Curriculum Vitae: Arlene Doria

Contact Information

Full Name: Arlene Garcia Doria
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Personal

Place of Birth: Mufulira, Zambia
Raised in: El Mochito, Honduras
Ethnicity: Filipino
Citizenship: US citizen
Gender: Female

Education

"Born and raised, UCI"

Expected Graduate Degrees (2013)
UNIVERSITY OF CALIFORNIA, IRVINE
PhD in Biomedical Engineering
MS in Biomedical Engineering

PhD student progress: Advanced to candidacy (3/23/2012):
Qualifying Committee: *Chair: Dr. Abraham P. Lee*, *Dr. Alan Barbour*, *Dr. Jered Haun*, *Dr. Arash Kheradvar*, *Dr. Mark Bachman*

Electives
Biomedical Microdevices
Bio MEMS
Entrepreneurship for Engineers and Scientists
Computational Biology

Undergraduate
UNIVERSITY OF CALIFORNIA, IRVINE 1997-2002
Double Majored & Minored:
Bachelor of Science in Chemical Engineering
Bachelor of Science in Biological Sciences
Minor in Biomedical Engineering

Spent many undergraduate quarters taking 20 – 24 units, just exploring. Whether it was the professor, awesome material, or classmates, these courses stuck out for me:		
Honors General Chem Winter (A+)	Linear Algebra (A+)	ENGCEE Soil Mechanics (A+)
Calculus 2B (A+)	Fundamental Physics (A+)	Photomedicine (A)
Genetics (A)	Prin. Material Science (A+)	Gospel Choir (A)
ENGCHE Momentum Transfer (A)	Chem Thermodynamics (A)	Elem Differential Eqns (A+)
Organic Chem Lab (A)	Social Dance & Intro to dance (A)	Biodiversity (A+)

Honors/Awards

Graduate

- Poster winner for "**Acoustic Manipulations of Blood Samples: Microfluidic Integration of Erythrocyte Filtration and the Detection of Rheumatoid Factor**", Micro and Nanotechnology in Medicine, Maui, December 2012.

- Winner of 1 of 4 awards of the poster competition (out of~600) for "**Rapid Quantitation of C-Reactive Protein Agglutination with Acoustic-Enabled Microvortices**" at the 16th International Conference on Miniaturized Systems for

Chemistry and Life Sciences, µTAS 2012 Conference, Okinawa Japan, Oct 28-Nov 1, 2012

- Top finalist in the poster competition for "**Acoustic microcentrifuge arrays for rapid particle separation from microvolume blood samples**" at the 16th International Conference on Miniaturized Systems for Chemistry and Life Sciences, µTAS 2012 Conference, Okinawa Japan Oct 28-Nov 1, 2012

- Top finalist in the poster competition for "**Tunable cell lysing of dense blood cell samples with air-liquid cavity acoustic transducers**" at the 16th International Conference on Miniaturized Systems for Chemistry and Life Sciences, µTAS 2012 Conference, Okinawa Japan, Oct 28-Nov 1, 2012

- Top finalist in the poster competition for "**Rapid blood plasma separation with air-liquid cavity acoustic transducers**" at the 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences, µTAS 2011 Conference, Seattle, WA October 2-6, 2011

- Third place finalist in the 2011 Business Plan Competition at The Paul Merage School of
- Business plan for KeenCAT technologies – a point-of-care diagnostic platform

- Semifinalist in the 2010 Business Plan Competition at The Paul Merage School of
- Business plan for SUBO – probiotic chemistries

Honors/Awards

Undergraduate

- Latin Honors: Cum Laude in Chemical Engineering (3rd highest GPA in graduating class)
- Campuswide Honors Student
- Henry Samueli Engineering Undergraduate Research Fellowship (Coronary microvasculature)
- Dean's Honors List most quarters
- Golden Key International Honor Society

Professional Experience

Employer: University of California, Irvine
Title: Graduate Student Researcher (2010-present)
Research Interests: Integrated Microfluidics for Point-of-Care Diagnostics

Employer: Biosite Incorporated acquired by Alere
Title: Senior Process Analyst (Oct. 2002 – Jan. 2008)
Job Description: I worked 5+ years analyzing performance data of point of care diagnostic products produced in manufacturing of Biosite (now Alere), the market leader in diagnostics with cardiac biomarkers. I've brainstormed, developed, and implemented major processes and procedures to improve quality control. I was relied on as a problem solver which required the application of engineering, programming, and statistical methods such as multivariate analyses, DOEs, process capability, and process simulations. I was the project manager in validating a statistical software package to be used in manufacturing. I initiated, coordinated, led, and supported manufacturing processes by troubleshooting performance issues, writing technical reports, and implementing changes through drafting and revising manufacturing procedures. I ensured current and new product transfers were in compliance with FDA regulations.

