Danielle Nobles-Lookingbill, Ph.D.

Assistant Professor of Engineering, Taylor University
Ph.D. in Mechanical Engineering
Nuclear Regulatory Commission Nuclear Engineering Fellow
University of Nevada, Las Vegas Graduate College STEM Fellow

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Purpose at Taylor University - A compelling motivation to advance the kingdom of God through engineering by teaching and mentoring from an explicit Christian worldview, and by a commitment to the expansion of a great Christian university, drove me to become an Assistant Professor of Mechanical Engineering at Taylor University. Together with our students, we can plant seeds for Jesus Christ in the science and engineering community.

Technical Skills

- Radial Turbomachinery Sizing
- SCO2 Brayton Power Cycle Design
- Engineering Equation Solver (EES) Modeling
- Programmable Logic Controller (PLC)
- Microsoft Excel and Excel Macros
- MCNP Radiation Transport Code
- Piccolo/Mission Planner UAS Control Software
- Advanced Visualization and Integration of Data
- Matlab/Python/Octave
- SolidWorks/Siemens Solid Edge
- Campbell Scientific LoggerNet Data Collection Hardware Assembly and Software Suite

Education

University of Nevada, Las Vegas

- Ph.D. in Mechanical Engineering, December 2018
- Graduate Certificate in Nuclear Safeguards and Security, 2018
- Bachelor of Science in Mechanical Engineering, 2014

Indiana University, Bloomington

- Bachelor of Science in Psychology, 1999
- Certificate in Criminal Justice, 1999
- Psi Chi Member, National Psychology Honor Society

Universidad de Salamanca, Spain

- Minor In Spanish, 1997

Certifications

- NCEES Fundamentals of Engineering Exam, Passed 2014
- Counterterrorism Operations Support Radiological Isotope Primary and Secondary Screener Certified

Graduate Academics GPA 3.78

Nuclear and Power Engineering

Turbomachinery
Nuclear Power Engineering
Nuclear Reactor Analysis
Nuclear Criticality Safety
MCNP Transport Code System (IS)
Neutron Detection and Production
Radiation Monitoring Safeguards

Thermal Sciences

Design of Thermal Systems
Advanced Thermodynamics
Advanced Heat Transfer
Convective Heat Transfer
Conduction Heat Transfer
Radiation Heat Transfer

Professional Domestic and International Internship Experience ***14 May 2018 to 20 July 2018***

U.S. Department of Energy, Mission Support and Test Services Remote Sensing Laboratory, Nellis
Work supported by the Department of Homeland Security Domestic Nuclear Detection Office Summer Internship Program
In coordination with Oak Ridge Institute for Science and Education
Unmanned Arial Radiation Detection Intern
Under the direction of Dr. Paul Guss, Dr. Russell Malchow, and Karen McCall, M.S.

Contributions and Training

- Analyzed integrated detection data and characterized isotope ratio distributions in a radioactive plume
- Developed Python script for data transfer between radiation detection and analysis software platforms
- Created and successfully flew Mission Planner radiation detection flight surveys with a 3DR UAS quadcopter
- Successfully flew Sandstorm and T-28 UAS Aircraft manually and via Piccolo Command Center Autopilot
- Edited one proposal, two operations plans, and two Form 2087's for grant requisition and compliance

Xi'an Jiaotong University, Xi'an, Shaanxi, P.R. China ***1 July 2017 to 31 July 2017***
International Graduate Researcher
Under the direction of Dr. Qiuwang Wang, Vice Dean, School of Energy and Power Engineering

International Technical Collaboration
- Successfully negotiated a pathway for graduate international research exchange between UNLV and XJTU
- Established the UNLV/XJTU research collaboration for the advancement of power generation technology
- Successfully worked with the Xi'an Jiaotong University research team to develop, fabricate, and internationally ship two custom, printed circuit heat exchangers for Brayton cycle system recuperation

Professional Research Experience and Collaborative Work

UNLV Center for Energy Research ***May 2013 to December 2018***
Graduate Researcher, Nexus in Nevada Graduate Student Lead
Under the direction of Dr. Robert Boehm, P.E., Distinguished Professor, Director, Center for Energy Research

Doctoral Research Project
NSF EPSCoR Solar Energy, Water, Environment Nexus in Nevada Research Project (Nexus in Nevada)
Supercritical Carbon Dioxide Brayton Cycle Application using a High Concentration Solar (CSP) System Heat Source
Dissertation Research supported by the National Science Foundation under grant number IIA-1301726

Leadership Responsibilities
- Led the diverse, Nexus in Nevada graduate research team, collaborating from three different institutions and four major research backgrounds to advance cohesive and responsible energy development in Nevada
- Coordinated meetings, group travel, and reimbursements for the UNLV, UNR, and DRI research teams
- Encouraged, coordinated, and engaged in interdisciplinary research collaboration and promoted team unity
- Advocated and articulated the need for interdisciplinary research with NV representatives in Washington, D.C.
- Developed professional vendor and industry relationships, completed order requisitions within budget, and submitted invoices for vendor payment
- Mentored and managed seven plus undergraduate students
- Solidified an $8,000.00 research donation to the Center for Energy Research
- Fully managed Nexus in Nevada and Center for Energy Research outreach and major exposition events

