Kiara Reyes Gamas

(929)-224-6503 | kpr1@rice.edu | kiara-reyes.strikingly.com | linkedin.com/in/kiararey

EDUCATION

Rice University — **Houston, TX**
Ph.D. in Systems, Synthetic, and Physical Biology – GPA 3.53 — *August 2019 – Present*
B.S. in Bioengineering – GPA 3.52 — *Conferred May 2019*

Nanyang Technological University — **Singapore**
GEM Trailblazer Semester Study Abroad — *January – May 2017*

RESEARCH EXPERIENCE

Stadler and Silberg Groups — **Houston, TX**
PhD Student — *January 2020 – Present*

- Building a DNA memory-based tool to track conjugative events *in situ* and elucidate horizontal gene transfer dynamics within a microbial community
- Developing Python software to design broad and narrow targeting RNA-based environmental sensing tools to tag a microbial community
- Helped develop assays to track SARS-CoV-2 prevalence in 39 Houston wastewater plants and alert the Houston Public Health Department of COVID-19 outbreaks

Junghae Suh Synthetic Virology Lab — **Houston, TX**
Undergraduate Researcher — *October 2015 – May 2019*
Summer Cardiovascular Research Internship Program (SCRIP) Intern — *May – August 2017*

- Coordinated experiments with a team of 4 to shed light on a sequence in the adeno-associated virus (AAV) *cap* gene that is critical for cellular transduction
- Wrote and implemented a MATLAB function to quantitatively analyze nuclear and cytoplasmic localization of AAV in confocal images to streamline data analysis
- Assisted testing a computational model using energetic interactions to predict functional residues in the AAV capsid protein by designing and physically making virus mutants *in vitro*

AWARDS AND FELLOWSHIPS

Bioelectronics NSF Research Traineeship (NRT) Program — **Houston, TX**
Trainee — *August 2020 – Present*

- Training in interdisciplinary team science while collaborating with 13 other trainees and faculty across several disciplines making up bioelectronics
- Participating in formalized team science training through coursework on interdisciplinarity, workshops, and engagement with stakeholders in industry, government, and other institutions

PUBLICATIONS

Grandel, N. E., Reyes Gamas, K., and Bennett, M. R. (2021). Control of synthetic microbial consortia in time, space, and composition. *Trends in Microbiology* doi.org/10.1016/j.tim.2021.04.001

LaTurner, Z. W., Zhong, D. M., Kalvapalle, P., Reyes Gamas, K., Terwiliger, A., Crosby, T., Ali, P., Avadhanula, V., Hernandez Santos, H., Weesner, K., Hopkins, L., Piedra, P. A., Maresso, A. W., and Stadler, L. B. (2021). Evaluating recovery, cost, and throughput of different concentration methods for SARS-CoV-2 wastewater-based epidemiology. *Water Research* **197**, 117043

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Thadani, N., Zhou, Q., Reyes Gamas, K., Butler, S., Bueno, C., Schafer, N., Morcos, F., Wolynes, P.G., and Suh, J. (2021). Frustration and Direct Coupling Analyses to Predict Formation and Function of Adeno-Associated Virus. *Biophysical Journal* **120**, 489–503.

Robinson, T.M., Ho, M.L., Wahlig, B., Gough, V., Banta, A., Reyes Gamas, K., Kang, B., Lee, E., Chen, W., and Suh, J. (2020). An essential N-Terminal serine-rich motif in the AAV VP1 and VP2 subunits that may play a role in viral transcription. *Virology* **546**, 127-132

LEADERSHIP EXPERIENCE

Senior Design (Capstone Course) **Houston, TX**
Team Representative *August 2018 – May 2019*

- Led a team of 5 to create a novel, non-invasive device to measure intracranial pressure (ICP) in babies younger than 18 months
- Participated in all aspects of project development including literature review, brainstorming, prototyping, implementing electrical circuits, writing signal processing, computer aided design
- Served as the team point of contact by communicating with mentors, (adult) patients, and executives of companies developing ICP measurement devices to understand the market

Rice International Student Association **Houston, TX**
Internal Vice President *January 2018 – May 2019*

- Collaborated with a 10 person working group to create the Rice International Student Association (RISA) to advocate for and represent international students at Rice
- Led committee head meetings with Socials, Opportunities, and Community Project committee heads to organize goals for the year and make sure they are met

Bioengineering Curriculum Review Committee **Houston, TX**
Committee Member *August 2017 – May 2019*

- Worked closely with the administration on how to improve the curriculum and serve students in their post-graduate career based on survey and institutional research

Student Association Environmental Committee **Houston, TX**
Committee Chair *August 2017 – May 2018*

- Managed a team of 12 to bring sustainability initiatives to Rice campus, such as becoming a member of the Post Landfill Action Network and the Power Shift Network
- Mentored freshmen to lead student resolution supporting post-consumer waste composting on campus which led to an independent research project to expand composting at Rice

