

Alisha Geldert

alisha.geldert@berkeley.edu • 571-286-7691

EDUCATION

| | |
|---|-------------------|
| UC Berkeley-UCSF Graduate Program in Bioengineering <i>Ph.D. Student in Bioengineering</i> | Aug 2016-present |
| University of Virginia <i>Bachelor of Science in Biomedical Engineering, Minor in Engineering Business</i> GPA 3.96/4.00 | Aug 2011-May 2015 |

RESEARCH EXPERIENCE

| | |
|--|------------------------------------|
| Ph.D. Student, Bioinstrumentation for Quantitative Biology & Medicine Laboratory University of California, Berkeley Advisor: Amy Herr, Ph.D. <ul style="list-style-type: none">Developing microscale analytical tools for protein measurementRotation project: Characterized the durability of SU-8 microposts used to create the lab's single-cell Western blotting platform and proposed strategies to improve durability | Sept-Nov 2016, May 2017-present |
| Rotation Student, Biodesign Laboratory University of California, San Francisco Advisor: Shuvo Roy, Ph.D. <ul style="list-style-type: none">Modeled fluid flow and oxygen transport through an extracorporeal membrane oxygenator being developed in the lab, to assess its hemocompatibility and oxygen transport efficacyStudied the effect of microscale mixing structures in the flow channel on oxygenation levels | Mar-May 2017 |
| Rotation Student, Thermal Therapy Research Group University of California, San Francisco Advisor: Chris Diederich, Ph.D. <ul style="list-style-type: none">Developed, characterized, and tested <i>ex vivo</i> a prototype ultrasound applicator for thermal ablation of lung tumorsSelected an injectable tumor mimicking material for <i>ex vivo</i> tests and measured its acoustic properties | Jan-Mar 2017 |
| Whitaker International Program Fellow National University of Singapore Advisor: Chwee Teck Lim, Ph.D. <ul style="list-style-type: none">Studied the kinetics of protein adsorption to 1D and 2D nanomaterials to assess their hemocompatibilityInvestigated the performance of different nanomaterials for aptamer-based FRET biosensing applicationsDeveloped and refined a solution-based aptasensor for malaria detection, and demonstrated proof of concept of a paper-based version of this diagnostic assay | Sept 2015-June 2016 |
| Capstone Design Student University of Virginia Advisor: Jason Papin, Ph.D. <ul style="list-style-type: none">Developed a low-cost device to automatically and noninvasively measure optical density of bacterial cultures grown in shaken flasks, eliminating the need for manual samplingValidated the device by demonstrating its ability to measure bacterial concentration in all phases of growth with similar accuracy as standard spectrophotometric measurements | Sept 2014-June 2015 |
| Bioengineering Summer Internship Program National Institutes of Health, Bethesda, MD Advisor: Nicole Morgan, Ph.D. <ul style="list-style-type: none">Designed microfluidic gradient generators to precisely control deposition of neural guidance molecules on a cell culture substrateUsed these devices to study the effect of chondroitin sulfate proteoglycan gradient profile on neuron growth, to support the development of neural tissue regeneration techniques | June-Aug 2014 |

Intern, Laboratoire d'Automatique, Génie Informatique et Signal (UMR CNRS 8219)

May-July 2013

Hautes Études d'Ingénieur (HEI), Université Catholique de Lille, France

Advisor: Laurent Peyrodie, Ph.D.

- Developed a semi-automated program to measure heart rate from video of a patient's face, and demonstrated its accuracy by comparing to ECG measurements
- Reviewed and translated (from French to English) sections of manuscripts being submitted for publication

Therapeutic Ultrasound Student Researcher

Feb 2013-Aug 2014

University of Virginia

Advisor: Richard Price, Ph.D.

- Developed a protocol to fabricate lipid microbubbles in-house, to enable preparation and modification of microbubbles within the lab
- Studied the effect of microbubble size on ultrasound-mediated nanoparticle delivery across the blood-brain barrier

Student Research Assistant

June-Aug 2012

Focused Ultrasound Foundation, Charlottesville, VA

Advisor: Matt Eames, Ph.D.

