

Sarah Jiachi Yang

Education

University of California at Berkeley, Berkeley, Ca

Aug 2017 – Present

- PhD Candidate in Chemical Engineering

Columbia University, New York, NY

Aug 2013 – May 2017

- B.S. Chemical Engineering and Sociology
- Charles F. Bonilla Medal for Outstanding Academic Merit, Senior Marshall

GPA: 4.02/4.00

Academic and Research Honors

- **National Science Foundation Graduate Research Fellowship:** awarded for outstanding research potential
- **Goldwater Scholar Honorable Mention:** awarded for demonstrated ability and potential to conduct impactful research
- **Sheldon E. Isakoff Scholarship:** awarded for academic achievement and clear potential for success in engineering
- **Tau Beta Pi:** membership awarded to members in the top 12.5% of the graduating class
- **Leroy E. Record Scholar:** awarded to select TBP members for outstanding service to their field and community
- **Society of American Military Engineers Scholarship:** awarded for academic excellence in engineering
- **Columbia King's Crown Leadership Award:** for exemplary leadership within Columbia Engineers Without Borders
- **Robert D. Lilley Award for Responsible Engineering:** awarded for achievements made through Columbia EWB

Research Experience

• **Scott Banta Protein and Metabolic Engineering Group, Columbia University**

Jan 2015 – May 2017

Undergraduate Researcher

- Developed protein constructs using Repeat in Toxin Beta-Roll (RTX Beta-roll) repeat proteins that exhibit calcium initiated folding to create efficient and stimulus responsive phase-changing purification reagents
- Generating stimulus controlled biomolecular recognition reagents and hydrogels via direct evolution of the RTX Beta-roll via ribosome display

• **David Schaffer Molecular and Cellular Engineering Group, UC Berkeley**

Jun 2016 – Aug 2016

Amgen Scholar

- Designed a modular, quickly tunable strategy to generate plasmid libraries of protein engineered multivalent ligands for the study of Eph B4 receptor clustering during Adult neural stem cell neurogenesis
- Imaged Neural Stem Cells response to multivalent binding ligands using Super resolution photo-activated localization microscopy (PALM) and confocal microscopy

• **Genentech Research and Development (gRED), South San Francisco**

Jun 2015 – Aug 2015

Protein Chemistry and Structural Biology Intern

- Developed protein purification reagents with engineered affinities to antibody F_{ab} and increased robustness against alkaline conditions for industrial and research applications
- Rigorously characterized the structural and kinetic characteristics of the generated purification reagents using Circular Dichroism and Surface Plasmon Resonance
- Assembled and characterized bispecific antibodies for developing studies in ubiquitination done in partnership with collaborators at the University of California at Berkeley

• **James L. Leighton Organic Synthesis Group, Columbia University**

May 2014 – Jan 2015

Undergraduate Researcher

- Synthesized cyclobutyl-hydantoin via the use of silane mediated Pictet Spengler Chemistry for the investigation of non-addictive analgesic drug leads involving the kappa-opioid receptor

Teaching Experience

- **Columbia University High School Summer Academic Immersion Program** **June 2017 – Aug 2017**
Teaching Assistant, Intensive Chemistry Seminar, Materials Science and Nanotechnology Seminar
 - Led two student lab groups through an advanced lab course culminating in a final student driven research project
 - Researched and designed new research project prompts on conductive polypyrrole polymers to meet student interests
 - Delivered a “guest lecture” on the physical chemistry of lasers
- **Columbia University Biology Department** **Aug 2015 – May 2017**
Teaching Assistant, Intro to Molecular and Cell Biology I and II
 - Engages and supports students in developing a strong, problem-solving based understanding of cellular biology concepts, as well as the ability to engage with both known and theoretical biological constructs
 - Leads a weekly, two-hour recitation to review course material and problem solving strategies in biology
- **Columbia University Chemical Engineering Department** **Aug 2016 – Dec 2016**
Teaching Assistant, Analysis of Chemical Engineering Problems
 - Assists students in learning how to apply numerical methods and programming skills to solve major computational problems in Transport, Thermodynamics, and Kinetics
 - Leads an open-question coding session twice a week in which students can work together in groups and received instructor assistance

