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William LePage

Education

2013–present Ph.D., Mechanical Engineering, University of Michigan

2013–2015 M.S.E., Mechanical Engineering, University of Michigan

2009–2013 B.S., Mechanical Engineering, Spanish minor, *summa cum laude*, University of Tulsa

Research Experience

University of Michigan

2013–present Research Assistant, *Advanced Materials and Mechanics Laboratory*
Dissertation: Fatigue and fracture mechanics of shape memory alloys.
Advised by Prof. Samantha Daly and Prof. John Shaw

Sandia National Laboratories

2012 & 2013 Summer Research Intern, *Thermal Spray Research Laboratory*
Designed and fabricated electrical and mechanical devices for thermal spray experiments. Designed a dual cold spray robot interface and pressure control system.
Advised by Dr. Aaron Hall

The University of Tulsa

2009–2013 Undergrad Researcher, *Sustainable Engineering for Needy and Emerging Areas*
Designed, tested, and deployed a solar-powered chlorine generator for water purification. Engaged in two summers of research sponsored by the Tulsa Undergraduate Research Challenge, as well as three semesters of research for course credit.
Advised by Prof. John Henshaw and Prof. Gordon Purser

Awards and Fellowships

2014 Fellow, National Defense Science & Engineering Graduate (NDSEG) Program

2014 Honorable mention, NSF Graduate Research Fellowship Program

2013 Fellow, Tau Beta Pi Anderson Fellowship

2013 All-conference athlete, NCAA Div. 1 Conference USA Outdoor Track & Field, 3000m steeplechase

2013 Warren Garrison Academic Excellence Award (University of Tulsa graduating senior student athlete with the highest cumulative GPA)

2012 Finalist, Rhodes Scholarship, District VIII

2012 Goldwater Scholar

2011 & 2012 Udall Scholar

2009 National Merit Scholar & University of Tulsa Presidential Scholar (full scholarship)

Publications

Peer-reviewed journal papers

1. **LePage W**, Shaw J, Daly S. Optimized paint sequence for speckle patterns in digital image correlation. *Experimental Techniques*, submitted, 2017.
2. Chen K, Wood K, Kazyak E, **LePage W**, Davis A, Sanchez A, Dasgupta N. Dead lithium: mass transport effects on voltage, capacity, and failure of lithium metal anodes. *Journal of Materials Chemistry A*, 2017. doi:10.1039/c7ta00371d.
3. **LePage W**, Daly S, Shaw J. Cross polarization for improved digital image correlation. *Experimental Mechanics*, 2016. doi:10.1007/s11340-016-0129-2.
4. Athuada T, **LePage W**, Chalker J, Ozer R. High density growth of ZnO nanorods on cotton fabric enables access to a flame resistant composite. *RSC Advances*, 2014. doi:10.1039/C4RA01543F.

Other papers

1. Sarobol P, Hall A, Miller S, Knight M, **LePage W**, Sobczak C, Wesolowski D. Feasibility of preparing patterned molybdenum coatings on bismuth telluride thermoelectric modules. *Sandia National Laboratories*, 2013. SAND2013-7962.
2. **LePage W**, Hampton K, Johnson B, Mayer K, Henshaw J, Purser G. Design and Development of a Portable Off-Grid Water Chlorination System. *International Mechanical Engineering Congress*, 2011. doi:10.1115/IMECE2011-63838.

Presentations

1 Mar. 2017 **LePage W**, Shaw J, Daly S. Multiscale experimental investigation of fatigue crack growth in nanocrystalline NiTi. *The Minerals, Metals and Materials Society*, San Diego, Calif.

23 Aug. 2016 **LePage W**, Shaw J, Daly S. Thermomechanical characterization of shape memory alloy fracture. *International Congress of Theoretical and Applied Mechanics*, Montreal, Canada.

8 June 2016 **LePage W**, Daly S, Shaw J. Cross polarization for improved digital image correlation. *Society of Experimental Mechanics*, Orlando, Fl.

6 June 2016 **LePage W**, Shaw J, Daly S. Grain size effects on fatigue crack growth in nanocrystalline NiTi. *Society of Experimental Mechanics*, Orlando, Fl.

18 Feb. 2016 **LePage W**, Shaw J, Daly S. Thermomechanical characterization of shape memory alloy mode I fracture behavior. *The Minerals, Metals and Materials Society*, Nashville, Tenn.

9 June 2015 **LePage W**, Shaw J, Daly S. Thermomechanical characterization of shape memory alloy mode I fracture behavior. *Society of Experimental Mechanics*, Costa Mesa, Calif.

1 Oct. 2014 **LePage W**, Daly S. Time and surface dependency during fracture of NiTi shape memory alloy. *Society of Engineering Science*, West Lafayette, Ind.

17 June 2014 **LePage W**, Daly S. Fracture and strain rate dependency in NiTi shape memory alloy. *US National Committee on Theoretical and Applied Mechanics*, East Lansing, Mich.

25 May 2014 **LePage W**, Daly S. Fracture and strain rate dependency in NiTi shape memory alloy. *Society of Experimental Mechanics Midwest Student Symposium*, Ann Arbor, Mich.

15 Nov. 2011 **LePage W**, Hampton K, Johnson B, Mayer K, Henshaw J, Purser G. Design and development of a portable off-grid water chlorination system. *International Mechanical Engineering Congress*, Denver, Colo.

Teaching and mentoring

2015–present Guest lecturer

- Undergraduate solid mechanics (ME 211, Fall 2015 for Prof. Ellen Arruda)
- Undergraduate mechanics of materials (ME 382, Winter 2016 for Prof. Jeff Sakamoto, and Fall 2016 for Dr. Kathy Sevener)
- Graduate plasticity (ME 517, Fall 2015 for Prof. Samantha Daly)

2015–present Mentor

- Advised Yuxin Chen (University of Michigan B.S.M.E. and B.S.E.E., 2017) in researching the role of the combined electrochemical and mechanical properties of lithium metal anodes for next generation battery technologies.
- Advised Avery Samuel (University of Michigan B.S.M.S.E., 2016) in an investigation of sample geometry effects for the activation of martensitic phase transformations in shape memory alloys.

Service and outreach

2014–present Journal article reviewer for *Science*, *Experimental Mechanics*, *Journal of Evaluation and Testing*, *Advanced Materials Interfaces*, *Journal of Intelligent Material Systems and Structures*, and *International Journal of Fracture*.

2016–present Volunteer, Science Olympiad assistant coach and assistant coordinator for the Science Olympiad team at Spiritus Sanctus Academy elementary school.

2014–present Volunteer, elementary school science class guest lecturer on topics including engineering, materials science, agriculture, and climate change.