  
CEET 4020 – Senior Project II  
CEET 4890 – Internship

**University of Utah**, Department of Electrical & Computer Engineering

Teaching Assistant

ECE 3530, Engineering Probability and Statistics  
ECE/MSE 5211, Semiconductor Device Physics I  
ECE/MSE 5212, Semiconductor Device Physics II  
ECE 6910/7910, Graduate Seminar

GRADUATE  
STUDENTS AND  
GRADUATE  
COMMITTEES

- Graduate Advisor
  - Project: Fully Printed Organic Solar Cells
    - Student: Daniel Philpot
    - Degree: Masters of Science in Electrical Engineering
    - Year: 2021
  - Project: Applying Binary Phase-Shift Keying To An Open Environment Antenna Pattern Range
    - Student: Cade Moody
    - Degree: Masters of Science in Electrical Engineering
    - Year: 2021
  - Project: Personal Fall Detection System
    - Student: Cody M. Glad
    - Degree: Masters of Science in Computer Engineering
    - Year: 2021
  - Project: VLSI RFID Tag and Reader for Medical Applications
    - Student: Jordan Olive
    - Degree: Masters of Science in Computer Engineering
    - Year: 2019
- Graduate Committee Member
  - Project: Open-Source Antenna Pattern Measurement System Using Coherent DSB-SC Amplitude Modulation
    - Student: Taylor Hansen
    - Degree: Masters of Science in Electrical Engineering

- Year: 2021
- Project: S.P.E.C.T. Imaging Algorithm Translation
  - Student: Jordan Bohne
  - Degree: Masters of Science in Computer Engineering
  - Year: 2017

INDUSTRY  
EXPERIENCE

**Lockheed Martin (Sabbatical)**, Bethesda, Maryland USA

Consultant, May 2014– August 2015

**University of Utah**, Salt Lake City, Utah USA

Electrical & Computer Engineering and  
Materials Science and Engineering Departments  
Post-Doctoral Research Associate, 2007-2008

**Primewave Communications**, Salt Lake City, Utah USA

FPGA Design Engineer, 2001–2002

**Linux NetworX**, Sandy, Utah USA

Hardware Design Engineer, 2000–2001

**Smart Solutions**, Riverdale, Utah USA

Electrical/Computer Design Engineer, 1999–2000

AWARDS

- 2023, Brady Presidential Distinguished Professor
- 2015, Nominated for EAS Engineering Educator of the Year Award
- 2010, Nominated for Outstanding Faculty of the Semester, Davis Campus

PUBLICATIONS

- Dhanya Nair, Grant Stankaitis, Sean Duback, Robert Geoffrion, Justin B. Jackson, *Handwriting Correction System using Wearable Sleeve with Optimal Tactor Configuration*, 2021 IEEE 18th International Conference on Ubiquitous Robots (UR), Gangneung, Korea (South), 2021, pp. 283-289
- D. Nair, S. Duback, R. Geoffrion, J. Jackson, *Visuo-Tactile Handwriting Training System Using Wearable Sleeve*, WIP, IEEE Haptics Symposium (HAPTICS 2020). Washington, D.C. March 2020
- Mohammad A. U. Usman, Brady J. Smith, Justin B. Jackson, Matthew C. DeLong, Mark S. Miller, *Titanium-Catalyzed Silicon Nanostructures Grown by APCVD*, Journal of Electronic Materials, Vol. 44 No. 1, January 2015
- Mohammad A. U. Usman, Brady J. Smith, Justin B. Jackson, Matthew C. DeLong, Mark S. Miller, *Titanium Catalyzed Silicon Nanowires and Nanoplatelets*, AIP Advances 3, 032112, 2013
- Justin B. Jackson, Divesh Kapoor, Mark S. Miller, *Junction Field Effect Transistors for Nano-electronics*, IEEE Transactions on Nanotechnology, Vol. 8, Issue 6, Nov. 2009
- Justin B. Jackson, Sun-Gon Jun, Divesh Kapoor, Mark S. Miller, *Integrated Silicon Nanowire Diodes and the effect of gold-doping from the growth catalyst*, Journal of Applied Physics, Vol. 102, No. 5, Sept. 2007
- Justin B. Jackson, Sun-Gon Jun, Divesh Kapoor, Mark S. Miller, *Integrated Silicon Nanowire Diodes*, 2006 IEEE Workshop on Microelectronics and Electron Devices
- Divesh Kapoor, Justin B. Jackson, Mark S. Miller, *Metal/Semiconductor Contacts for Organic Molecules*, 2006 IEEE Workshop on Microelectronics and Electron Devices

PRESENTATIONS

- Daniel Philpot and Justin B. Jackson, *Fully Printed Solar Cells Design Project*, Utah Academy for Math, Arts, and Sciences, Cedar City, Utah March, 2021
- Cade Moody and Justin B. Jackson, *Applying Binary Phase-Shift Keying to an open environment antenna pattern range*, Utah Academy for Math, Arts, and Sciences, Cedar City, Utah March, 2021

