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## PROFESSIONAL EXPERIENCE

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**UC Berkeley | Department of Nuclear Engineering | Thermal-Hydraulics Laboratory** Aug 2010 – Jun 2015  
*Graduate Student Researcher* Berkeley, CA, USA

- Contributed to the design of an advanced nuclear reactor for safer and more economic electricity production
- Performed system modeling for risk and safety analysis using both commercial and custom-made computer tools
- Managed design and operation of scaled experimental facilities for risk model validation (\$300,000 budget)
- Led writing efforts for two grant proposals, totaling \$1,500,000 awarded budget from the US Department of Energy
- Coordinated several teams of graduate and undergraduate students for three research projects

**Electric Power Research Institute | Nuclear Risk and Safety Management Division** Jun 2014 – Aug 2014  
*Student Employee* Palo Alto, CA, USA

- Investigated and implemented response surface methodology applied to probabilistic risk assessment
- Created scripts to generate surrogate response functions and detect cliff edge effects in nuclear power plant risk
- Developed visualization methods using radar charts to compare risks to regulatory metrics and support decision-making

**UC Berkeley | College of Engineering** Aug 2010 – Dec 2010  
*Graduate Student Instructor* Berkeley, CA, USA

- Mentored more than 100 students for a course on *Methods of Engineering Analysis*
- Created original problem sets for students with difficulties to enhance results at exams

**UC Berkeley | Department of Nuclear Engineering | Reactor Physics Group** Apr 2010 – Aug 2010  
*Visiting Scholar* Berkeley, CA, USA

- Demonstrated feasibility of a subcritical power reactor based on General Atomics' EM<sup>2</sup>™ design
- Optimized nuclear fuel management for higher power yield and reduced waste production

**Marine Nationale (French Navy)** Oct 2007 – Apr 2008  
*Quartermaster on a Patrol-Ship* Tahiti, French Polynesia

- Supported planning and execution of three four-week-long patrol missions
- Supervised communication with officials on several visited islands

## EDUCATION

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**UC Berkeley | GPA: 3.95** Berkeley, CA, USA  
PhD Candidate, Department of Nuclear Engineering, Thermal-Hydraulics Laboratory  
Dec 2011 – Jun 2015

*Experimental Validation of Passive Safety System Models: Application to Design and Optimization of Fluoride-Salt-Cooled, High-Temperature Reactors*

Engineering and Business for Sustainability Certificate Program Jan 2011 – Dec 2013

Master of Science, Department of Nuclear Engineering, Thermal-Hydraulics Laboratory Aug 2010 – Dec 2011

**Ecole Polytechnique** Palaiseau, France  
Diplôme d'Ingénieur de l'Ecole Polytechnique (Master level), Mechanical Engineering Sep 2009 – Sep 2011  
Bachelor of Science, Mechanical Engineering and Physics Applied to Energy Sep 2007 – Sep 2009

## SKILLS

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**Programming** Matlab, Python, Java (basic notions)  
**Other Software** MS Office Suite, SolidWorks, LabVIEW, Flownex, COMSOL Multiphysics, RELAP5-3D  
**Languages** French: Mother tongue  
English: Fluent (TOEFL iBT: 117/120)  
Spanish: Good skills, both oral and written  
Japanese: Basic notions (JLPT level 4: 353/400)

## ACTIVITIES AND ORGANIZATIONS

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### American Nuclear Society (ANS)

*Student Member – Thermal-Hydraulics Division*

Sep 2011 – Present  
Berkeley, CA, USA

- Authored and presented technical papers at national and international meetings
- Oversaw logistics for UC Berkeley's candidacy to host the ANS Student Conference

### Debate on French Energy Transition

*Organizer*

Jun 2013  
San Francisco, CA, USA

- Organized a panel discussion and a debate with 40 members of the San Francisco Bay Area French community
- Co-authored a report addressed to the French Ministry of Ecology, Sustainable Development and Energy

### Berkeley Energy and Resources Collaborative (BERC)

*Nuclear Engineering Department Liaison*

Jan 2012 – Dec 2012  
Berkeley, CA, USA

- Fostered participation of nuclear engineering students in cross-campus energy-related activities
- Co-authored and presented an award-winning poster at BERC's annual Symposium

### L'Action Sociale de la Kès

*Student Volunteer*

Sep 2008 – Apr 2010  
Palaiseau, France

- Tutored math and physics for high school students in disadvantaged neighborhoods
- Implemented innovative learning methods, leading to 40% increase in results at exams

## HONORS AND AWARDS

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2014 recipient of the Saul Levine Memorial Scholarship, established in 2001 by the ANS Nuclear Installations Safety Division in recognition of the pioneering contributions to the enhancement of nuclear safety made by Saul Levine. The scholarship is intended to support graduate education of meritorious nuclear engineering students.

Member of the Alpha Nu Sigma Honor Society, which recognizes "high scholarship, integrity, and potential achievement in applied nuclear science and nuclear engineering among outstanding students."

Finalist (top 10 candidates) of the first Singapore Challenge at the Global Young Scientists Summit (GYSS@one-north) on the theme "Innovations for Future Cities" with a white paper on "Advanced Nuclear Power Co-Generation for Carbon-Emission-Free, Energy Independent Global Cities." Jury included Nobel Laureates, CEOs of international companies and University leaders.

## BIBLIOGRAPHY

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N. Zweibaum, Z. Guo, L. R. Huddar, and P. F. Peterson, "Validation of Best Estimate Models for Fluoride-Salt-Cooled, High-Temperature Reactors Using Data from the Compact Integral Effects Test (CIET 1.0) Facility," *Proceedings of NURETH-16*, Chicago, Illinois, August 30-September 4, 2015, American Nuclear Society (2015).

N. Zweibaum, J. E. Bickel, Z. Guo, J. C. Kendrick, and P. F. Peterson, "Design, Fabrication and Startup Testing in the Compact Integral Effects Test Facility in Support of Fluoride-Salt-Cooled, High-Temperature Reactor Technology," *Proceedings of NURETH-16*, Chicago, Illinois, August 30-September 4, 2015, American Nuclear Society (2015).

N. Zweibaum et al., "Role and Status of Scaled Experiments in the Development of Fluoride-Salt-Cooled, High-Temperature Reactor Technology," *Proceedings of the 2015 International Congress on Advances in Nuclear Power Plants*, Nice, France, May 2015.

N. Zweibaum, C. Andreades, S. Hong and P. F. Peterson, "Life Cycle Assessment of the Mark 1 Pebble-Bed, Fluoride-Salt-Cooled, High-Temperature Reactor," *Proceedings of the 2015 International Congress on Advances in Nuclear Power Plants*, Nice, France, May 2015.

N. Zweibaum, R. O. Scarlat et al., "Phenomenology, Methods and Experimental Program for Fluoride-Salt-Cooled, High-Temperature Reactors (FHRs)," *Progress in Nuclear Energy*, November 2014.

R. O. Scarlat, N. Zweibaum et al., "Design and Licensing Strategies for the Fluoride-Salt-Cooled, High-Temperature Reactor (FHR) Technology," *Progress in Nuclear Energy*, November 2014.

N. Zweibaum, R. O. Scarlat and P. F. Peterson, "Design of a Compact Integral Effects Test Facility for Fluoride-Salt-Cooled, High-Temperature Reactors," *Transactions of the American Nuclear Society*, 109, Washington DC, November 2013.