CLAY SWACKHAMER

2030 Bainer Hall | Davis, CA | 95616
484-788-2816 | swackhamerclay@gmail.com | clayswackhamer.com | orcid.org

Education

The University of California, Davis — **Davis, CA**
Ph.D. Student in Department of Biological Systems Engineering — *2016-present*

Penn State University — **University Park, PA**
Schreyer Honors College, The College of Engineering — *Class of 2015*
B.S. in Biological Engineering, Food and Biological Process Option — GPA: 3.92
Passed Fundamentals of Engineering Exam, Certified Engineer in Training
Minor: Spanish

The University of Alicante — **Alicante, Spain**
Completed 15 credit semester of courses taught in Spanish — *August 2014-December 2014*
GPA: 4.00

Experience

LignoLink, INC. — **Innovation Park, PA**
Engineering Intern — *January 2016-August 2016*
- Conducted aqueous ammonia pretreatment and enzymatic hydrolysis reactions on 98 biomass samples
- Designed, constructed, and validated custom HPLC assay for content of 5 sugar monomers in hydrolyzed samples
- HPLC development included equipment purchase, installation, calibration, and development of original, automated data analysis routine using MATLAB
- Created the company's first logo and website

McCormick & Company INC, Materials Process Engineering Group — **Baltimore, MD**
Engineering Intern — *May 2015-August 2015*
- Helped create plan to realize $160,000 annual cost savings by eliminating overblending and reducing overfill losses
- Benchmarked physical properties of products using 5 instruments in food powder technology platform
- Conducted over 300 experiments; processed data using descriptive statistical techniques and modeling
- Quantified link between blend time and product bulk density
- Collaborated with McCormick engineers in 3 countries

Microbiological Engineering, Course Biological Engineering 468 — **University Park, PA**
Team Member — *January 2015-May 2015*
- Team received "Best in Class" award for design of industrial amino acid production system by fermentation
- Presented at Northeast Agricultural and Biological Engineering Conference; won undergraduate paper competition

International Genetically Engineered Machines (iGEM) Competition — **University Park, PA**
Undergraduate researcher-Penn State team — *May 2014-October 2014*
- Redesigned gene for fluorescent protein at codon level using original MATLAB scripts
- Presented at iGEM international research conference; team won gold medal from independent panel of judges

Penn State Department of Agricultural and Biological Engineering — **University Park, PA**
Undergraduate Researcher-Biomass Densification Project — *August 2012-May 2013*
- Presented research poster at Penn State undergraduate research exposition, won third place in engineering division
- Co-Authored, "Farm-Scale Biomass Pelletizer Performance for Switchgrass Pellet Production." 2015. Applied Engineering in Agriculture. 31(4): 559-567 (doi: 10.13031/aea.31.10803).

Affiliations

- *Alumni Relations Co-Chair*, Biological Engineering Graduate Student Association, UC Davis, *2017*
- *Member*, Institute of Food Technologists (IFT), *2016-present*
- *Member*, American Society of Agricultural and Biological Engineers (ASABE), *2013-present*
- *Alumni Relations Chair*, Alpha Gamma Rho, National Agricultural Sciences Fraternity, *2013-2014*

Skills

- HPLC, Image analysis, Statistical analysis, Arduino, Food processing
- MATLAB, LaTeX, Adobe Illustrator
- Laboratory safety fundamentals, certificate from UC Davis Safety Services, *2016*
- Writing Successful Grant Proposals, certificate from American Association for the Advancement of Science (AAAS), *2018*