Center for Career Development (CCD) **Houston, TX**
Peer Career Advisor (PCA) *April 2016 – May 2017*

- Advised students on professional skills through peer-directed office hours, assisting students in resume and cover letter building, job and internship basics, and professional attire consultation
- Expanded visibility of CCD resources by coordinating programs with other PCAs, including a resume review event and a LinkedIn workshop

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Bioengineering Fundamentals **Houston, TX**
Project Manager *August – December 2016*

- Managed a team of 7 through 3 problem based learning engineering design projects focused on the circulatory system; delegated project roles to team members based on their strengths
- Brainstormed and designed a mathematical model for β-thalassemia (a genetic type of anemia)
- Designed a modified atherectomy device to treat Coronary Heart Disease that removes plaque from coronary arteries and then coats them with collagen to prevent further plaque buildup

INDEPENDENT PROJECTS

Post-Consumer Waste Composting at Rice University **Houston, TX**
Undergraduate Researcher/ Sustainability Intern *January 2018 – May 2018*

- Co-led research project on the feasibility and implementation of a post-consumer waste program at Rice culminating in a successful presentation to the Vice President of Administration at Rice
- Worked as an intern at Rice's Center for Sustainability and Energy Management to implement final proposal by researching collection and transportation logistics and implementation costs
- Passed on the project to current Rice undergraduates where it has developed into the implementation of post-consumer waste composting at several spots on campus

RELEVANT COURSEWORK

Synthetic Biology, Systems Biology, Physical Biology, Environmental Microbiology and Microbial Ecology, Bioinformatics: Sequence Analysis, Public Science Communication, Bioengineering Fundamentals, Biostatistics, Organic Chemistry, Cell Biology, Molecular Techniques in Bioengineering, Biological Thermodynamics, Numerical Methods, Tissue Culture, Biomaterials, Systems Physiology, Bioreaction Engineering (Biochemistry and Enzyme Kinetics), Transport Phenomena in Biological Systems, Molecular Techniques in Bioengineering

CONFERENCE PAPERS

Thadani, N.N., Reyes Gamas, K., Zhou, Q., Butler, S., Schafer, N., Morcos, F., Wolynes, P., and Suh, J. (2019). Applying Coarse-Grained Modeling and Phylogeny-Based Approaches to Predict Formation and Function of Genetically Modified Adeno-Associated Virus Capsids. In MOLECULAR THERAPY (CELL PRESS 50 HAMPSHIRE ST, FLOOR 5, CAMBRIDGE, MA 02139 USA), pp. 223–223.

Tong, J., Robinson, T., Ho, M., Chen, J., Lee, E., Kang, B., Reyes Gamas, K., Banta, A., and Suh, J. (2018). Characterization of a Novel Serine/Threonine Motif in the N-Terminal Region of Adeno-Associated Virus. In MOLECULAR THERAPY (CELL PRESS 50 HAMPSHIRE ST, FLOOR 5, CAMBRIDGE, MA 02139 USA), pp. 305–306.

Thadani, N., Reyes Gamas, K., Butler, S., Wolynes, P., and Suh, J. (2018). Applying Frustration Analysis to Predict Functional Domains in Adeno-Associated Virus Capsid Assembly and Disassembly. In PROTEIN SCIENCE (WILEY 111 RIVER ST, HOBOKEN 07030-5774, NJ USA), pp. 213–213.

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WORK EXPERIENCE

Rice Undergraduate Bioengineering January 2019 – May 2019
Systems Physiology Lab (BIOE 320) Grader

Sustainability Department April 2018 – May 2018
Sustainability Intern

Rice Information Desk January 2018 – May 2019
Building Manager

Rice Public Art November 2017 – March 2018
Skyspace Docent

SKILLS AND INTERESTS

Software and coding*:*
Proficient in Python3, SolidWorks, MATLAB, Affinity Designer, Affinity Photo, Affinity Publisher, Microsoft Office Suite
Intermediate in Adobe Illustrator, Adobe Photoshop, LabView, ImageJ, C++

Languages:
Native or bilingual proficiency in Spanish
Native or bilingual proficiency in English
Native or bilingual proficiency in French

Research skills:
Image analysis in MATLAB, PCR, qPCR, mammalian cell culture, iodixanol layering, gel electrophoresis, restriction digest, DNA and RNA purification, silver staining, heparin column purification, nickel column chromatography, western blots, ELISA, spectroscopy, FRET, confocal microscopy, flow cytometry

Certifications*:*
Cordon Bleu Diplômes de Cuisine Basique et Pâtisserie Basique 2013

Clubs & Activities:
Biomedical Engineering Society (member) 2015 – 2019
Rice International Student Association (internal vice-president, co-founder) 2018 – 2019
Rice Pokémon League (president, co-founder) 2016 – 2017