

Erika M. Chelales

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PROFILE

Known for exceptional work ethic and an ability to lead and work in groups of all personalities and dispositions. Proven track record of solving complex problems with customized solutions. Affinity and enthusiasm for engineering creates the motivation to succeed.

EDUCATION

Tulane University, New Orleans, LA, United States of America

Bachelor of Science Engineering, Biomedical Engineering

May 2018

GPA: 4.0/4.0

Minor: Spanish

North Central High School, Indianapolis, IN, United States of America

International Baccalaureate Diploma

May 2014

Abroad Experience: Research Assistant at Medical Photonics Group at Universität Erlangen-Nürnberg, community service in Dharamsala, India, participant in Indiana University Honors Program in Foreign Language for eight weeks in Oviedo, Spain

Bachelors Thesis Title: “Development of analytical tools for the assessment of acoustic tweezing thromboelastometry”

EXPERIENCE

Undergraduate Researcher

January 2017-Present

Biomedical Acoustics Laboratory at Tulane University

New Orleans, LA

- Aided in experiments to assess blood coagulation using acoustic tweezing
- Developed MATLAB code to analyze dimensions of acoustically levitated droplets from experimental data

Lab Instructor

August 2016-Present

Tulane University School of Science and Engineering

New Orleans, LA

- Lead review sessions involving circuit analysis and Multisim for an Electric Circuits class
- Instructed MATLAB software laboratory sessions

Research Intern

June 2017-August 2017

Medical Photonics Group at Friedrich Alexander Universität

Erlangen, Germany

- Developed phantoms mimicking the optical, acoustic, and mechanical properties of soft tissue
- Assisted in conduction and analysis of remote photoacoustic imaging experiments using speckle sensing
- Presented the research project and results at the RISE Conference in Heidelberg, Germany

Undergraduate Researcher

October 2016-May 2017

Multiscale Bioimaging and Bioinformatics Laboratory at Tulane University

New Orleans, LA

- Analyzed verbal reasoning skill and brain activity in MATLAB

- Used both univariate and multivariate regression techniques as well as test and train groups for assessment
- Performed regressions to analyze connections between single nucleotide polymorphisms and fMRI data

Optical Research Lab Technician May 2016-August 2016
Indiana University Clinical Optics Research Lab Bloomington, IN

- Developed MATLAB programs for optical research experiments for threshold testing of illumination and text measurement from images
- Created and designed Red Cap surveys and assisted in data entry for various clinical studies
- Team member responsible for MATLAB programs to randomize experimental conditions for subjects

Laboratory Aide August 2015-May 2016
Tulane University Jones Research Lab New Orleans, LA

- Facilitated genetic research for breast cancer through the careful cleaning of materials to prevent contamination and provide sanitary and orderly workspaces
- Maintained organization of laboratory equipment and materials through the disposal of laboratory wastes and monitoring levels of stock solutions

Tutor August 2014-May 2015
Tulane Workforce Management - Lusher Charter School New Orleans, LA

- Tutored for New Orleans elementary, middle, and high school students in various subject areas including: math, science, history, Spanish, and English
- Assisted adults returning to school by reading papers and instructing on how to improve writing style, grammar, and vocabulary

SKILLS

- **Software:** Windows and Mac operating systems • GraphPad statistical analysis and graphing software • Experienced in MATLAB coding for analysis and program development • Computer-Aided Design experience: SolidWorks • Multisim • Office products: Microsoft Word, PowerPoint, Excel • Survey software: Qualtrics and RedCap; iMovie
- **Laboratory Skills:** Phantom preparation • Optical Coherence Tomography • Centrifugation • Pipetting • Remote photoacoustic imaging (transmission and reflection modes) • Remote speckle sensing using optical fibers • Laser safety • Patient data entry for clinical trials
- **Languages:** English (native language) • Spanish (advanced reading, writing, and conversational skills, including study abroad in Spain and Bolivia)
- **Data Collection and Analysis**
- **Communication Skills:** Teaching • Tutoring • Presenting

PUBLICATIONS

Manuscript in Preparation: Benjamin Lengenfelder, Fanuel Mehari, Martin Hohmann, Markus Heinlein, Erika Chelales, Florian Klämpfl, Zeev Zalevsky, and Michael Schmidt. *Towards a laser-surgery feedback system based on remote photoacoustic sensing using speckle analysis.*

PRESENTATIONS

Nithya Kasireddy, Erika Chelales, Vahideh Hosseinzadeh, Daishen Luo, Glynn Holt, Damir Khismatullin. *Dynamic Measurement of Blood Viscoelasticity using Acoustic Tweezing*. Oral presentation at the 2017 Biomedical Engineering Society Annual Meeting, Phoenix, AZ, October 14, 2017.

Rachel Muessel, Erika Chelales, Martin Rickert, Renfeng Xu, Arthur Bradley, Pete Kollbaum. *Product label readability for early and late presbyopes*. Poster presentation at the 2017 American Academy of Optometry Annual Meeting Annual Meeting, Chicago, IL, October 12, 2017.

Benjamin Lengenfelder, Fanuel Mehari, Martin Hohmann, Markus Heinlein, Erika Chelales, Florian Klämpfl, Zeev Zalevsky, and Michael Schmidt. *Remote photoacoustic tomography using speckle sensing*. Oral presentation at the 2017 Annual Research Internships in Science and Engineering Conference hosted by the German Academic Exchange Service in Heidelberg, Germany, July 8, 2017.

HONORS AND AWARDS

Academic Honors:

- Dean's List December 2014-Present
- Honors Program December 2014-Present
- Tau Beta Pi (Engineering Honor Society) November 2016-Present
- National Merit Finalist September 2013

Awards:

- Presidential Scholarship (\$120,000) August 2014-Present
- National Merit Scholarship (\$8,000) August 2014-Present
- Scholar-Athlete of the Year May 2017
- Kappa Alpha Theta Foundation Sisterhood Scholarship (\$1,100) June 2016
- Kappa Alpha Theta Foundation Indianapolis Alumnae Chapter Scholarship (\$1,400) June 2016
- Kappa Alpha Theta Foundation Morna Elizabeth Dusenbury Memorial Scholarship (\$1,025) June 2016
- Burger King Scholars Award (\$1,000) May 2014

COMMUNITY SERVICE AND LEADERSHIP

Program Coordinator and Founder

Tulane University School of Science and Engineering Mentor Program March 2016-Present
New Orleans, LA

- Founded a mentor program to help freshmen adjust to the School Science and Engineering and form a close-knit and supportive community of engineers

Tau Theta Tau - Professional Engineering Fraternity

Tulane University March 2016-Present
New Orleans, LA

- Planned and organized social events and activities to form bonds of brotherhood between members

Kappa Alpha Theta Fraternity January 2015-Present
Tulane University Alpha Phi Chapter New Orleans, LA

- Served as a class representative on Member Development Committee and improved member experiences

India Service Trip Summer 2015
Tulane Center for Public Service: Compassion in Action Program Dharamsala, India

- Taught English to Tibetan refugees, volunteered on environmental projects, and prepared free meals at the Golden Temple in Amritsar

Tulane Cross Country and Track and Field August 2014-Present
Tulane University New Orleans, LA

- Scholar-Athlete of the Year 2016-2017
- American Athletic Conference All-Academic Team and Conference Championship competitor
- 5,000 Meters Women Division I, Personal Best: 19:13 (September 2014)
- 10,000 Meters Women Division I, Personal Best: 41:00 (May 2016)

MEMBERSHIPS

- Tau Beta Pi: Engineering Honor Society November 2016-Present
- Society of Women Engineers January 2016-Present