

Sarah Jiachi Yang

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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, Summa Cum Laude
- Charles F. Bonilla Medal for Outstanding Academic Merit, Senior Marshall

GPA: 4.01/4.00

Publications and Presentations

- “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)

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

Research Experience

Markita Landry Research Group and David Schaffer Research Group

Oct 2017 – Present

Graduate Researcher

- Investigating the role of synapse formation between diseased tissue and Adult Neural Stem Cell (ANSC) derived neurons in directing ANSC treatment outcomes.

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-hydantoins 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

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