Kaavian Shariati

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EDUCATION

David Geffen School of Medicine at UCLA — August 2022—Present
M.D. Anticipated, June 2026 — Los Angeles, CA

Cornell University — August 2019—May 2020
Master of Engineering, Biomedical Engineering — Ithaca, NY

Cornell University — August 2016—December 2019
Bachelor of Science, Biological Engineering (Chemical Engineering Minor), *Sigma Xi* — Ithaca, NY

SIGNIFICANT RESEARCH EXPERIENCE

Lee Laboratory — *University of California, Los Angeles: Division of Plastic and Reconstructive Surgery* — August 2022—Present, Los Angeles, CA
Research assistant under Justine C. Lee, MD, PhD, FACS. Currently supporting basic, clinical, and translational research projects as a member of the Craniofacial Regeneration Laboratory and the Craniofacial Outcomes Research Team. My focuses in the laboratory include biomaterial design, facial aesthetics and reconstruction, facial feminization, and project rendering and visualization.

Annabi Laboratory — *University of California, Los Angeles: Department of Chemical Engineering* — August 2022—Present, Los Angeles, CA
Lab member under Nasim Annabi, PhD. Currently supporting basic research projects pertaining to the design and application of biomaterial constructs for clinical interventions.

Accili Laboratory — *Columbia University Irving Medical Center: Diabetes Center* — September 2021—May 2022, Manhattan, NY
Research Assistant under Dr. Domenico Accili, MD. I supported several research projects focused on the pathogenesis of diabetes and the mechanisms of pancreatic beta cell disfunction. I engineered a custom FOXO1-knockout beta cell line as a model for screening drug targets. This line is currently being used to identify small molecule drugs capable of reversing beta cell dedifferentiation.

Ku Laboratory — *University of California, San Francisco: Diabetes Center* — May 2019—August 2019, July 2020—August 2021, San Francisco, CA
Research Assistant under Dr. Gregory Ku, MD, PhD. I supported several projects concerned with studying and modulating pancreatic beta cell circuitry. I studied several diabetic drug targets and novel regulators of the insulin promoter. I created a detection system to selectively measure insulin secretion more efficiently from virally-infected beta cells. Additionally, I created a novel biosensor that allows for the real-time monitoring of chloride and pH levels in the endoplasmic reticulum of live cells.

Ma Laboratory — *Cornell University, Department of Biological and Environmental Engineering* — January 2017—July 2020, Ithaca, NY
Research Assistant under Dr. Minglin Ma, PhD. I studied biomaterial strategies to treat conditions such as diabetes. I manufactured and optimized nanofiber-based devices housing insulin-secreting cells, specifically focusing on reducing immune responses and cell-death, and enhancing glucose-correcting efficiency. Additionally, I engineered novel biomaterials and biomaterial devices with specialized features such as increased adhesivity, glucose-responsive architectures, antiviral properties, and dynamic spatio-temporal components. Further, I used COMSOL to model mass transfer of chemical species across devices to optimize device parameters.

March Laboratory — *Cornell University, Department of Biological and Environmental Engineering* — January 2019—December 2019, Ithaca, NY
Research Assistant under Dr. John March, PhD. I helped build a robotic model to stimulate small intestinal peristalsis to recreate motile conditions needed to grow synthetic intestinal tissue constructs and to serve as a prototype of an implantable intestine. I was awarded a grant by Cornell's Alumni Association, with which I built the model using 3D-printed parts, wax, and silicon. Using published models and my analysis of intraoperative footage of the intestine in MATLAB, I determined contraction patterns, which I programmed into the model using an Arduino IDE microcontroller controlling air pumps and solenoid valves.

WORK EXPERIENCE

Science and Technology Schematic Designer — October 2018—Present, Los Angeles, CA
I work as a schematic designer and illustrate both 2D and 3D graphics to visualize projects concerned with scientific and technological innovation. My portfolio includes graphics created for a diverse set of research groups and early-stage start-up companies, developed using Blender, Autodesk Maya, Adobe Dimension, and Adobe Illustrator. My portfolio is available at kaaviansharіati.com/art-and-design-portfolio.

Encellin — *Innovation and Design Internship* — August 2018—August 2020, San Francisco, CA
Encellin is a biotechnology startup developing a thin-film encapsulation device for cell therapies meant to treat conditions such as type 1 diabetes. I worked directly with the company's leaders, and assisted in the early process of compiling an Investigational New Drug Application (IND) to submit to the FDA, developed investor presentations, collaboration proposals, and white papers, researched comparables and milestones, built a company website, and created computational models for the device.

