

CAELAN B. LAPOINTE

1715 Baseline Road
Boulder, CO 80302

clapointe2011@gmail.com
(207) 592-6064

EDUCATION

Ph.D. Student, University of Colorado at Boulder

Department: Mechanical Engineering
Advisor: Dr. Peter Hamlington

B.S., Union College, Schenectady, NY

Major: Mechanical Engineering; Minor: Japanese
Mini-term abroad: Electricity Production and Environmental Management in New Zealand,
November 2012
Summa Cum Laude; Union Scholar (Honors program); Overall GPA 3.89

Undergraduate term abroad, Kansai Gaidai University, Hirakata, Japan, August–December 2013

Proficient in spoken and written Japanese

HONORS AND AWARDS

Union College Josephine Daggett Prize (prestigious award for conduct and character), May 2015
Union College General Electric Energy Steinmetz Award, May 2015
Union College John S. Hadala (1928) Endowed Book Prize, May 2014
Union College Junior Academic Achievement Top 50, December 2013
Union College Dean's List, 2012, 2013, 2014, 2015
US Geological Survey Performance Award, August 2012

RESEARCH EXPERIENCE

Turbulence and Energy Systems Lab, January 2016--Present
Topic: CFD Modeling and Optimization of Industrial Heat Transfer

US Department of Energy Summer Research, June--August 2015
Topic: An Advanced Actuator Line Method for Wind Energy Applications and Beyond

Senior Project in Mechanical Engineering, September 2014–June 2015
Topic: Modeling Resin Infusion in Carbon Fiber Preforms

US Department of Energy Summer Research, June–August 2014
Topic: Impact of Hydroelectric Generation on U.S. Grid

Undergraduate Honors Research in Mechanical Engineering, January–May 2014

Topic: Numerical Investigation of Miniature Wind Energy Generation System Near Highways

EMPLOYMENT

US Dept. of Energy, National Wind Technology Center, Boulder, Colorado, June–August 2015

Intern through Science Undergraduate Laboratory Internship (SULI) program

- Used the Simulator for Wind Farm Applications (SOWFA), a farm-scale model based on OpenFOAM, to update methods used in the Actuator Line Method (ALM) for modeling turbine blades

Ener-G-Rotors, Schenectady, NY, October 2014–June 2015

Consultant

- Helped to develop a Computational Fluid Dynamics (CFD) model for product refinement

US Dept. of Energy, National Renewable Energy Laboratory, Golden, Colorado, June–August 2014

Intern through Science Undergraduate Laboratory Internship (SULI) program

- Investigated deployment of hydroelectric resource potential in U.S. energy grid pertaining to DOE hydropower vision initiative
- Utilized Regional Energy Deployment System (ReEDS) model to analyze effect of varying parameters on hydroelectric deployment and generation

USGS Maine Water Science Center, Augusta Maine, June–August, 2013

Hydrologic Technician

- Collected stream-flow, water quality, and groundwater data for hydrologic monitoring programs
- Collected bridge survey data using electronic total station
- Processed survey data for use in floodplain mapping and developing statistical relationships of water discharge to water level

USGS Maine Water Science Center, Augusta Maine, June–August, 2012

Hydrologic Technician

- Collected data on Maine's 2010 water use within agriculture, industry, and public and private water supply categories
- Analyzed data to estimate Maine's total water use for submission to the 2010 National Water Use Compilation

PUBLICATIONS

Lapointe, C, and Gopalan, H. "Numerical Investigation of Mini Wind Turbines Near Highways." Journal of Solar Energy Engineering 138.2 (2016): 024503.

PRESENTATIONS

Lapointe, Caelan, et al. "Scaling Analysis of Temperature Variability Between a Rotating Cylinder and a Turbulent Buoyant Jet." *Bulletin of the American Physical Society* 61 (2016). (oral presentation, abstract accepted).

Lapointe, C. "Turbulent Couette Flow in OpenFOAM". Rocky Mountain Fluid Mechanics Research Symposium, August 9, 2016 (oral presentation).

Lapointe, C. "An Advanced Actuator Line Method for Wind Energy Applications and Beyond". SULI Summer Research Expo, August 5, 2015 (poster).

Lapointe, C. "An Advanced Actuator Line Method for Wind Energy Applications and Beyond". Rocky Mountain Fluid Mechanics Research Symposium, August 4, 2015 (poster).

Lapointe, C. "CFD Modeling of the Flow of Resin into a Carbon Fiber Preform". Union College Steinmetz Symposium, May 8, 2015 (oral presentation).

Lapointe, C. "CFD Modeling of the Flow of Resin into a Carbon Fiber Preform". ASME 2015 Student Professional Development Conference. April 17-18, 2015. Temple University, Philadelphia, PA (poster).

Lapointe, C. and Gopalan, H. "Numerical Investigation of Miniature Wind Energy Generation System Near Highways". ASME 2014 International Mechanical Engineering Congress & Exposition, November 14-20, 2014, Montreal, Canada. (poster).

Lapointe, C. "Deployment of Hydroelectric Resource Potential". SULI Summer Research Expo, August 6, 2014 (poster).

Lapointe, C. "Numerical Investigation of Miniature Wind Energy Generation System Near Highways". Union College Mechanical Engineering Seminar, May 23, 2014 (oral presentation).

Lapointe, C. "Numerical Investigation of Miniature Wind Energy Generation System Near Highways". Union College Steinmetz Symposium, May 9, 2014 (poster).

PROFICIENCY WITH

OpenFOAM, MATLAB, Solidworks, Star CCM+, LATEX, Linux.

HONOR SOCIETIES

Tau Beta Pi Engineering Honor Society, Inducted October 2013

Pi Tau Sigma Mechanical Engineering Society, Inducted May 2014

Sigma Xi Scientific Research Honor Society, Inducted May 2014