
GRADUATE TEACHING FELLOW / GRADUATE STUDENT

Graduate Teaching Fellow / Student in Chemical Engineering with experience in academia as well as multiple industries. Possesses a strong aptitude for quickly learning new software packages and analysis techniques while continuously demonstrating initiative to increase knowledge base. Exhibits exceptional abilities working individually and collaborating in team while utilizing technical skills that can be used in a variety of applications. A clear, concise communicator whose meticulous approach to engineering problems has consistently led to a high level of customer satisfaction.

EDUCATION

Ph.D. Chemical Engineering
Colorado State University; Fort Collins, CO

Expected Graduation: 2019

M.S. Mechanical Engineering
University of Denver; Denver, CO

B.S. Chemical Engineering
University of Colorado at Boulder; Boulder, CO

- Member of Chemical Engineering Honor Society (OXE)
- Recipient of Active Learning Award

RESEARCH EXPERIENCE

- L. Weber, W. Raymond, and B. Munsky. (2018) Identification of gene regulation models from single-cell data. *Phys Biol*, 15 (5), 055001. <https://doi.org/10.1088/1478-3975/aabc31>
- L. Weber, W. Raymond, and B. Munsky, "Tutorial on the Identification of Gene Regulation Models from Single-Cell Data," in *Quantitative Biology: Theory, Computational Methods, and Models*, B. Munsky, W. S. Hlavacek, and L. S. Tsimring, Ed. Cambridge, MA: The MIT Press, 2018, pp. 599-616.
- **M.S. Thesis:** "Pulmonary particle deposition in relation to age, body weight, and species"
 - Deposition based on therapeutic volume delivered and determined by static probabilistic mathematical model. Evaluation of deposition based on variable breathing rates. Sensitivity analysis performed to determine sensitivity of particle deposition to changes in particle size and breathing rate.

CONFERENCE PAPERS

- Worden RN, Weber LM, and Lengsfeld CS. September 2012. *Optimal Parameters for Pulmonary Particle Deposition as a Function of Age*. ICLASS 2012, 12th International Conference on Liquid Atomization and Spray Systems. Heidelberg, Germany.
- Weber LM and Lengsfeld CS. May 2011. *Spray Nebulizer Deposition Efficiency as a Function of Age*. ILASS Americas, 23rd Annual Conference on Liquid Atomization and Spray Systems, Ventura, CA (Best Conference Paper Finalist).
- Weber LM and Lengsfeld CS. May 2011. *Spray Nebulizer Deposition Efficiency Impact of Species*. ILASS Americas, 23rd Annual Conference on Liquid Atomization and Spray Systems, Ventura, CA.

PROFESSIONAL EXPERIENCE

Graduate Research Assistant / Graduate Teaching Fellow
Colorado State University; Fort Collins, CO

2015 - Present

- Working under Dr. Brian Munsky in quantitative biology developing computational models of RNA translation and DNA/oligonucleotide binding experiments
- Instructor for Introduction to MATLAB for Chemical Engineers, Teaching Fellow for Introduction to Chemical Engineering and Teaching Assistant for various undergraduate chemical engineering courses

Manufacturing Engineer, Viral Vaccine Engineering Services
Merck & Co, Inc.; West Point, PA

2013 – 2014

- Provided constant support to Operations and interacted daily with mechanics to address GMP equipment malfunctions and troubleshooting, facility-related repairs, and routine maintenance while minimizing facility downtime and maintaining legal compliance for a start-up cGMP bulk viral vaccine manufacturing facility. Trained in cGMP documentation practices.
- Generated work orders as well as scheduled, planned, and implemented all preventative Maintenance (PM) and corrective maintenance (CM) for the facility while coordinating with Operations, Validation, Quality, and Maintenance personnel.
- Updated PMs, PM Job Plans, and Equipment Criticalities to accurately reflect current practices, equipment requirements, and instrumentation specifications to improve maintenance efficiency.
- Input purchase orders and communicated frequently with vendors regarding equipment purchase, spare part purchase, and equipment preventative maintenance and repair.

Co-Op, Late Stage Pharmaceutical Development
Genentech, Inc.; South San Francisco, CA

2012 – 2013

- Designed and performed experiments to evaluate the effect of different modes of agitation on IgG monoclonal antibodies with different aggregation tendencies.
- Utilization of assays including size exclusion chromatography to assess aggregation; UV/Vis spectroscopy used to determine protein concentration and evaluate turbidity.
- Investigated the presence of transient cavitation at various vibrational frequencies and amplitudes by directly monitoring the production of I_3^- as a result of KI oxidation.
- Received training in both design of experiments (DOE) and JMP.