ABSTRACTS & PRESENTATIONS

2024

36. Huang KX, **Shariati K**, Taki Labib MA, Taylor JM, Nguyen N, Cronin BJ, Khetpal S, Lee JC.
Analyzing Facial Asymmetry and Craniofacial Microsomia: Approaches in Gender-Affirming Surgery
(Academic Surgical Congress. Las Vegas, NV. 2/11-2/13/2025)

35. Nguyen N, Chin MG, Huang KX, **Shariati K**, Taylor JM, Panchura J, Gishen K, Lee JC, Wilson LF.
Association of Sphincter Pharyngoplasty and Long-term Maxillary Hypoplasia in Patients with Cleft Palate.
(American Society of Plastic Surgeons; Plastic Surgery The Meeting; 9/26-9/29/2024)

34. Fadich S, Nguyen N, Miller M, **Shariati K**, Kaur M, Pfaff M, Ranganathan K, Satterwhite T, Berli J, Lee JC.
Protocol for the development of a Core Outcome Set for Facial Gender-Affirming Surgery (fGAS-COS)
(28th Scientific Symposium of the World Professional Association of Transgender Health, Lisbon, Portugal. 9/25-9/30, 2024)

33. Nguyen N, Taylor JM, Huang KX, **Shariati K**, Chevalier J, Miller M, Lee JC.
Ethnic Variation in Lower Face Anthropometry on Facial Computed Tomography Scans for Patients Seeking Facial Feminization Surgery.
(California Society of Plastic Surgeons. Carlsbad, CA. 5/10-5/12/2024)

32. Huang KX, Taki Labib MA, **Shariati K**, Taylor JM, Nguyen N, Cronin BJ, Khetpal S, Lee JC.
Facial Feminization Surgery for Patients with Craniofacial Microsomia
(California Society of Plastic Surgeons. Carlsbad, CA. 5/10-5/12/2024)

2023

31. Cronin BJ, Huang KX, Fadich S, Taylor J, **Shariati K**, Sample H, Howard M, Lee JC.
Evaluating the impact of race on forehead morphology and frontal sinus characteristics regarding frontal cranioplasty for facial feminization surgery: An analysis of 161 patients
(American Society of Plastic Surgeons. Austin, TX. 10/26-10/29/2023)

30. Moghadam S, Roca Y, LaGuardia JS, Taylor J, Sample HA, **Shariati K**, Huang KX, Chin MG, Bedar M, Fadich SK, Lee JC.
Increased Facial Fat Pad Volume Observed in Transfeminine Patients on Greater Length of Hormone Therapy.
(Abstract Presentations: On-Demand at Plastic Surgery The Meeting at Austin, Texas - October 2023)

29. Cronin BJ, Huang KX, Fadich S, Taylor J, **Shariati K**, Sample H, Howard M, Lee JC.
Evaluating the impact of race on forehead morphology and frontal sinus characteristics regarding frontal cranioplasty for facial feminization surgery: An analysis of 161 patients
(73rd Annual Meeting of the California Society of Plastic Surgeons. 05/26-05/28/2023)

PUBLICATIONS

2024

28. **Biomaterial Cues for Regulation of Osteoclast Differentiation and Function in Bone Regeneration.**
(Advanced Therapeutics)
Kaavian Shariati, Meiwand Bedar, Kelly X. Huang, Shahrzad Moghadam, Sarah Mirzaie, Jonnby S. LaGuardia, Wei Chen, Youngnam Kang, Xiaoyan Ren, Justine C. Lee

27. **The Type I+ Forehead in Facial Feminization Surgery.**
(Aesthetic Plastic Surgery)
Shahrzad Moghadam, **Kaavian Shariati**, Kelly X. Huang, Madeline G. Chin, Jonnby S. LaGuardia, Meiwand Bedar, Sumun Khetpal, Brendan J. Cronin, Justine C. Lee

26. **The Role of Clic-Like Chloride Channel 1 in the Pancreatic Beta Cell.**
(Diabetes)
Yaohuan Zhang, Nicholas Yiv, **Kaavian Shariati**, Andrew Sanfilippo, Gregory M. Ku

25. **An shRNA screen in primary human beta cells identifies the serotonin 1F receptor as a negative regulator of survival during transplant.**
Rebecca A. Lee, Deeksha G. Chopra, Vinh Nguyen, Xi-Ping Huang, Yaohuan Zhang, **Kaavian Shariati**, Nicholas Yiv, Rebecca Schugar, Justin Annes, Bryan Roth, Gregory M. Ku

