

# David Berlin

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## Education

College of the Sequoias

Major: Math/Science for Transfer

Associate of Science: Engineering, Chemistry, Physics, and Mathematics

Graduated Spring 2016

GPA 3.65

University of California, Irvine

Major: Chemical Engineering

Minor: Materials Science

Specializations: Biomolecular Engineering

Graduated June 2019

GPA 3.469

## Work Experience

*Tutor/Facilitator in the MESA Study Center, College of the Sequoias, Visalia, CA*

*Fall 2014 – Fall 2015*

- Subjects tutored: general and organic chemistry, algebra through calculus, linear algebra, differential equations, and general physics

*Academic Excellence Workshop Facilitator for PASEO, College of the Sequoias, Visalia, CA*

*Fall 2014 – Fall 2015*

- Refined Workshops in: General Chemistry 1 and General Chemistry 2

*Mentor Led Workshop for PASEO, College of the Sequoias, Visalia, CA*

*Fall 2014*

- Provided students with information about school, activities, internships, scholarships, and provided tutoring in math and chemistry

*Private Tutor*

*Spring 2015 – Winter 2019*

- Subjects tutored: Mathematics, Chemistry

*Student Laboratory Technician*

*Fall 2014 – Fall 2016*

- Assist with the preparation of laboratory experiments and assist in maintaining the facility

*Peer Mentor – Summer Bridge*

*Summer 2014 – Fall 2016*

- Provided guidance for incoming students in the STEM fields, including assisting in the matriculation process, helping to prepare them for their college STEM classes, and support for their future endeavors at College of the Sequoias

*Jet Propulsion Laboratory Internship for Planetary Rover Design for the NCAS (National Community College Aerospace Scholars) Program*

*Spring 2014*

- Participated in a project simulation of all phases of a flight program for a Mars rover that conducts a sample return, emergency assist of other rovers, and accomplishes science objectives. This included working with a team to build an autonomous prototype sample return rover
- Acted as a budget manager to coordinate the allocation of resources to build the rover as well as the revenue produced by deliveries accomplished by the rover
- Interacted with NASA Headquarters personnel, project management, and various engineers to build and test prototypes; executed tests in simulated terrain courses and improved performance with modifications; and presentation of project.

*NASA's Goddard Space Flight Center – Intern*

*Summer 2015 and Summer 2016*

- Developed a rapid bioburden ATP test that could be used on sensitive hardware
- Worked in support of other NASA based projects, such as bioburden monitoring on the Mars Organic Molecule Analyzer (MOMA) that will be implemented on the ExoMars 2018 rover
- Supported cleanroom monitoring projects by testing for the presence of biologicals on structures and hardware.

*Undergraduate Researcher at the University of California, Irvine*

*Fall 2016 – Spring 2019*

- Assisted graduate student on her project of developing correlations between bacterial biofilm susceptibility to antibiotics and material topography using microfluidic devices.
- Developed and optimized a procedure for screening over 10000 strains of *Pseudomonas aeruginosa* to determine the strain's ability to disperse biofilms produced by *E. coli*.
- Undertook own project to investigate the relationship between biofilm's antibiotic susceptibility and surface roughness of the surface the biofilm is growing on.

*NASA's Goddard Space Flight Center Internship in Detector Design*

*Summer 2017*

- Developed a fabrication method for producing an x-ray detector integrated circuit for the LYNX study that would increase wire density
- Gained experience working in a class 100 cleanroom
- Gained experience of the integrated circuit fabrication process, including masking the silicon wafers, depositing various metals onto the wafer surface, and removing the unwanted metal through various techniques
- Presented research findings at Goddard's Intern Symposium.

*Materials and Process Engineer, Asc., Lockheed Martin Space, VAFB, CA*  
*August 2019-Present*

- Improved cleaning processes while improving chemical usage to reduce the potential impact to the atmosphere.
- Drafted the technical content for near-million-dollar subcontracts.
- Executed a project from planning through procurement, implementation, and closure. Delivered the final product two months ahead of schedule and reduced costs by approximately 25%.
- Responsible for managing various aspects of own projects, including schedule, budget, tasking, status, and performing corrective action.
- Interfaced directly with customer to present on on-going projects.
- Engaged in establishing and maintaining various cleanroom environments while managing various personnel that are key to operations.
- Collaborated between various teams both locally and across the country.
- Review workorders' and purchase requests' materials and processes for their application.