- Processed and analyzed data from clinical trials of focused ultrasound treatment of essential tremor
- Developed a model to predict temperature elevation in brain tissue treated with focused ultrasound, based on CT data and sonication parameters

PUBLICATIONS & PATENTS

1. Kenry*, **A. Geldert***, Z. Lai, Y. Huang, P. Yu, C. Tan, Z. Liu, H. Zhang, & C.T. Lim (2017). Single-Layer Ternary Chalcogenide Nanosheet as a Fluorescence-Based "Capture-Release" Biomolecular Nanosensor. *Small*, 13(5), 1601925.
2. Kenry*, **A. Geldert***, X. Zhang, H. Zhang, & C. T. Lim (2016). Highly Sensitive and Selective Aptamer-Based Fluorescence Detection of a Malarial Biomarker Using Single-Layer MoS₂ Nanosheets. *ACS Sensors*, 1(11), 1315-1321.
3. B. Dougherty*, **A. Geldert***, J. Papin*, & K. Seitter* (April 29, 2016). Optical Density System and Related Method thereof. International Patent Application No. PCT/US2016/030206.
4. **A. Geldert** & L. Peyrodie. Development of a semi-automated noncontact heart rate measurement system. *The Spectra: Virginia Engineering & Science Research Journal*, 5: 64-69 (2014).

denotes equal contribution/inventorship*PRESENTATIONS**

1. **A. Geldert**, Kenry, & C.T. Lim. Investigation of aptamer-based sensing for malaria detection. Oral presentation, Whitaker Special Session, BMES Annual Meeting (October 2016).
2. **A. Geldert**, Kenry, & C.T. Lim. Development of a 2D nanomaterial-based aptasensor for disease diagnosis. Poster presentation, BMES Annual Meeting (October 2016).
3. **A. Geldert**, A. Taverner, H. Geller, & N. Morgan. The effect of chondroitin sulfate proteoglycan surface gradient profile on neurite growth. Poster presentation, BMES Annual Meeting (October 2014).
4. J. Booth*, **A. Geldert***, & M. Eames. A model for predicting temperature elevation in brain tissue by computed tomography and sonication data. Poster presentation, Intl. Symposium on Focused Ultrasound (October 2012).

denotes equal contribution*HONORS & AWARDS**

| | |
|---|------------|
| National Defense Science & Engineering Graduate (NDSEG) Fellowship | 2017 |
| NSF GRFP Honorable Mention | 2016, 2017 |
| Whitaker International Program Fellowship | 2015 |
| Rodman Scholar (University of Virginia Engineering honors program) | 2011-2015 |
| University of Virginia (UVA) Dean's List | 2011-2014 |
| UVA School of Engineering & Applied Science Endowed Scholarship Recipient | 2012, 2014 |

LEADERSHIP & ACTIVITIES

| | |
|--|-----------------------|
| Bay Area Scientists in Schools (BASIS) | Nov 2016-present |
| Lead monthly science lessons and experiments in 5 th grade classrooms in the Bay Area | |
| Engineering Students Without Borders | Sept 2011-May 2015 |
| Vice President (2014-2015), Events Chair (2013-2014), Treasurer (2012-2013) | |
| Applied engineering to address problems in local and international communities | |
| Computational Biomedical Engineering Teaching Fellow | Aug-Dec 2014 |
| Held weekly office hours and answered questions in an online course forum to assist students in learning MATLAB and computational methods for biomedical analysis | |
| Rodman Scholars Council | April 2012-April 2014 |
| Co-President (2013-2014), Advising Chair (2012-2013) | |
| Organized recruitment events, a peer mentorship system, project grants, and other programs for Rodman Scholars | |
| Lorna Sundberg International Center Program Assistant | May 2012-June 2015 |
| Organized and assisted with cultural classes and events for members of the University of Virginia and Charlottesville, VA communities | |
| Global Ingenuity 21, Braunschweig, Germany | May 2012 |
| Collaborated with students from the University of Virginia and the Technical University of Braunschweig on an engineering design challenge presented by Volkswagen | |

SKILLS

Wet Lab: Lipid microbubble preparation and sizing, acoustic field characterization, microfabrication, atomic force microscopy, scanning electron microscopy, fluorescence spectroscopy, circular dichroism.

Dry Lab: MATLAB, Solidworks, ANSYS Fluent.

Language: French (intermediate), Mandarin Chinese (intermediate)