Skills

Laboratory: Neural Stem Cell Culture | Molecular Cloning | Organic Synthesis | Nuclear Magnetic Resonance (NMR) | Mass spectroscopy | High Performance Liquid Chromatography (HPLC) | Cell Culture | LS-MALS | Surface Plasmon Resonance | Circular Dichroism | Protein Purification and Engineering | Intrinsic Protein Fluorescence | Photo-activated Localization Microscopy (PALM) | Confocal Microscopy

Programming: Python | ASPEN Plus | MATLAB | Excel

Selected Presentations and Posters

- “Conditional Network Assembly and Targeted Protein Retention via Environmentally Responsive, Engineered Beta-roll Peptides,” (2017) Bulutoglu, B., **Yang, S.**, Banta, S. *Biomacromolecules*, 18(7) pp 2139 – 2145
- “Understanding the Functional Role of Clustering in EphB4 Receptors”, (2016) **Yang, S.**, Yang, C., Schaffer, D. (Poster Presentation and Program Wide Talk, UC Berkeley Amgen)
- “A Biomolecular Tool to Augment Super-Resolution Microscopy in Investigating the Functional Role of Clustering in EphB4 Receptors”, (2016) **Yang, S.**, Yang, C., Schaffer, D. (Poster Presentation, Columbia Research Symposium)
- “Engineering Increased-affinity and Base-resistance in Protein G Columns”, (2015) **Yang, S.**, Castellanos, E., Matsumoto, M. (Poster Presentation and Department Talk, Genentech)
- “Phage Display evolution of Protein G”, (2015) **Yang, S.**, Castellanos, E., Matsumoto, M. (Poster Presentation, Columbia Research Fair)

Leadership Experience

- **Columbia University Engineers Without Borders, Morocco Program** **Sept 2013 – Aug 2017**
 - Leader within the Morocco Program’s ongoing potable water sourcing and distribution project in Izgouaren, Morocco as well as the program’s active monitoring of a previously completed synthetic cable, simple-suspension foot bridge in Ait Bayoud, Morocco
 - **Project Manager:** Managed the project’s 4 design teams and 3 social development teams to coordinate groups’ goals into project-wide vision. Directed two mid-scale international construction projects and ensured social and technical compliance with the project’s collaborators: EWB National, Peace Corps Morocco, and Columbia University
 - **Grants Chair:** Managed the program grant writing team, and responsible for securing \$29,500 in grants for a potable water-sourcing project in Izgouaren, Morocco from sources including Environmental Resources Management (ERM), Boeing, and Alcoa
- **Columbia Urban Experience Pre-Orientation, Orientation Leader** **Aug 2014 – Aug 2016**

- **Orientation Leader for Harlem Health Promotion Center (HHPC)**– Led a group of incoming Columbia freshmen to work with HHPC on public health initiatives around vaccination awareness and kidney disease in Harlem
- **Orientation Leader at The Brooklyn Open Space Alliance** – Led a group of incoming Columbia freshmen in community service work around the preservation and development of green and natural spaces in previously industrial areas of Brooklyn
- **Orientation Leader at WIN Family Shelters for the Homeless**– Led a group of incoming Columbia freshmen in organizing and directing a multi-borough school supply donation and distribution effort organized by WIN Family shelters at their Manhattan and Brooklyn locations
- **Columbia University Engineering Student Council** **Sept 2013 – May 2015**
- **Student Services Representative at Large:** Championed initiatives addressing student wellness and mental health through the shaping campus housing, counseling, and dining services
 - **Head of Columbia Capital Investment Fund:** Lead student panel for the distribution of \$20,000 over the academic year to assist student groups in making major equipment purchases

Volunteer Work

- **Ronald McDonald Charity House of Albany, New York** **June 2013-Present**
Volunteer
 - Dedicated over 150 hours counseling resident families with severely ill children and helping patients understand medical information to make informed choices
- **AID Summer, Overseas Chinese Affairs Council, Taiwan** **June 2013-Aug 2013**
Volunteer English Teacher
 - Taught elementary English to children with limited access to English learning resources living in Beigan, Matsu
 - Recognized by Republic of China (Taiwan) for ability to work in multilingual environments and exemplary service