24. **A Glucose-responsive Cannula for Automated and Electronics-free Insulin Delivery.**
(Advanced Materials)
Stephanie Fuchs, Julia S. Caserto, Qingsheng Liu, Kecheng Wang, **Kaavian Shariati**, Chase M. Hartquist, Xuanhe Zhao, and Minglin Ma

23. **Ethnic Variation in Lower Face Anthropometry on Facial Computed Tomography Scans for Patients Seeking Facial Feminization Surgery.**
(Journal of Plastic, Reconstructive & Aesthetic Surgery)
Nghiem H. Nguyen, Jeremiah M. Taylor, Kelly X. Huang, **Kaavian Shariati**, Jose M. Chevalier, Meghan N. Miller, Brendan J. Cronin, and Justine C. Lee.

2023

22. **Rational design of polymeric micelles for targeted therapeutic delivery.**
(Nano Today)
Zheng, Yuting, Yavuz Oz, Yimin Gu, Nadim Ahamad, **Kaavian Shariati**, Jose Chevalier, Diya Kapur, and Nasim Annabi.

21. **Advances in 3D bioprinting for urethral tissue reconstruction.**
(Trends in Biotechnology)
Daniel Booth, Ronak Afshari, Mahsa Ghovvati, **Kaavian Shariati**, Renea Sturm, Nasim Annabi

20. **Hemostatic patch with ultra-strengthened mechanical properties for efficient adhesion to wet surfaces.**
(Biomaterials)
Yuting Zheng, **Kaavian Shariati**, Mahsa Ghovvati, Steven Vo, Nolan Origer, Taichiro Imahori, Naoki Kaneko, Nasim Annabi

19. **Convergence of Calcium Channel Regulation and Mechanotransduction in Skeletal Regenerative Biomaterial Design.**
(Advanced Healthcare Materials)

Jonnby S LaGuardia, **Kaavian Shariati**, Meiwand Bedar, Xiaoyan Ren, Shahrzad Moghadam, Kelly X Huang, Wei Chen, Youngnam Kang, Dean T Yamaguchi, Justine C Lee

18. **SARS-CoV-2 ORF3A interacts with the Clic-like chloride channel-1 (CLCC1) and triggers an unfolded protein response.**
(*PeerJ*)
Hannah N Gruner, Yaohuan Zhang, **Kaavian Shariati**, Nicholas Yiv, Zicheng Hu, Yuhao Wang, J Fielding Hejtmancik, Michael T McManus, Kevin Tharp, Gregory Ku

17. **Genetic and pharmacologic inhibition of ALDH1A3 as a treatment of β-cell failure.**
(Nature Communications)
Jinsook Son, Wen Du, Mark Esposito, **Kaavian Shariati**, Hongxu Ding, Yibin Kang, Domenico Accili

16. **Global honeybee health decline factors and potential conservation techniques.**
(Food Security)
Yinying Yang, Yuzheng Wu, Hexuan Long, Xuelin Ma, **Kaavian Shariati**, James Webb, Liang Guo, Yang Pan, Minglin Ma, Chao Deng, Peng Cao, Jing Chen

2022

15. **Superfolder Green Fluorescent Protein-Based Biosensor Allows Monitoring of Chloride in the Endoplasmic Reticulum.**
(ACS sensors)
Kaavian Shariati, Yaohuan Zhang, Simone Giubbolini, Riccardo Parra, Steven Liang, Austin Edwards, J Fielding Hejtmancik, Gian Michele Ratto, Daniele Arosio, Gregory Ku

14. **A Safe, Fibrosis-Mitigating, and Scalable Encapsulation Device Supports Long-Term Function of Insulin-Producing Cells.**
(*Small*)
Wanjun Liu, James A Flanders, Long-Hai Wang, Qingsheng Liu, Daniel T Bowers, Kai Wang, Alan Chiu, Xi Wang, Alexander U Ernst, **Kaavian Shariati**, Julia S Caserto, Benjamin Parker, Daqian Gao, Mitchell D Plesser, Lars G Grunnet, Claude Rescan, Rodrigo Pimentel Carletto, Louise Winkel, Juan M Melero-Martin, Minglin Ma

13. **An adhesive and resilient hydrogel for the sealing and treatment of gastric perforation.**
(*Bioactive Materials)*
Jing Chen, Julia S Caserto, Ida Ang, **Kaavian Shariati**, James Webb, Bo Wang, Xi Wang, Nikolaos Bouklas, Minglin Ma