Research Specific Responsibilities
- Sized, designed, and built a high temperature and pressure supercritical carbon dioxide Brayton cycle for the technological advancement of more compact and efficient power cycle alternatives for heat flux sources able to provide high working fluid temperatures
- Designed and built a modular turbocompressor unit housing a radial turbine and a centrifugal compressor
- Designed and built a high temperature solar receiver using collected photographic flux mapping data
- Modeled, designed, and built a custom air cooled heat exchanger to eliminate water cooling requirements
- Assembled a sensing and data collection system compliant with a robust environment, controlled by a PLC
- Developed an EES code to model SCO2 Brayton cycle power generation with CSP or nuclear heat flux sources

Additional Research Project Initiatives
Educational Solar Hot Water Heating and Energy Generation Kits for STEM Outreach
- Designed and developed three interactive Solar Laboratory Experience Kits:
  Solar Power Visualization; Off-Grid Solar Power: Charging Your Cell Phone; Solar Hot Water Heating
- Developed corresponding laboratory curriculum for each kit
- Integrated these kits into UNLV Solar and Renewable Energy Minor courses and K-12 and community events
- Prepared successors to grow the project; the kits are now being shipped across the entire state of Nevada

DOE Regional Test Center, Managed by Sandia National Laboratory: Soitec Concentrated and PV Solar Project
- Involved in preparation and development planning
- Assisted in installation, system operations, maintenance, and data collection

Amonix Concentrated PV Systems for Southern Nevada Water Authority and UNLV
- Involved in multidisciplinary problem solving
- Completed operational maintenance, including cleaning and string and cell testing

3M Project: Coated versus Uncoated Photovoltaic Panels
- Collected and analyzed on-site, current-voltage characteristic curves (IV curves) and analyzed remote data
- Completed and submitted quarterly reports to the 3M Research and Development team

Corporate Experience

Senior Project Design Coordinator and Vice Executive Officer, CLO Cabinetry, LLC ***October 2003 to April 2008***

- Led the design and sales departments
- Regularly managed multiple $15,000 to $80,000 project budgets
- Scheduled, coordinated, and supervised all contracted portions of remodeling projects, assuring artistic designs were accomplished and deadlines were met
- Anticipated possible issues and implemented early resolutions, ensuring high customer satisfaction

Teaching and Curriculum Development Experience

Short Term Guest Teacher, Grade 8 Pre-Algebra, Roy Martin Middle School ***January 2019 to August 2019***

- Develop lesson plans, assignments, and exams, teach, grade, provide constructive feedback, and post grades
- Equip middle school students with mathematical skills and information leading to college preparedness

UNLV Center for Energy Research Mentor and Teaching Assistant ***August 2014 to December 2018***

- Mentored undergraduate students and high school interns on various energy related research projects
- Covered the UNLV undergraduate Thermodynamics course using personally developed lesson plans

UNLV Solar and Renewable Engineering Laboratory Masters Level Course Lecturer ***May 2015 to August 2015***

- Developed and instructed this masters level engineering education course, focused on a hands-on, project-based, engineering design and prototype process
- Included a curriculum expansion component for high school educators
- Successfully modified this curriculum to facilitate Solar Laboratory Experiences for UNLV courses, Honors College events, visiting guest groups, and STEM outreach, meeting various time constraints

Graduate Mechanical Engineering Curriculum Development Collaborator ***January 2014 to June 2015***

Under the direction of Dr. MaryKay Orgill, Associate Professor of Chemical Education

- Successfully developed and facilitated collaborative STEM program curricula designed to integrate engineering, math, chemistry, biology, and general science at the 6-12 grade levels
- Collaborated to develop and facilitate, "What Would an Alien Eat?" also presented at AERA, Chicago, IL, 2015
- Collaborated to develop and facilitate, "Why Are You What You Eat?" June 18 through June 25, 2015
- Successfully developed each STEM project initiative to provide graduate credit for 25 to 30 Nevada teachers

Research Presentations, Interviews, and Expert Panels

Swiss Embassy, USA Swiss Touch Event Interview and Expert Panel, 7 Magic Mountains, Nevada, June 2018

- "Swiss Touch on the Road: Las Vegas Best of "
  https://www.youtube.com/watch?v=1tfRr4IJcCI&feature=youtu.be and https://www.swisstouchusa.org/

Nexus in Nevada Interviews

- "Solar-Driven Supercritical CO^2 Engine Development," 2017
  https://www.youtube.com/watch?v=2N0B1qLyOLY and https://solarnexus.epscorspo.nevada.edu/videos/
- "Mentoring by Danielle Nobles-Lookingbill, PhD Student, University of Nevada, Las Vegas," 2017
  https://www.youtube.com/watch?v=NcXhCibchFs
- "What impact does solar research have on Nevada?" 2014
  https://www.youtube.com/watch?v=PbuGb96Fucs and https://solarnexus.epscorspo.nevada.edu/videos/

The 9th Chinese Renewable Energy Conference and Expo, Wuxi, P.R. China, Presentation, November 2017

- "UNLV Center for Energy Research Developments"

Solar Power International Technical Symposium, Poster, September 2017

- "Design of a Supercritical Carbon Dioxide Brayton Cycle for Solar Dish Concentrator Clean Energy Production"

Xi'an Jiaotong University, Xi'an, P.R. China, Presentation, July 2017

- "Supercritical Carbon Dioxide Brayton Cycle Application using an SAIC Solar Dish Concentrator"

Volunteer Community Engagement

Project Manager for the Competitive Gear-Up Robotics Club, August 2015 to June 2019

- Facilitate competitive teams at South East Career Technical Academy and East Career Technical Academy
- Promote engineering design, innovation, education, and mentor future engineers

Math Tutor, August 2014 to June 2019

NSF EPSCoR Diversity Team Committee Member, January 2015 to December 2018

Southern Hills Baptist Church Member and Volunteer