

SEMI 210

Applied Physicist driven by curiosity and interest in sustainability and making positive impacts on the environment.

EDUCATION

- Master of Science, Physics, University of Oregon, Eugene, OR** Anticipated 2018
Semiconductor and Photovoltaic Track
- Bachelor of Science, Applied Physics, Coastal Carolina University, Conway, SC** 5/2016
Engineering Concentration

RESEARCH EXPERIENCE

Research Assistant, Applied Physics Lab, Coastal Carolina University 1/2016 – 5/2016

Advisor: Dr. Varavut Limpasuvan

Fruit Fly Olfactory Electrical Shock Project

- Managed design process to measure fruit flies' response to electrical shock conditioning when exposed to specific odors by recommending changes to a 3D printer CAD drawing for a custom T-maze enclosure.
- Fabricated flexible electrical shock chamber by identifying, researching and adapting a team protocol; independently researched chemical etch technique; and used iterative approach to trouble-shoot procedural issues.
- Customized low and high voltage circuitry in order to advance the precision of the chamber operation by reducing latency time of electric shock chamber to 0.125 seconds.
- Trained three junior students by assigning tasks and interacted with personnel from other departments to ensure progress in project by selecting and ordering supplies.

Weather Cloud Height Measurements Project

1/2015 – 5/2014

- Diagnosed and repaired laser cloud measurement devices by combing parts from multiple decommissioned machines to rebuild a \$20,000 ceilometer for no additional cost.
- Installed a ceilometer in field, while selecting and integrating a wireless antenna interface, and configured a Windows protocol on a laptop for a robust data communication with the apparatus.
- Automated transfer of collected data to a remote server twice a day utilizing basic UNIX commands.
- Abetted in improvement of verbal and written technical communication skills of a junior team member by providing feedback on e-mails and weekly reports.

Research Assistant, Fluid Dynamics Lab, Coastal Carolina University

1/2013 – 5/2015

Advisors: Dr. Erin Hackett and Dr. Roi Gurka

Study: Sediment Particles Settling in Turbulent Flow

Conducted research on sediment transport, focusing on the settling behavior of particles in turbulent condition with the aim of improving data output of computer modeling.

- Applied customized MATLAB scripts for Particle Tracking, employing a high speed camera to track behavior of sediment particles of interest in relationship to stagnant and turbulent water flow.
- Helped design and assembled support for a custom build water tank with oscillating grid to measure and characterize turbulent fluid flow utilizing Particle Image Velocimetry (PIV).
- Collaborated with team members to progress and overcome difficulties and facilitated communication with vendors to discuss and order correct laboratory supplies.
- Collected, organized, transferred and processed large data sets (over a TB) acquired during the research.
- Ensured safe operation of PIV equipment by attending Laser Safety training.

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Research Assistant, *Coastal Carolina University*, Conway, SC

Summer 2015, 2014

Supervisors: Dr. Erin Hackett and Dr. Varavut Limpasuvan

- Constructed a prototype wooden frame needed for laboratory experiments; later ordered, verified, and assembled a metal frame.
- Facilitated sediment material by communication with companies not related to the university and categorized them into over a dozen samples using a sieve machine.
- Optimized experimental setup by fashioning data communication for LED light source intensity, calculating camera lens field of view.
- Presented our progress, by creating easy to follow demonstrations with schematics and animations.

PUBLICATION and SELECTED PRESENTATIONS

Jacobs, C. N., W. Merchant, **M. Jendrassak**, V. Limpasuvan, R. Gurka, and E. E. Hackett, 2016: *Scales of influence on the settling velocity of synthetic, industrial, and natural particles in grid turbulence*, PLOS-ONE, DOI: 10.1371/journal.pone.0159645

Jacobs, C. N., **M. Jendrassak (co-presenter)**, R. Gurka, and E. Hackett, *Effects of Turbulence on Settling Velocities of Synthetic and Natural Particles*, American Geophysical Union (AGU) Fall Meeting, Poster Presentation, San Francisco, California (December 2014)

Jendrassak, M. and W. Merchant, *Particle Settling Velocities in Turbulent Conditions*, National Conference on Undergraduate Research (NCUR), Oral Presentation, University of Kentucky, Lexington, Kentucky (April 2014)

Jendrassak, M. and Jacobs, C. N: *Effect of Turbulence on Particle Settling Velocities*, Celebration of Inquiry, Oral Presentation, Coastal Carolina University, Conway, South Carolina (April 2015)

Jendrassak, M. and W. Merchant, *Still Water Experiments on Sediment Transport*, Celebration of Inquiry, Oral Presentation, Coastal Carolina University, Conway, South Carolina (April 2014)

SKILLS

Language: Fluent in German, Czech and Slovak

Computing: Basic proficiency in MATLAB, Mathematica, AutoCad

ADDITIONAL EXPERIENCE

Lead Bartender / Floor manager, *Landmark resort*, and *River City Cafe*, Myrtle Beach, SC 5/2002 – 5/2017

- Managed a hotel bar / restaurant with up to 12 employees by creating work schedules, addressing problems between staff and solving customer complains.
- Upheld company's standard by training over 20 wait and bar staff, created a training manual, helped customize menu and food recipes.
- Improved customer service by attending various customer service workshops and trainings.
- Received an Alcohol Certificate through "Training for Intervention ProcedureS" (TIPS), which trained proper techniques for customer's behavior.

VOLUNTEER

Senior member, *Coastal Rescue Mission*, Myrtle Beach, SC

9/2002 – 6/2017

- Assured daily productivity by repairing vehicles and electrical maintenance of warehouses to assure daily productivity and transportation logistics
- Organized volunteers for larger events to transport, sort and stock food and other basic necessities
- Participated in weekly distribution of rations for people in need