12. **Sustained Delivery of SARS-CoV-2 RBD Subunit Vaccine using a High Affinity Injectable Hydrogel Scaffold.**
(*Advanced Healthcare Materials)*
Jing Chen, Bo Wang, Julia S Caserto, **Kaavian Shariati**, Peng Cao, Yang Pan, Qixuan Xu, Minglin Ma

2021

11. **Hylozoic by Design: Converging Material and Biological Complexities for Cell-driven Living Materials with 4D Behaviors.**
(*Advanced Functional Materials)*
Kaavian Shariati, Andrea Shin Ling, Stephanie Fuchs, Benjamin Dillenburger, Wanjun Liu, Minglin Ma

10. **Local Immunomodulatory Strategies to Prevent Allo-Rejection in Transplantation of Insulin-Producing Cells.**
(*Advanced Science)*
Xi Wang, Natalie K Brown, Bo Wang, **Kaavian Shariati**, Kai Wang, Stephanie Fuchs, Juan M Melero-Martin, Minglin Ma

9. **A Broad-Spectrum Antimicrobial and Antiviral Membrane Inactivates SARS-CoV-2 in Minutes.**
(*Advanced Functional Materials)*
Qingsheng Liu, Yidan Zhang, Wanjun Liu, Long-Hai Wang, Young W Choi, Megan Fulton, Stephanie Fuchs, **Kaavian Shariati**, Mingyu Qiao, Victorien Bernat, Minglin Ma

8. **Pollen-inspired enzymatic microparticles to reduce organophosphate toxicity in managed pollinators.**
(*Nature Food)*
Jing Chen, James Webb, **Kaavian Shariati**, Shengbo Guo, Jin-Kim Montclare, Scott McArt, Minglin Ma

2020

7. **Hydrogels in Emerging Technologies for Type 1 Diabetes.**
(*Chemical Reviews)*
Stephanie Fuchs, Alexander U Ernst, Long-Hai Wang, **Kaavian Shariati**, Xi Wang, Qingsheng Liu, Minglin Ma

6. **Biomaterial Applications in Islet Encapsulation and Transplantation.**
(*ACS Applied Bio Materials)*
Julia S Caserto, Daniel T Bowers, **Kaavian Shariati**, Minglin Ma

5. **An Adhesive Hydrogel with "Load-Sharing" Effect as Tissue Bandages for Drug and Cell Delivery.**
(*Advanced Materials)*
Jing Chen, Dong Wang, Long-Hai Wang, Wanjun Liu, Alan Chiu, **Kaavian Shariati**, Qingsheng Liu, Xi Wang, Zhe Zhong, James Webb, Robert E Schwartz, Nikolaos Bouklas, Minglin Ma

4. **Stimuli-Responsive Insulin Delivery Devices.**
(*Pharmaceutical Research)*
Stephanie Fuchs, **Kaavian Shariati**, Minglin Ma

3. **Selective monitoring of insulin secretion after CRISPR interference in intact pancreatic islets despite submaximal infection.**
(*Islets*)
Kaavian Shariati, Zachary Pappalardo, Deeksha G Chopra, Nicholas Yiv, Robin Sheen, Gregory Ku

2. **Specialty tough hydrogels and their biomedical applications.**
(*Advanced Healthcare Materials*)
Stephanie Fuchs, **Kaavian Shariati**, Minglin Ma

2019

1. **Nanotechnology in cell replacement therapies for type 1 diabetes.**
(*Advanced Drug Delivery Reviews)*

Alexander U Ernst, Daniel T Bowers, Long-Hai Wang, **Kaavian Shariati**, Mitchell D Plesser, Natalie K Brown, Tigran Mehrabyan, Minglin Ma

LEADERSHIP EXPERIENCE

Aerospace Medicine Interest Group — *David Geffen School of Medicine, UCLA*
April 2023—Present
Vice President
Los Angeles, CA
Led initiatives to advance medical student engagement in aerospace medicine through educational events, research opportunities, and interdisciplinary collaboration.

Medical School Council — *David Geffen School of Medicine, UCLA*
September 2022—September 2024
Vice President (Class of 2026)
Los Angeles, CA
As Vice President, I represented the voices of the class of 2026 when engaged in dialogue with faculty and administration, and when adjudicating policies and affairs with the class president. I ensured our dialogue was centered around safeguarding the careers and wellbeing of our class, and reported the proposed changes back to the student body.

Operation Smile — *David Geffen School of Medicine, UCLA*
July 2023—Present
Executive Chairperson
Los Angeles, CA
The Operation Smile student interest group is dedicated to raising awareness and funds for children with cleft lip and palate in underserved communities. We engage in educational activities, host fundraising events, and collaborate with healthcare professionals to support global medical missions. Our members are passionate about making a difference by promoting access to life-changing surgeries. Together, we strive to embody the spirit of compassion and service in our future medical careers.

