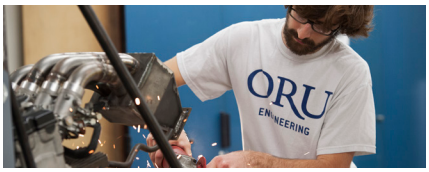
ORU MAKE NO LITTLE PLANS HERE

ENGINEERING DEPARTMENT NEWSLETTER



ORAL ROBERTS UNIVERSITY ENGINEERING GRADUATES OF 2017

Twenty-two engineering students graduated with B.S.E. degrees.

Left to Right: Dr. Ma, Dr. Leland, Dr. Zhang, Dr. Halsmer, Jordan Malara, Paige Smith, Christiana Sleiman, Josephine Halsmer, Carlin Gerstenberger, Micah Samuelson, Rachel Moen, Drew Howell, Julian Gomez, Asia Meriwether, Jacob Parker, Emily Dzurilla, Aiodago Uises, Jonathan Dunbar, Julian Martin, Oluwasekemi Idowu, Cole Bagdasarian, Joshua Cortez, Isaac Fraley, Rohan Aby, Austin Strecker, Vincent Benton, Dr. Matsson, Dr. Liu, Dr. Gregg

SUMMER 2017 ENGINEERING STUDENT INTERNSHIPS

DAVID AHRENS: ENGINEERING MAJOR WITH MECHANICAL CONCENTRATION

I was hired as one of 21 interns to work at NORDAM for the summer of 2017. Upon arriving there, the interns were placed at one of the company's four divisions: Interiors and Structures, Thrust Reversers, Transparency, or Repair. For my internship, I was placed at the Transparency Division. This division manufactures windows for airplanes as well as a number of other acrylic parts used in the aerospace industry. Upon arriving, an engineering mentor was assigned to me and gave me a series of projects that I was to personally oversee for the duration of my summer. My projects were very diversified ranging from analyzing production efficiency for the division to working directly with manufacturing workers to improve production lines. The project that ended up taking precedence over all, however, was to experiment with a new hydrophobic coating.

A hydrophobic coating is a clear, protective layer applied to a surface to reduce the contact angle of liquids. The result of this is that liquids will bead and run off the surface reducing or eliminating the need for such things as windshield wipers. Current hydrophobic coatings do exist but are a temporary solution, having to be reapplied about once per week. The new hydrophobic coating that I worked with over the summer claimed to be able to last up to 5 years. This could have large implications for NORDAM's customers and so it's of very high priority for the Research and Development team. I was tasked with testing this new hydrophobic coating, writing up a report on it, and explaining concerns and considerations that should be taken in using this product.

I spent a good portion of my summer in a lab running experiments such as contact angle, abrasion, light transmittance and haze, and a number of others. I also researched and implemented techniques for applying the hydrophobic coating to the company's acrylic. My results were then presented at the end of the summer to a board of engineers where I outlined my findings and steps I saw in moving forward with production. Overall, my internship was a great experience where I was exposed to a number of engineering disciplines and used skills learned in my classes to analyze data and conduct experiments and research. NORDAM puts great emphasis on its' interns having current and relevant projects to work on and due to this, I always felt valued as a stakeholder (their term for employee) and enjoyed my work there.

ORU MAKE NO LITTLE PLANS HERE

DEWAYNE BRYANT: BIOMEDICAL ENGINEERING MAJOR

This summer, I obtained an internship with TriMedx, a healthcare technology management corporation. TriMedx started as a small biomedical engineering department. Headquartered in Indianapolis, TriMedx has grown to reach the international market. TriMedx helps healthcare providers increase their medical equipment performance and reduce cost. Client hospitals can focus on patients instead of equipment. The position was in the Tulsa location within the St. John Medical Center.

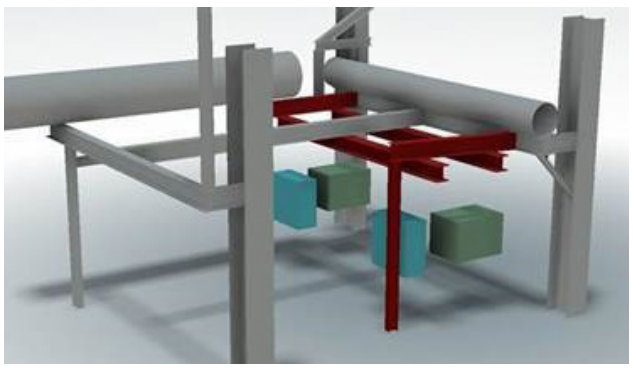
At TriMedx, I was working with technicians in their Biomedical Engineering shop. First, I observed how repairs, preventative maintenance, and performance assurance was conducted on various devices. I could learn and understand the theory of operation behind these devices. After learning about these devices, I could do repairs and maintenance on these devices under the supervision of an employee. While working on devices, I could go into every sector of the hospital with employees to find and work on equipment as needed. This allowed me to interact with nurses and learn the customer service side of the job. The only part of the job that I was not able to do was the documentation because that is a strict liability left for employees to handle.