Employer: Abbot Medical Optics
Title: Research Intern (July 2002 to Sept. 2002)
Job description: I was asked to develop a cataract model for ophthalmic equipment engineering department of AMO. Tasks included operation of medical instrumentation, small surgery, and experiment design that required extensive literature review and replicating in lab various cataract models used around the world. I wrote a 20 page technical report entitled "Cataract Simulations Techniques for Phacoemulsification" which included recommendations to AMO about cataract hardness classification and methods for developing cataract models of lenses outside or inside the enucleated eye. The internship ended with a presentation to key personnel in the ophthalmic equipment engineering department.

Teaching Experience

Biomaterials Teaching Assistant – led discussion section, lectured on material characterization, created and maintained the class website, coordinated the final project, helped grade (HWs, midterms, final project, and final), calculated and turned in final grades, surveyed the class for satisfaction and suggestions on improving the biomedical engineering program and provided a summary to BME faculty. (Spring 2011)

Invited Presentations

A.Doria **"Building your Career-when you're still a student"** (November 2011)
Invited by FUSION [Filipinos Unifying Scientist-Engineers In an Organized Network], an undergraduate club designed to enhance and support the life of students in technical majors or with technical interests.

A.Doria "**Pre-Entrepreneurship: A Student's Perspective in Preparing to Build a Technology Startup**", Winter Quarter 2013 Entrepreneurship Seminar Series

A.Doria "**Enabling Point-of-Care Diagnostics with Cavity Acoustic Transducers**", Winter Quarter 2013 BME1 under Dr. Jered Haun

Publications/ Presentations

- Arlene Doria*, Nicholas E. Martin, Abraham P. Lee **Acoustic Manipulations of Blood Samples: Microfluidic Integration of Erythrocyte Filtration and the Detection of Rheumatoid Factor**, Micro and Nanotechnology in Medicine, Maui, December 2012

- Arlene Doria*, Nicholas E. Martin, **Acoustic Microfluidics** video entry (3rd place): https://www.youtube.com/watch?v=go30pcKb0Po&feature=plcp
  Micro and Nanotechnology in Medicine, Maui, December 2012

- Arlene Doria*, Nicholas E. Martin, Maulik Patel, Abraham P. Lee "**Acoustic microcentrifuge arrays for rapid particle separation from microvolume blood samples."** MicroTAS, Okinawa Japan, October 2012

- Arlene Doria*, Nicholas E. Martin, Abraham P. Lee "**Rapid two-step blood sample preparation with acoustic microfluidic chips."** MicroTAS, Okinawa Japan, October 2012

- Arlene Doria*, Nicholas E. Martin, Abraham P. Lee "**Rapid quantitation of C-reactive protein agglutination with acoustic enabled microvortices."** MicroTAS, Okinawa Japan, October 2012

- Arlene Doria*, Nicholas E. Martin*, Abraham P. Lee "**Patterned microcleansing and particle recovery with open acoustic microfluidics",** MicroTAS, Okinawa Japan, October 2012

- Arlene Doria*, Nicholas E. Martin, Abraham P. Lee "**Tunable cell lysing of dense blood cell samples with air-liquid cavity acoustic transducers",** MicroTAS, Okinawa Japan, October 2012

- Poster presentation at DARPA Diagnostics on Demand (DxoD) Kickoff Meeting, Arlington Virginia on November 29 2011

- A. Doria*, M. Patel, and A.P. Lee **Rapid blood plasma separation with air-liquid cavity acoustic transducers.** MicroTAS conference, Seattle, October 2011. (extended abstract publication and poster presentation)

- M. Patel*, A. Doria*, A. R. Tovar , and A.P. Lee. **Lateral cavity acoustic transducers as on-chip microfluidic actuators.** Micro/nano Fluidics Fundamental Focus center. IAB meeting on May 2011 (poster presentation)

- **Engineering World Health poster presentation at Engage UCI** to be a part of a celebration of engaged research, teaching/learning, and service, May 2011.