## **Volunteer Experience**

Haunted Trail Project Oct 2013  
Volunteering and fundraiser for STEM scholarships

*Noche de Ciencias* - Society for Hispanic Professional Engineers Oct 2013  
Facilitator for the chemistry workshop, designed to motivate and encourage students to attend college after high school and pursue a career in STEM

Science Fair Mar 2014 & 2015  
Judge for the student's projects

Latino Youth Leadership Academy Apr 2014 & 2015  
Two-time workshop leader at a conference that motivates youth Latinos to attend college and spark an interest in STEM

Science Olympiad Apr 2014 & 2015  
MagLev test proctor for the regional competition  
Bridge Building competition proctor for the regional competition

Robot Riot May 2014  
Event judge. This event was for students in the local districts that required them to build Lego robots to compete in several different challenges

Expanding Your Horizons Oct 2014  
Leader for workshop, teaching students how science can be fun and interesting through chemistry

College Night at the Visalia Convention Center Sep 2014 & 2015

Represent COS and answer questions about COS STEM programs, courses, and clubs

Atwell Island Wetlands Reserve

Apr 2015

Volunteer for a community outreach and education event

## **Professional Publications**

Alternate Protocol for Detecting Biological Contamination of Sensitive Hardware

Berlin, David, Erin Lalime, and Nancy Carosso. "Alternate Protocol for Detecting Biological Contamination on Sensitive Hardware." *2015 Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) National Conference*. No. GSFC-E-DAA-TN25983. 2015.

Establishing and Monitoring an Aseptic Workspace for Building the MOMA Mass Spectrometer

Erin N. Lalime, David Berlin, "Establishing and monitoring an aseptic workspace for building the MOMA mass spectrometer," *Proc. SPIE 9952, Systems Contamination: Prediction, Control, and Performance 2016, 99520H (27 September 2016)*; <https://doi.org/10.1117/12.2238226>

## **Professional Presentations**

National Community College Aerospace Scholars Program

Feb 2014

Participated in presentation of company team organization, rover design, and project status presentation that covered project objectives, design phase, budget and implementation plans.

NASA Goddard Space Flight Center Poster Symposium

August 2015, 2016, and 2017

Presented summer internship research findings via a poster presentation along with roughly 400 other interns. Won the Orbit Award for my presentation in Summer 2016.

UCI University Research Opportunity Program Poster Symposium

May 2018

Presented my research on developing a screen protocol for determining which gene knockouts of *Pseudomonas aeruginosa* would be unable to disperse biofilms of *Escherichia coli*.

## **Professional Conferences and Seminars**

Summer Bridge Week

July 2013 & 2014

Fresno Pacific University, Fresno, CA

MESA Student Leadership Retreat

Apr 2014

Happy Valley Conference Center, Santa Cruz, CA

MESA STEM Day UC Davis

Nov 2014

University of California, Davis, Davis, CA

NASA Presenting Technical Information Seminar

June 2015, 2016, and 2017

NASA's Goddard Space Flight Center, Greenbelt, MD

## **Awards and Honors**

Saputo Inc. Scholarship

MUREP (Minority University Research and Education Program) Scholarship/Internship

Goddard Space Flight Center Poster Symposium Presentation Award

**Professional affiliations**

BioFORGE – Active Member

MESA – Math, Engineering, and Science Achievement

PASEO – Promoting Achievement, Scholarships with Enrichment Opportunities

SETA – Science, Engineering, and Technology Association

SHPE – Society of Hispanic Professional Engineers – Member of the club and association

ACS – American Chemical Society – Founding member of student chapter, President, Member of association

Tau Beta Pi – Engineering Honor Society, Member

Omega Chi Epsilon – Chemical Engineering Honor Society, Secretary of university chapter