Health Design and Technology Project Team — *Cornell University Mechanical and Aerospace Engineering*
August 2017—May 2020
Co-Director, Business Director, Integrative Design Engineer
Ithaca, NY
Cornell HealthTech/Engineering World Health is a project team concerned with the development of technology meant to solve health technology problems. As an Integrative Design Engineer, I focused on the design and construction of passive components for devices and systems. I served as co-director of the 40-person, interdisciplinary team, and oversaw device building, project exploration, and team marketing/expanding. In this role, I started INDAGO, a tool meant to simplify filing investigative new drug applications, planned our first hackathon, rebranded our team, and expanded the scope of our projects.

TEACHING EXPERIENCE

Principles of Biochemistry — *Cornell University Department of Molecular Biology and Genetics*
August 2018—May 2019
Teaching Assistant
Ithaca, NY
I taught and reviewed challenging Biochemistry topics with students. I administered written and oral quizzes to test student knowledge and confirm mastery of concepts, and worked closely with the biochemistry teaching team to provide critical feedback and insight into students' performances.

CLINICAL EXPERIENCE

Insulliance — *Diabetes Mentoring Program*
May 2020—August 2021
Program Coordinator and Mentor
Summer 2019
Summer 2018
Ithaca, NY
Driven by my own experience with diabetes, I renewed Insulliance, a discontinued mentoring program for children with diabetes in the UCSF Benioff Children's Hospital in Oakland. As head mentor, I offer emotional support, resources, and advice to address the psychosocial aspects of living with diabetes. I also recruit other mentors to do the same. By establishing a dialogue with patients, parents, physicians, and nurses, I helped create care protocols and strategies, the outcomes of which were measured through studying the patients' hba1c and blood glucose trends. When the advent of COVID-19 prevented volunteer mentors from seeing patients in the clinic, I began to build a virtual program.

Physician Shadowing / Clinical Preceptorship
2018-2020
John Muir Medical Center, Internal Medicine (Summer/Winter 2018) - Attended consultation for internal issues such as hypertension and heart disease. Primary Contact: Nason Azizi, MD ((925) 939-3000)
Bass Medical Group, Gastroenterology (Summer/Winter 2018) - Observed endoscopy and colonoscopy procedures and attended pre-op and post-op consultations. Primary Contact: Salim Shelby, MD (925 232-0090)
Guthrie Robert Packer Hospital, Urology and Cardiology (Fall 2019) - Learned about needs exploration and observed operations pertaining to gynecology, urology, cardiology, and radiology. Primary Contacts: Vineet Agrawal, MD (570-887-2845); Umashankar Ballehaninna, MD (607-257-5858)

COMMUNITY SERVICE AND VOLUNTEERING

Youth Empowerment Program — *JYSEP, The Primary School*
August 2011—August 2020
Program Coordinator
San Francisco, CA
As an Empowerment Program Coordinator, I worked with the Primary School and the Junior Youth Empowerment Program to lead activities meant to strengthen students' moral and intellectual capacities through service, art, and recreation. Initially a counselor, I was promoted to a coordinator. In this role, I established a media literacy camp to explore the cross-section of media, self-image, and health. I also led a

Science Club at the Primary School, where I taught 2nd and 3rd graders to perform chemistry and physics experiments. As the program grew each summer, many camp attendees went on to become counselors, and the science club became the most popular school program with over 30 students.

The(Sugar)Science June 2020—June 2021
Technical Writer San Francisco, CA
Eager to stay informed about progress made in diabetes technology and research, and excited to communicate that progress to others, I volunteered as a technical writer/designer for the(sugar)science. The(sugar)science is a digital platform which connects scientists studying diabetes to facilitate collaboration and innovation. As a member of the Wovens team, I prepared posts and infographics which provide an overview of different research subjects, groups, and companies, and how they relate to diabetes; this is the most-visited page on the website.

SKILLS

MATLAB	Blender	Cell and Tissue Culture	Assay Development	Microsoft Office	Basic 3D Printing
Arduino IDE	COMSOL	Spectrophotometry	PCR	ELISA	Lathe (Basic)
Autodesk Maya	Data Analysis	Protein Expression/Purification	Animal Handling	Electrospinning	Milling (Basic)
Fusion 360	HTML/CSS (Basics)	C, C++, Python (Basics)	R Studio	Schematic Design	Bandsaw (Basic)