Skills/Certifications

Computational Fluid Dynamic Modeling
Certificate in CFD-ACE+ Introductory Training, ESI group, Oregon (2011)
Modeled numerous designs of microfluidic devices with acoustic enabled flow

Laboratory, Fabrication, Electronics
General chemistry and microscopy lab skills, spectrophotometry & fluorescence spectroscopy, particle count analysis, blood films, photolithography, soft lithography, basic circuit design/soldering/oscillators

Grant Writing
Extensive experience in technical writing, administrative functions, budgeting, and coordinating various grant proposals such as NIH (R01, R21/R33), SBIR, DARPA BAA, and Gates LOIs

Analysis & Statistics
Proficiency in ImageJ.
Programming in R. (engineering statistics courses, applied engineering math II (2010)
Proficiency using JMP Statistical software by SAS.
Strong experience in statistical applications such multivariate analyses, DOEs process capability, and process simulation. Relevant extracurricular courses taken:

- Engineering Statistics and Data Analysis with JMP (Thomas A. Little Consulting 2007)
- Root Cause Analysis (Thomas A. Little Consulting 2007)
- Design of Experiments (Thomas A. Little Consulting 2006)
- Biostatistics (UCSD extension, Spring 2005)

Web Development
Proficient in these programming languages and web development skills:

- Server side: PHP
- Client side: HTML, CSS, graphic design
- Database administration: MySQL
- Content Management Systems (e.g. Wordpress)
- web development and web analytics

Samples of websites include:

- Engineering World Health at UCI (created and maintaining) www.clubs.uci.edu/ewh/
- Engineering in Medicine and Biology Society and the Graduate Association of Biomedical Engineers at UCI. www.clubs.uci.edu/embs
- BioMiNT Lab (currently maintaining) http://biomint.eng.uci.edu/
- Biomedical Engineers for Unified Progress (currently developing) http://bmeup.org
- Javat Group USA (created and maintaining) http://javatgroup.com/
- Mechanical & Machine Repair Services (created and maintaining) www.mechanicalmachinerepair.com
- BeautyQA (created and maintained) www.beautyqa.com
    - first website made from scratch

Other Software
High proficiency in Microsoft Word, Excel, PowerPoint, Adobe Illustrator & Fireworks, GarageBand, video creation and editing with Movie Maker

Languages

English: native language
Spanish: reads, speaks, writes, understands with intermediate-to-advanced competence

Associations

Founding member for Engineering World Health at UCI - EWH at UCI is an interdisciplinary campus organization with health care projects that unite engineering, science, economics, public health, communications, and other fields. Through our projects and activities, we give student members experience in basic engineering skills (like soldering), product design and development, market research, and other skills to prepare them for their future careers. Our mission is to mobilize the UCI community to improve the quality of health care in vulnerable communities.

Participation includes:

- President (2011-present)
- Co-Founder of UCI chapter
- Treasurer, and VP of External Affairs (2010-2011)
- Coordinated most of the events including guest speakers, welcome event, design competition (see http://www.clubs.uci.edu/ewh/gallery/)
- Acquired funding for club
- Career mentor for BME undergraduates (resume review and counseling)

- Lead coordinator for the **Biomedical Engineering Student Team** (BEST) with sponsorship from the OC chapter of IEEE-EMBS competition to design a rapid, portable diagnostic (e.g. malaria, HIV, TB) to serve the developing world:
    - http://www.clubs.uci.edu/ewh/general/best-design-competition-ewh-welcome-event-2012/
    - Developed the contest application and registration
    - Advertised and recruited (16 teams of over 60 students registered)
    - Coordinated the awards reception
    - From the top 5 team winners, two exceptional teams continued onto BME senior design, a yearlong project
        - Both these team projects were in the top 5 of 97 presentations at the undergraduate Winter Design Review 2013
- Technical mentor to many amazing undergraduate senior design teams:
    - Smartphone Analyzer of Microfluidic Agglutination (2012-present)
        - Initiated this project with BME senior design
        - Project received UROP funding
        - Project got Dean's Choice Award Winter Design Review 2013
        - Project was one of top 5 of 97 presentation at Winter Design Review
        - Project & Team selected for the Ingenuity Student Technology Showcase 2013
    - Infant Continuous Positive Airway Pressure (2011-2012)
        - Project received UROP funding
    - Oxygen Analyzer for Infant Incubators (2011-2012)
        - team received Dean's Choice in Winter Design Review
        - Project received UROP funding
    - Infant Continuous Positive Airway Pressure (2010-2011)
        - Project received UROP funding

Engineering in Medicine and Biology Society and the Graduate Association of Biomedical Engineers at UCI

Participation includes:

- Communications Chair & Webmaster (2012-2013), created the website
- Roles include advertising events, website creation, content writer
- Helped coordinate EMBS Graduate Industry Night (2013) to encourage industry and academia networking http://www.clubs.uci.edu/embs/?page_id=181
    - Eighteen companies/organizations registered
    - Over 70 people RSVP'd

Women in Technology International – life membership since 2008

Interests/Hobbies

- Point-of-care diagnostics, microfluidics
- Business startup and technology development
- Music, dance, art
  (painting, piano, guitar, composing, singing, dance: salsa, bachata, pop, swing)
- Sports in general (golf, soccer, flag football, softball, kickball, etc.)
- Pop culture