- Kenji Nkayu, Tate Carson, and Justin B. Jackson, *Mid-Air Haptic Feedback*, Poster Presentation, WSU Undergraduate Research Symposium, Ogden, Utah 2020
  - Cody Glad and Justin B. Jackson, *Autonomous Surveillance Drone*, Utah Academy for Math, Arts, and Sciences, Ogden, Utah March, 2019
  - Evan Chief, Ross Frazier, and Justin B. Jackson, *Remote Operating Sensor System*, Poster Presentation, WSU Undergraduate Research Symposium, Ogden, Utah 2016
  - Jay Atkinson, Ben Oborn, and Justin B. Jackson, *Compact, High Efficiency Power Supply*, Poster Presentation, WSU Undergraduate Research Symposium, Ogden, Utah 2016
  - Justin B. Jackson, *Electronics Engineering Technology Student Recruitment Design Project*, 2013 ASEE Rocky Mountain Section Meeting, Pueblo, Colorado
  - Joel Loesch, Jaime Torres, and Justin B. Jackson, *Attitude Determination and Control System (ADCS)*, Poster Presentation, 2011 UCUR, Ogden, Utah
  - Mark S. Miller, Jun Yang, Justin B. Jackson, Daniel Watrous, Divesh Kapoor, *Silicon-Effect Spin Lattices for Magnetism and Superconductivity Tests*, American Physical Society March Meeting, 2010
  - Mohammad Atif Umar Usman, Brady Smith, Justin B. Jackson, Mark S. Miller, Jun Jiao, *Dye-sensitized solar cell design incorporating titanium-catalyzed silicon nanostructures*, Greener Nano 10: Reducing Principles to Practice, 2010
  - Mark S. Miller, Justin B. Jackson, Sun-Gon Jun, Divesh Kapoor, Mohammad Usman, and Brady Smith, *Silicon nanowire growth and technology for integrated devices*, ICON 2007, Malmö, Sweden
  - Divesh Kapoor, Justin B. Jackson, Feng Zhang, Matthew R. Linford, and Mark S. Miller, *Measurement of Tunneling Currents through Alkanes Assembled on Silicon with Aluminum Contacts*, 2007 Electronic Materials Conference
  - Divesh Kapoor, Luciano Aguirre, Justin B. Jackson, Sun-Gon Jun, Feng Zhang, Matthew R. Linford, Mark S. Miller, *Molecule Contact Devices and Integrated Nanowire Diode*, Poster Presentation, 4th Annual Molecular Conduction and Sensors Workshop, 2006
  - Justin B. Jackson, Sun-Gon Jun, Divesh Kapoor, Mark S Miller, *Integrated Silicon Nanowire Diodes*, 2006 Electronic Materials Conference
  - Divesh Kapoor, Justin B. Jackson, Mark S. Miller, *Metal/Semiconductor Contacts for Organic Molecules*, 2006 IEEE Workshop on Microelectronics and Electron Devices
  - Justin B. Jackson, Sun-Gon Jun, Divesh Kapoor, Mark S Miller, *Integrated Silicon Nanowire Diodes*, Poster Presentation, 2006 IEEE Workshop on Microelectronics and Electron Devices
  - Sun Gon Jun, Mark S. Miller, Justin Jackson, *Growth and optical properties of silicon nanowires grown by vapor phase epitaxy*, 2005 APS March Meeting
- BOOKS
- Summers & Jackson, *Introduction to Digital Electronics & Programmable Logic*, ISBN 978-0-9746892-7-2, OrchEd Educational Enterprises, Inc., 2009
- PATENTS
- Mark S. Miller, Justin B. Jackson, Divesh Kapoor, Justin Millis, *Transistors for Replacing Metal-Oxide-Semiconductor Field-Effect Transistors in Nanoelectronics*, Patent US No. 8,253,168
  - Mark S. Miller, Justin B. Jackson, Divesh Kapoor, Justin Millis, *Transistors for Replacing Metal-Oxide-Semiconductor Field-Effect Transistors in Nanoelectronics*, Patent US No. 7,772,056
- GRANTS
- 2020 RSPG Grant, 3D Printed Solar Cells, \$4,426.00
  - 2017 ARCC Grant, 3D Electronic Printer for Circuit and Device Fabrication, \$54,500.00
  - 2015 ARCC Grant, Electrical and Computer Engineering Cadence Laboratory, \$23,520.00
  - 2014 ARCC Grant, Davis Campus Engineering Laboratory Computers and Equipment, \$32,111.20
  - 2011 RSPG Grant, Support for Rocky Mountain Section Meeting, \$2,400.00
  - 2009 RSPG Hemmingway New Faculty and Vitality Grant, HARBOR Attitude Determination and Control System, \$6,000.00
- ACADEMIC SERVICE
- 2021-Present Faculty Board of Review
  - 2008-Present American Society for Engineering Educators, Campus Representative
  - 2020-2023 USHE ECE Major Committee Chair
  - 2021-2023 Chair, Ogden-Hinckley Airport Advisory Committee
  - 2019-2023 Ogden-Hinckley Airport Advisory Committee Board
  - 2010-2023 Salt Lake Community College Engineering Department Program Advisory Committee
  - 2023 Department tenure committee for 3 faculty
  - 2019-2021 College Curriculum Committee
  - Chair of 3 additional hiring committees, 2019, 2020, 2021

- 2016-2020 Weber State University Faculty Senate
- 2019 Provost hiring committee
- 2018 Led ABET re-accreditation for EE and initial accreditation for CE
- 2018 Tenure committee chair for 3 faculty
- 2012-2018 Weber State University Davis Campus Projection Committee
- 2015 Session Chair, AA&S, Electrical Systems
- 2012-2014 Research, Scholarship, and Professional Growth Committee
  - Subcommittee to rewrite proposal form and determine standardized rubrics.
- 2010-2012 President (Two Appointments) Tau Alpha Pi
- 2008-2012 National Board of Directors (Two Appointments) Tau Alpha Pi
- 2010-2012 Rocky Mountain Region Chair ASEE
- 2008-2012 Constitutional Review and Apportionment Committee (Two Appointments)
- 2008-2012 Campus Advisor Tau Alpha Pi
- 2008-2012 National Board of Directors, Tau Alpha Pi
- 2008-2012 Campus Advisor, Tau Alpha Pi
- 2008-2012 Member of Constitutional Review and Apportionment Committee