Graduate Teaching Assistant
University of Denver; Denver, CO

2010 – 2012

- Teaching Assistant for Space Systems Design I, Space Systems Design II, Thermodynamics I, and Engineering Applications III.
- Authored MathCAD and Solidworks tutorials, graded homework assignments, and provided guidance to students during laboratory sessions using software such as ABAQUS and MathCAD.
- Recorded, edited, and compressed lecture videos for online students using Adobe Premiere Pro.

Technical Advisor I, Hydraulic Fracturing
Procedure Analyst II, Hydraulic Fracturing

2008 – 2010

2006 – 2008

Weatherford International, Inc.; Denver, CO / Fort Worth, TX

- Designed stimulation treatments for the Piceance Basin, Paradox Basin, Uintah Basin, and San Juan Basin based on logs and geology using FracproPT, as well as performed remote real-time analysis during stimulation treatments to maximize successful treatment execution.
- Designed and reviewed stimulation treatments for the Woodford Shale and Barnett Shale formations. Gained familiarity with the Permian Basin, Marcellus Shale, and Haynesville Shale.
- Developed treatment proposals and cost estimates / bids as well as collaborated with sales to determine pricing scenarios and discounting for various clients in the Rocky Mountain, Mid Continent, and North East regions to satisfy both the company and client needs.
- Provided support and assisted field engineers as needed to effectively execute treatments.
- Part-time in-house engineer for the Greater Natural Buttes Completions Division at Anadarko Petroleum Corporation with extensive one-on-one interaction with:
 - Geologists, Reservoir Engineers, Petrophysicists, and Completions Engineers to evaluate well potential, design completion procedures based on log analysis, review previous treatments and identify areas for improvement, and determine “best practices” by area.

Reservoir Stimulation Field Engineer
Schlumberger Oilfield Services; Grand Junction, CO

2005 – 2006

- Quality Assurance/Quality Control (QAQC) throughout all phases of stimulation treatments in the Uintah Basin, Piceance Basin, and Paradox Basin.
- Constant interaction with clients to answer questions concerning the treatment and provide recommendations for alternative services to achieve maximum well performance.
- Managed resources on-location and continuously evaluated the site for quality, health, safety, and environmental hazards to ensure a safe and successful fracturing treatment.
- Performed sand sieves, fluid laboratory testing, and conducted on-location fluid testing.
- Completed treatment analysis, price ticket, and treatment reports for the client and company.
- Attended an intensive 10-week Reservoir Stimulation Technical School which included rock mechanics, stimulation treatment design and evaluation, fracturing fluid laboratory testing, reservoir engineering, and hands-on treatment execution and equipment operation.

Propellant Manufacturing Engineer Intern
ATK Thiokol Propulsion; Promontory, UT

2004

- Managed a 13-person team of engineers/operators that conducted a Process-Product Integrity Audit on transport bin refurbishment and included a presentation of findings.
- Authored and presented semi-annual contamination control report, and updated Contamination Control Area Specific Plan for Propellant Mix/Cast Work Center.

TECHNICAL SKILLS PROFILE

- **Academic Laboratory:** steam condensation heat exchanger, plate and frame heat exchanger, capillary rheometer, coaxial-cylinder rheometer, tubular flow reactor (PFR), continuous stirred tank reactor (CSTR), four-stage distillation column, triple-effect evaporator, gel electrophoresis, NMR spectroscopy, IR spectroscopy, gas chromatography, liquid/liquid extraction, use of manual melting point, apparatus, acid/base titration, spectrophotometer operation, feline dissection, bomb calorimeter operation, ice calorimeter operation, high vacuum system operation
- **Industry Laboratory:** SE-HPLC, CD spectroscopy, ELSD, UV/Vis spectroscopy, ICIEF, centrifugation, water analysis, fracturing fluid break testing, fracturing fluid rheology, cement fluid loss testing, cement compressive strength testing, cement thickening time testing, cement rheology
- **Relevant Software Experience:** MATLAB, MathCAD, Mathematica, FLUENT, GAMBIT, Chromeleon, Visio, Solidworks, ABAQUS, ELN, JMP, SAP, Python