# **Dane** de Wet

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## EDUCATION:

**University of California, Berkeley** (2016 – 2020)

Nuclear Engineering, Ph.D. (August 2020)

*"A Frequency Domain Approach to Characterizing and Modeling Single Phased, Forced Circulation Advanced Nuclear Reactor Designs"*

Nuclear Engineering, MS (December 2018)

*"Designing Frequency Response Tests for System Identification of Advanced Nuclear Reactors"*

GPA: 3.88 - Received the Joonhong Ahn Award in Nuclear Engineering Excellence

**University of Tennessee, Knoxville** (2012 - 2016)

Nuclear Engineering, BS

GPA: 3.96 - Awarded Top UTK Nuclear Engineering Freshman, Sophomore, and Junior

## SKILLS:

**Augmented Reality:** Unreal Engine (proficient) for Hololens 2 development

**Thermal Hydraulics:** RELAP5-3D *(proficient)*, TRANSFORM *(proficient)*

**Neutronics:** MCNP, SERPENT *(proficient)*

**Experimental:** Microcontroller Data Acquisition, Integral Effects Test Design

**Programming:** MATLAB *(proficient)*, LabVIEW *(proficient),* Python *(basic),* Fortran *(basic)*

**Design:** Autodesk Fusion 360 *(proficient)*, Adobe Illustrator *(proficient)*

## RESEARCH EXPERIENCE:

***University of California, Berkeley:*** *(2016 - Present)*

Thermal Hydraulics (*Dr. Per F. Peterson)*

- RELAP5-3D and TRANSFORM modeling of the Compact Integral Effects Test Facility
- Implemented simulated reactivity feedback control for reactor simulator testing

- Control-oriented modeling and stability analysis of reactor systems
- Frequency response testing for system identification of thermal systems
- Experimental characterization of Integral Effects Test heat transfer behavior

***Oak Ridge National Laboratory:*** *(May - August 2016, July 2018 - Present)*

Thermal Hydraulics (*Dr. Nick Brown, Dr. M. S. Greenwood, Dr. Lou Qualls)*

- RELAP5-3D and TRANSFORM modeling of the Molten Salt Reactor Experiment
- Developed thermal hydraulic benchmark for design and operation of the MSRE
- Developed test program for the Liquid Salt Test Loop

Molten Salt Reactors

- Thermal hydraulic modeling of molten salt reactor systems
- Historical documentation, operation, and experiments for the MSRE

***University of Tennessee, Knoxville:*** *(January 2013 - May 2016)*

Instrumentation and Controls (Dr. Belle R. Upadhyaya)

- Implemented wireless data acquisition with microcontrollers
- Designed PID controllers for tank level control
- Flow loop design and testing for instrumentation and controls development

Nuclear Safeguards and Security (Dr. Howard Hall, Dr. Joe Stainback IV, Dr. Ondrej Chvala)

- Helped develop human reliability programs for nuclear facilities in developing nations
- Developed a safeguards-by-design program for an integral molten salt reactor design

Advanced Reactor Core Design (Dr. Ondrej Chvala)

- Completed neutronics (SERPENT) model of a molten salt breeder reactor core
- Performed design optimization of reactor core with Python

## HONORS AND AWARDS:

- Recipient of the Nuclear Energy University Program (NEUP) Graduate Fellowship
- American Nuclear Society National Student Innovation of the Year Award 2016
- Awarded UTK Top Nuclear Engineering Student Freshman, Sophomore, and Junior Year
- Awarded UTK Undergraduate Research Fellowship
- Awarded the first Joonhong Ahn Award in Nuclear Engineering Excellence (UC Berkeley)
- Awarded Best Project in Energy Systems and Control for grid optimization (UC Berkeley)
- Member of winning group at the Nuclear Innovation Bootcamp
- Awarded ANS Oak Ridge Chapter Student Award
- Awarded NEUP Undergraduate Scholarship
- Awarded NRC Scholarships
- Member of Tau Beta Pi and Phi Eta Sigma Honor Societies

## RELATED ACTIVITIES:

- Nuclear Engineering Student Delegation — *Member 2016, Co-Vice Chair 2017*
- Nuclear Innovation Bootcamp — *Member of Winning Group*
- NASA 3D Printed Habitat Challenge — *Leader of Material Science Team*
- Preventing Rhino Poaching using Radioisotopes — *Inventor and Advocate*