Curriculum Vitae

Education

Georgia Institute of Technology, College of Engineering — Atlanta, GA
Doctorate in Chemical Engineering, GPA: 3.9/4.00. — Aug 2018-Present
- PhD Thesis: Harnessing the native machinery of *Escherichia coli* for the development of a field-friendly vitamin C (ascorbate) biosensor
- Advisor: Mark P. Styczynski

Cornell University, College of Engineering — Ithaca, NY
Bachelor of Science in Chemical and Biomolecular Engineering, GPA: 3.8/4.0 — May 2018

Research/R&D Experience

PhD Researcher in Styczynski Lab | Georgia Institute of Technology — Atlanta, GA
- Point-of-care diagnostics — Aug 2018-Present
- Engineering and tuning of whole-cell and cell-free bacterial biosensors (vitamin B_{12}, vitamin C, and homocysteine)
- Optimization of cell extract preparation protocol for improved cell-free biosensor design
- Investigation of resource competition between genetic cassettes in cell-free expression systems

Undergraduate Researcher in Grimson Lab | Cornell University — Ithaca, NY
- Study of post-transcriptional gene regulation via miRNAs — Mar 2016-Dec 2017
- Optimization of a high-throughput GFP assay to characterize full-length human 3′ UTRs
- Designed and ideated protocol to analyze the effect of different promoters on the regulatory effect of 3' UTRs

Biochemistry Intern | Zymtronix, Inc. — Ithaca, NY
- Evaluation of enzyme immobilization platform to enable enzyme recycling. — Jun 2017-Apr 2018
- Optimized immobilization of chloroperoxidase in a scaffold of on-site produced magnetic material and nanoparticles
- Evaluated recyclability and stability of immobilized chloroperoxidase and horseradish perodixase

Selected Leadership and Teamwork

Graduate Teaching Assistant | Georgia Institute of Technology
Atlanta, GA
- Graduate assistant for Thermodynamics I (twice), II — Jan 2019-Dec 2020
- Led recitation and office hours sessions, developed Aspen Project, and taught 100+ students over 3 semesters
- Won twice **Shell ChBE Outstanding Teaching Award** (Spring '20, '21) given to top 10% TAs of semester

President of Brazilian Student Association (BRASA) | Cornell University — Ithaca, NY
- Led and organized Portuguese teaching initiatives through new peer-pairing program (Jan 2015-Mar 2018)
- Created mentoring workshops to guide Brazilian high schoolers interested in attending US universities

- Planned 3 conferences of 100+ people centered on Brazilian economic development (2015), Brazil's political climate (2016), and Brazil's scientific innovation (2017)

Mentoring
- Mentored 3 undergraduate students, one of which became a co-author on a paper.   2019-2022

Publications and Conferences

1. McNerney, Monica P.; Piorino, Fernanda; Styczynski, Mark P. (2020). Active analyte import improves dynamic range and sensitivity of a vitamin B_{12} biosensor. *ACS Synthetic Biology.*
2. Miguez, April M.; Zhang, Yan; Piorino, Fernanda; Styczynski, Mark P. (2021). Metabolic dynamics in *Escherichia coli*-based cell-free systems. *ACS Synthetic Biology.*
3. Sridharan, Harini; Piorino, Fernanda; Styczynski, Mark. (2022). Systems biology-based analysis of cell-free expression systems. *Current Opinion in Biotechnology.*
4. Piorino, Fernanda; Patterson, Alexandra T; Styczynski, Mark P. (2022). Low-cost, point-of-care biomarker quantification. *Current Opinion in Biotechnology.*

Upcoming papers:
5. Piorino, Fernanda; Styczynski, Mark P. (2022). Harnessing the native machinery of *Escherichia coli* to assess vitamin C (ascorbate) deficiency.
6. Piorino, Fernanda; Johnson, Shelbe; Styczynski, Mark P. (2022). A cell-free homocysteine biosensor for assessment of folate deficiency.
7. Piorino, Fernanda; Patterson, Alexandra T.; Styczynski, Mark P. (2022). Plasmid crosstalk in cell-free expression systems.

5 Poster presentations: EBRC Conference (2020, 2021, 2022), AIChE (2020), SEED Conference (2022)

Skills

Languages: Portuguese (Native), English (Native) Spanish (Native), French (Professional working proficiency)
Programming and Web Development: MATLAB, Mathematica, Python, and HTML
Software: Aspen Plus, Microsoft Office, Origin, Adobe Illustrator, and Adobe Photoshop
Skills: PCR, cloning, protein purification, cell extract preparation for protein synthesis, genomic engineering