Catherine C. Starks
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A professional, highly analytical individual offering a multitude of established and proven skills in solving complex technical mechanical engineering problems, leadership development, device design, and management. A teamwork advocate with the skills to train, motivate, and develop others. Experienced at mechanical & electrical device resolutions and programming for efficient processing.

Education

Tulane University, *New Orleans, LA*
    Master of Science, Biomedical Engineering   August 2018-May 2019
- **Research:** H Index, Productivity of Anesthesiology Faculty in Residency in US Medical Schools, Reliability and Quality of YouTube Videos as a Source of Patient Information: "Robotic Thyroid Surgery" & "Transoral Thyroid Surgery"

    Bachelor of Science, Biomedical Engineering   August 2016-May 2018
- **Academic Honors:** Academic Achievement Scholarship, Tulane Scholarship
- **Thesis Title:** Formalin Fixation Device for Improved Histological Characterization of the Mice Female Reproductive Tract
- **Highlighted Courses:** Mechanics of Materials, Fluid Mechanics, Math Modeling, Elements of Design, Polymer Tire Design Project, Technology Invention & Commercialization, Electric Circuits, Biomedical Electronics, Biomedical Acoustics, Biomechanics and Transport, Signals & Systems, Scientific Computing/Numerical Analysis

Cottey College, *Nevada, MO*   August 2014-May 2016
    Associate in Science
- **Founder/President** of the Cottey Engineering Club which resulted in an agreement with a four-year university for engineering degree track
- **Academic Honors**: Top Ten Scholar, Phi Theta Kappa (Honor Society), Sigma Kappa Delta (English Honor Society), Physical Plant Scholarship

Experience

Researcher Endocrine Neoplasia Research Lab, PI: James Koh, Ph.D., UCSF, San Francisco, CA   July 2019-*present*
- Submitted a manuscript on the biochemical mechanisms of calcium sensing failure in parathyroid glands
- Processing cell culture and ELISA for parathyroid cancer research

Supervisor Prospect Airport Services, San Francisco International Airport, CA   July 2019 - Dec. 2019
- Delegated assignments to my employees to assist passengers with reduced mobility and disabilities to their requested destinations via wheelchair, guidance for visually-impaired, and aisle chair transfers
- Coordinated briefings on etiquette and professionalism
- Extended field research from my senior team design project to allow me to assess wheelchair functionality and impact

Researcher Endocrine Research, PI: Emad Kandil, M.D., Chief of General, Endocrine, and Oncological Surgery,   June 2018-May 2019
Tulane School of Medicine, New Orleans, LA
- Shadowed robotic-assisted surgeries including thyroidectomy, parathyroidectomy, and fine needle aspiration procedures
- Assessed over sixty YouTube videos on Robotic Thyroid Surgery and Transoral Thyroid Surgery using two universally-recognized quality scoring systems and a view power index
- Presented poster of YouTube study for transoral thyroid surgery at the 89th Annual Meeting of the American Thyroid Association which was received well in regarding the quality and reliability of robotic thyroid surgery
- Submitted my primary author manuscript on the presented study to Gland Surgery

Product Design Engineer Bionetiks, San Francisco, CA   March 2018-July 2018
- Rendered and designed a prototype in SolidWorks of the mount device for the Bionetiks app which calculates the biomechanics of weight lifting to enhance proper form and improve results
- Photographed the app with Olympic athlete Gwen Berry who recently broke the American record for women's hammer throw which allowed for an up-gain in use of the app

Researcher/Device Design Engineer Biomechanics Growth & Remodeling Lab, New Orleans, LA   December 2016-February 2018
- Manufactured and tested a formalin fixation device in SolidWorks for maintaining the physiologically-relevant biomechanical properties of circumferential tissues of mice during histological fixation which produced a more accurate assessment of histology
- Assisted with computational analysis and histological imaging
- Configured in MyoView in analyzing biaxial mechanical tests and ran Matlab code for pelvic diameter testing

President/Founder Cottey Engineering Club, Cottey College, Nevada, MO   January-May 2016
- Founded the club based upon my aggregated inspiration of engineering and Arduino robotics
- Recruited and motivated members by instilling levels of responsibility, pride, and leadership
- Delegated objectives for each member with a structured overall plan with timeline setting deadlines for our final project: a programmable skateboard with two Arduino boards, DC motors, motor shield, and a front servo motor for wheel control, and a third Arduino board for dragon movement on top
- Journaled progression on a Wix website

Skills

Mechanics: CNC Lathe, Mill, construction, circuits, soldering, injection molding, laser cutting, foundation, painting, manufacturing, automotive repairs
Software: SolidWorks, Matlab & Simulink, Comsol, Photoshop, ImageJ, MyoView, GraphPad Prism, R, Minitab, Box, LabVIEW
Programming Languages: Python
Labs: NMR, UV-Vis, FT-IR Spectroscopy, Chromatography, ELISA, Set-point assay
Languages: English (Native), Spanish(Native), Italian (working proficiency), and Japanese (in progress)