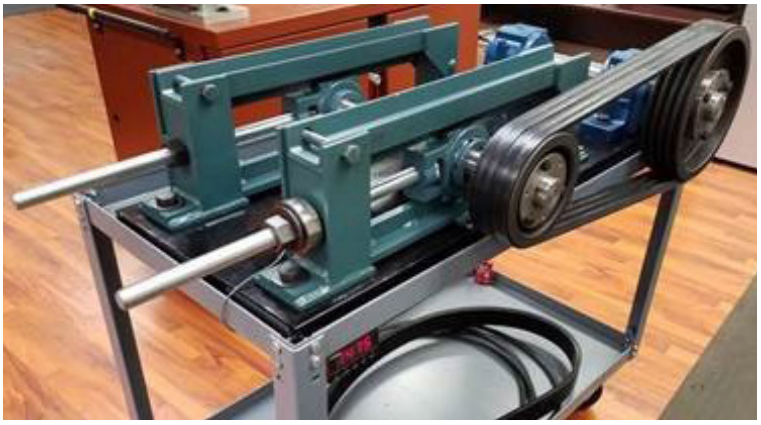
This experience was great! I highly recommend this to any electrical or biomedical engineering major looking to learn more about medical devices or gain hospital experience through working with equipment. I would advise that students take this opportunity as early as possible. This corporation also provides great opportunity for a job right out of college. The biomed shop at St. John Medical Center is one of the best in the region. However, students will be able to find TriMedx in operation at a hospital in any location across the country.

NICK JOHNSON: ENGINEERING MAJOR WITH MECHANICAL CONCENTRATION

This summer I worked in Valliant, OK at a paper mill for International Paper. There I made a general design of two monorails, pictured below. I also designed and had fabricated a v-belt turning tool.

Finally and most importantly, I designed and assembled a v-belt alignment and tensioning stand, pictured below. This is specifically designed to facilitate the training of maintenance technicians to use sonic/inductive tension meters on single-strand v-belts and powerbands, as well as use a laser alignment tool. The stand was built with a thru-hole load cell which measures the force the belts are exerting on the bearing, which may be used to demonstrate the benefit of placing sheaves as close to the bearings as possible.





FARAN MAALIK: ENGINEERING MAJOR WITH MECHANICAL CONCENTRATION

I received an internship to work for the rupture disc company OSECO in Broken Arrow. My responsibilities were to make certified and approved drawings for customers and in this capacity I was participating in the company's Capital Commercial Project team. I also modeled new designs based on customer needs. I completed product auditing and helped senior engineers test rupture discs. I enjoyed working at OSECO because the products are used in safety applications in the oil and gas industry as well as in sanitary food applications.

JOHN VOTH: ENGINEERING MAJOR WITH MECHANICAL CONCENTRATION

This summer I was given the incredible opportunity to be an engineering research assistant to a doctoral candidate at the Technical University of Darmstadt, Germany. This internship was funded by the National Science Foundation as part of their Research Experience for Undergraduates program. Here's a brief overview of the research that I worked on: Sensors within consumer cars track a plethora of driving data, recording everything from engine vibrations to GPS position. This information contains much potential value for consumers and industry alike, allowing automobile engineers the ability to better understand how vehicles are actually used, separate from theoretical models. However, submitting this data for analysis subjects consumers to extreme privacy risks. I was assigned the task of investigating data aggregation as a method to maintain the quality of driving data without compromising consumer privacy. After much MATLAB coding, my results concluded that such a method would work adequately to complete both objectives, and my work was presented in front of the Institute of Mechatronics at TU Darmstadt. As a result of this project, I am expected be listed as a co-author for a paper submitted to an upcoming automotive IEEE conference. I loved taking an in-depth look at many other Masters and Doctoral level engineering research projects, and living abroad in Germany for two and half months was an absolutely incredible cultural experience too.