

Mark Edward Redd

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Accepted Publications

- Bloxham, J. C., Redd, M. E., Giles, N. F., Knotts, T. A., & Wilding, W. (n.d.). Proper Use of the DIPPR 801 Database for Creation of Models, Methods, and Processes. *Journal of Chemical & Engineering Data*.

Experience

PhD Researcher

Brigham Young University, Provo, UT, USA | Jul 2016 – Present

- Research in autoignition temperatures (AIT) of pure compounds focusing on chemical family trends
- Mentored 10+ undergraduates focusing on safety and relevant laboratory skills
- Designed and constructed experimental apparatus and data acquisition hardware and software
- Worked as a Teaching Assistant for undergraduate courses on “Chemical Plant Design” and “Numerical Methods”
- Wrote custom software for data acquisition and analysis automation

Engineering Intern

Sustainable Energy Solutions LLC, Orem, UT, USA | May 2014 – Aug 2015

- Worked with a team of engineers to build an experimental reactor
- Personally designed and fabricated multiple components of reactor through various welding and machining processes
- Assembled and wired multiple components on coal fire reactor
- Designed and began fabrication of a specialized CO₂ separation process
- Designed parts and assemblies with Autodesk Inventor CAD software

Chemical Engineering Laboratory Assistant

Brigham Young University, Provo, UT, USA | Jun 2012 – May 2014

- Managed and carried out all aspects of laboratory work in an independent and unsupervised setting
- Installed, repaired and maintained ceramic gasification reactor and components
- Collected data on more than 70 reactions to develop accurate kinetic models
- Improved efficiency of data collection by automating data analysis and graphic generation with VBA on Excel
- Built, repaired and maintained various components of experimental reactor apparatus
- Trained 2 new employees in safety regulations and standard operating procedures

Full-Time Volunteer Missionary

The Church of Jesus Christ of Latter-day Saints, Salta, Argentina | Sep 2009 – Sep 2011

- Trained and mentored 2 new missionaries
- Conversed with 100+ people on the street and in homes explaining concepts in Spanish
- Participated in regular community service in 5 cities. Projects included cleaning a community park, street waste disposal and hospital visits

Biology Laboratory Assistant

Utah State University, Logan, UT, USA | Apr 2009 – Aug 2009

- Assisted a PhD candidate with experiments on *Arabidopsis thaliana* to find patterns in gene expression from the removal of Saccharide-9 from the plant genome
- Collected data from over 100 specimens by making synthetic growth media, planting and observing growth patterns

Education

Brigham Young University

Doctor of Philosophy, Chemical Engineering / Jul 2016 – 2021

Brigham Young University

Bachelor of Science, Chemical Engineering / Sep 2008 – Apr 2016

Skills

Programming Languages

- C / C++
- FORTRAN
- JavaScript / HTML / CSS
- MATLAB
- Python
- Microsoft VBA

Software / Platforms

- Arduino
- Autodesk Inventor
- GCC and GNU Build Tools
- Git
- Linux
- MathCAD
- MATLAB / Simulink
- Microsoft Office

Industrial

- Automotive Repair and Maintenance
- Electronics Soldering and Wiring
- Machining processes (i.e. end milling, turning etc.)
- Welding (SMAW, GMAW, Oxy-acetylene)