

EDUCATION & HONORS

Education

PhD in Bioengineering, Stanford University	<i>Expected: 2017</i>
Advisor: Associate Professor Drew Endy	
MS in Bioengineering, Stanford University	<i>December 2014</i>
BS in Bioengineering, University of California, Berkeley	<i>December 2012</i>

Honors

• NSF Graduate Research Fellowship	<i>Fall 2014- Fall 2017</i>
• Advanced Biosciences Summer Institute Fellow at Stanford	<i>Summer 2013</i>
• B.S. in Bioengineering with High Honors	<i>Fall 2012</i>
• NSF funded EBICS REU student	<i>Summer 2012</i>
• Member of the Bioengineering Honors Society of UC Berkeley	<i>Fall 2010- Graduation</i>
• UC Berkeley Honor Roll student	<i>Fall 2009- Graduation</i>
• Berkeley Scholarship	<i>Fall 2011-Spring 2012</i>

EXPERIENCE

Endy Lab-Stanford University, Graduate Student

Current

- Working to inducibly control physical properties of *Escherichia Coli* cells
- Working to synthesize a biological pattern at the tissue level
- Working to develop a language for patterning cell lineages

Riedel-Kruse Lab-Stanford University, Rotation Student

Winter 2013

- Mathematically deciphered response of self-inhibiting gene under a delayed external drive
- Modeled simple cell-cell interactions with delay differential equations

Smolke Lab-Stanford University, Rotation Student

Fall 2013

- Designed strategy for one pot multiple loci DNA integration in yeast
- Increased counter-selectable marker toolset, optimized yeast transformation protocol, and designed a more robust yeast integration vector.

Endy Lab-Stanford University, Rotation Student

Summer 2013

- Characterized and designed genetic architectures to achieve uniform expression profiles for varying promoters
- Created mORF (merge Open Reading Frames) bioinformatics tool that determines the extent of nesting between inputted peptide sequences

McManus Lab-UC San Francisco, Research Associate

December 2012-July 2013

- Worked to create an autonomous cell-barcoding system for cell-lineage tracing
- Designed, constructed, purified, and tested engineered proteins from E. Coli

Schaffer Lab-UC Berkeley, Research Assistant

Spring 2011-Fall 2012

- Expedited the engineering of genetically encoded photoactivatable proteins for non-intrusive, precise, and reversible control as a developing research method
- Designed and applied the newly developed system to investigate differentiation in neural progenitor cells
- Devised solutions and executed them for complex genetic cloning jobs
- Investigating the underlying mechanism of the optogenetic system

Senior Design Project-UC Berkeley, Improving the NASG

Fall 2012

- Consulted with UCSF doctor to improve upon the Non-Pneumatic Anti Shock Garment (NASG- pressure application device used on patients with Postpartum Hemorrhage, predominantly in underdeveloped countries)
- Designed and prototyped device that measures, reports, and attenuates pressure applied by NASG
- Invented the pressure sensor with a team of four and
- Patent pending

Pulse Oximeter-UC Berkeley, Lead Engineer

Fall 2012

- Worked to mitigate an unmet need for affordable pulse oximeters in poorly funded hospitals in a team of five
- Designed prototypes of pulse oximeters

Weiss Lab-Massachusetts Institute of Technology, Research Intern (EBICS REU)

Summer 2012

- Designed and built assays to test for orthogonality of signaling channels for pattern formation in tissue-by-design applications in collaboration with a post-doctoral fellow
- Developed basis for verifying and implementing assays on contact dependent receptor-ligand pairs
- Implemented hierarchical method of cloning developed in the Weiss lab to synthesize genetic circuits

Tekla Labs, Lead Engineer

Summer 2011-Spring 2012

- Worked to invent an affordable, research quality spectrophotometer to advance education in high schools and underdeveloped countries
- Worked to create software to analyze spectrophotometer data and create “do it yourself” instructions for the public to build the instrument themselves

TEACHING

- **BioE 42 Physical Biology of the Cell** (Teaching Assistant)

Spring 2015

SKILLS & ABILITIES

- **Computer:** Matlab, Digital Image Processing, Comsol, LabView/MyDAQ, Proficient in SolidWorks, Word, Excel, and Powerpoint
- **Lab Techniques:** yeast chromosome integration, cloning in E. coli, western blots, tissue/cell culture (293Ts, Neural Progenitor Cells, CHO), transfecting, harvesting virus, infecting, FACS, FRET, confocal imaging, protein purification in E. coli, proficient in machining
- **Languages:** Fluent in English and Gujarati, learning Sanskrit and Hindi

PUBLICATIONS & PRESENTATIONS

Publications

Siddiqui MS, **Choksi AT**, Smolke CD. A system for multilocus chromosomal integration and transformation-free selection marker rescue. *FEMS Yeast Research*. 2015

Bugaj LJ, **Choksi AT**, Mesuda CK, Kane RS, Schaffer DV. Optogenetic Protein Clustering and Signal Activation in Mammalian Cells. *Nature Methods*. 2013

Selected Presentation

“Quantitative Assay for Measuring Orthogonality in Contact Based Cell-cell Communication Channels.” MIT Summer Research Symposium. Cambridge, MA