John Her

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EDUCATION:

William Marsh Rice University — Expected Graduation: Spring 2022
Doctor of Philosophy, Bioengineering — GPA: 4.03
Research Focus: Synthetic Biology

University of California, Berkeley — Graduated May 2015 with High Honors
Bachelor of Science, Chemical Engineering — GPA: 3.934
Concentration: Biotechnology

RESEARCH INTERESTS:

- **Synthetic biology:** synthetic posttranslational signaling, modular sense-and-secrete circuits
- **Cellular and tissue engineering:** investigation of practical applications for synthetic cell circuits
- **Protein engineering:** design of proteins for use in posttranslational signaling and responses

RESEARCH EXPERIENCE:

William Marsh Rice University—Graduate Researcher — Jan 2018 – Present
- Developed GPCR biosensors for coupling a modular ligand detection system to protein phosphorylation
- Designed and tested modified calcium channel proteins for inducible calcium-based signaling
- Investigated methods for implementing regulated secretion in constitutively secreting mammalian cells
- Worked with Dr. Caleb Bashor, Assistant Professor of Bioengineering

University of California, Berkeley—Undergraduate Researcher — Jun 2013 – May 2015
- Designed and prototyped passive microparticle concentrators for manufacture using two-dimensional optofluidic lithography
- Manufactured and tested micromechanical devices made using soft lithography techniques
- Worked with Dr. Ryan Sochol, former director of the Micro-Mechanical Methods for Biology (M3B) Laboratory Program

California State University, Fullerton—Undergraduate Researcher — Jun 2012 – Aug 2012
- Optimized DFFC (Direct Formate Fuel Cell) performance
- Conducted device assembly and calibration, documentation, and catalyst manufacture and application
- Worked with Dr. John Haan, Assistant Professor of Chemistry

WORK EXPERIENCE:

Bristol-Myers Squibb—Assistant Engineer Jan 2016 – Jul 2017

- Supported the manufacturing PPQ (Process Performance Qualification) campaigns for medicinal biologics (Opdivo, Anti-LAG3) at the Devens, MA clinical manufacturing facility
- Conducted laboratory-scale investigations to support the manufacture of biologics (Empliciti) at the Devens, MA commercial manufacturing facility
- Worked in downstream MS&T (Manufacturing Sciences and Technology) to support protein purification operations

Genentech—Summer Co-Op Jun 2015 – Jan 2016

- Investigated the Donnan effect with UF/DF (ultrafiltration/diafiltration) experiments and theoretical modelling
- Implemented an HPLC (high-performance liquid chromatography) method for assaying organic anions
- Worked in downstream PD (Process Development) to support the development and improvement of biologics purification and drug substance formulation

3M—Summer Intern Jun 2014 – Aug 2014

- Performed background research regarding flexible heating element design and operation
- Reverse-engineered flexible heating element technology from expired patents and existing devices
- Constructed working flexible heating element prototypes and proposed possible 3M product applications
- Worked in CRPL (Corporate Research Process Laboratory) to investigate technologies with potential commercial applications

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TEACHING EXPERIENCE:

University of California, Berkeley—Undergraduate Laboratory Assistant Aug 2013 – Dec 2013

- Supervised Chemistry 112A (upper division organic chemistry) lab section of 26 students
- Introduced students to laboratory safety and experimental techniques
- Reinforced students' understanding of chemical properties and reaction mechanisms

Taiwan AID Summer—Overseas Youth English Teaching Volunteer Jul 2011 - Aug 2011

- Taught English to a class of 20 elementary school students in rural Taiwan
- Designed and implemented lesson plans with progression from spelling and grammar to basic sentence structure
- Developed educational games and activities to engage students

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SKILLS:

- **Synthetic Biology:** plasmid cloning, MoClo, bacterial and mammalian cell culture, flow cytometry, epifluorescence and confocal microscopy
- **Software:** AspenPlus, AutoCAD, COMSOL, FCS Express, Illustrator, Java, MATLAB, Simulink, SolidWorks
- **Protein Purification:** diafiltration, column chromatography, HPLC (high-performance liquid chromatography), 2D photolithography, GMP (Good Manufacturing Practice)

PUBLICATIONS:

- Yang X., **Her J.**, Bashor C.J. "Mammalian signaling circuits from bacterial parts." *Nature Chemical Biology*, **2020**, 16, 110-111.
- Bartrom, A.M., Ta, J., Nguyen, T.Q., **Her, J.**, Donovan, A., Haan, J.L., "Optimization of an Anode Fabrication Method for the Alkaline Direct Formate Fuel Cell." *Journal of Power Sources*, **2013**, 229, 234-238.

HONORS & ACTIVITIES:

- Tau Beta Pi Engineering Honor Society, UC Berkeley Chapter (2012–2015)
- Rose Hills Foundation Science and Engineering Scholarship (2012–2015)
- Robert and Elizabeth Polansky Undergraduate Fellowship (2012–2015)
- UC Berkeley College of Chemistry Dean's Honor List (2011–2014)
- American Institute of Chemical Engineers, UC Berkeley Chapter (2011–2015)