# Aarya Venkat

Computational Biologist


## Education

**Biochemistry (PhD)**

**University of Georgia**

Present | GPA: 3.9

**Chemistry (MS)**

**UC, San Diego**

June 2017 | GPA: 3.8

## Recent Awards

Society for Glycobiology Conference Poster Award & Travel Award, 2021

UGA Travel Award, 2021

ARCS Foundation Scholar, 2021

3 Minute Thesis Winner, People's Choice Award, 2021

Future Faculty Fellowship, 2019

Outstanding Graduate Teaching Assistant Awards, 2018 & 2019

## Contact


250 Little St. Athens, GA

678-404-1666

aarya@uga.edu

Website:// aaryakat.com

Github:// arikat

Twitter:// aaryakat

LinkedIn:// AaryaVenkat

ResearchGate:// Aarya-Venkat

GoogleScholar:// Aarya Venkat

NCBI:// aaryakat

ORCID:// 0000-0002-8793-4097


## Recent Employment History

**Graduate research assistant | PhD student** — **08/2018 - Present**

Biochemistry and Molecular Biology (Kannan Lab)
University of Georgia

I study sequence variation and dynamics of the Glycosyltransferase hydrophobic core to gain insights into structure-function and evolution.

**Instructor of Record | Teaching Assistant** — **08/2017 - 05/2021**

Department of Chemistry
Department of Biology
Department of Biochemistry and Molecular Biology
University of Georgia

Teaching Assignments: CHEM 1211, CHEM 1212.
Grader Assignments: BCMB 3100, BCMB 3600.
Instructor Assignments: BIO 1103, BCMB 3600

**Graduate research assistant | Masters student** — **08/2015 - 06/2017**

Chemistry and Biochemistry (Gilson Lab)
UC, San Diego

Developed PathInsight, a program to model the downstream effects of small binding compounds in a biological pathway.

**Graduate Teaching Assistant** — **01/2016 - 06/2017**

Department of Chemistry
UC, San Diego

Instructor Assignment: Chem6b (three lectures per week)

**Internship** — **04/2016 - 12/2016**

National Resource for Network Biology (San Francisco)

I worked with Dr. Morris (Cytoscape) to develop an application [PathInsight].

## Publications

**Patents**

Venkat, A., et al. Using Computational QSAR Methods to Propose a New Group of Antibiotics for Dental Applications, U.S. Provisional Patent Appl. 62/359,638, July 22, 2016.

**Papers** (citations: 63)

Kadirvalraj, R., et al. (2022). Substrate Selection of Glycosyltransferases. In Prep.

Amos, R., et al. (2022). Polymerization of the backbone of the pectic polysaccharide rhamnogalacturonan I. Submitted.

Yeung, W., et al. (2022). An explainable unsupervised framework for alignment-free protein classification using sequence embeddings. Submitted.

Venkat, A., et al. (2022). Modularity of the hydrophobic core and evolution of functional diversity in fold A glycosyltransferases. Under Review.

Yeung, W., ... Venkat, A., & Kannan, N. (2021). Evolution of Functional Diversity in the Holozoan Tyrosine Kinome. Molecular Biology and Evolution.

Taujale, Rahil, et al. (2021). "The GTXplorer portal to access, navigate and mine evolutionary relationships of fold A glycosyltransferases." Glycobiology.

## Skills

- LaTeX — 4+ years
- Bash — 4+ years
- Molecular Modeling — 4+ years
- Computational Chemistry — 4+ years
- Python — 4+ years
- Software Development — 3+ years
- Multivariate Statistical Analysis — 3+ years
- Molecular Docking — 3+ years
- Data science — 3+ years
- Quantum Mechanics — 2+ years
- Java — 2+ years
- Synthetic Biology — 1+ years

## Mentorship

Nathan Kleber - UGA undergrad
Daniel Tehrani - UGA grad student
Brady O'Boyle - UGA grad student
Nolan Kemppinen - UGA grad student
Grace Watterson - UGA undergrad
Priyanka Parikh - UGA undergrad
Swati Bala - UGA undergrad
Nathan Gravel - UGA grad student
Ehsan Suez - UGA ILS rotation student
Donovan Cantrell - UGA grad student
Max Kuhr - UGA undergrad
Claire Bunn - UGA undergrad
Ganesh Prabakaran - UGA undergrad
Jamini Patel - UGA undergrad
Raga Dasana - High school student
Victor Valbuena - High school student

Huang, L. C., Taujale, R., Gravel, N., Venkat, A., ... & Kannan, N. (2021). KinOrtho: a method for mapping human kinase orthologs across the tree of life and illuminating understudied kinases. BMC Bioinformatics.

Gosztyla, Maya L., et al. (2021). "Responses to 10 common criticisms of anti-racism action in STEMM." PLOS Computational Biology.

Zhang, A., Venkat, A., et al. (2021). Peters plus syndrome mutations affect the function and stability of human 1, 3-glucosyltransferase. Journal of Biological Chemistry.

Huang, L.C., Yeung, W., Wang, Y., Cheng, H., Venkat, A., Li, S., Ma, P., Rasheed, K. and Kannan, N., 2020. Quantitative Structure Mutation Activity Relationship Tests (QSMART) model for protein kinase inhibitor response prediction. BMC bioinformatics.

Taujale, R., Venkat, A., et al. (2020) Deep evolutionary analysis reveals the design principles of fold A glycosyltransferases. Elife.

Venkat, A. (2017). PathInsight: A Novel Tool for Modeling Biomolecular Pathways. UC San Diego: Chemistry.

Venkat, A., Amerson, A. L., and Bielmyer-Fraser, G. K. (2016) "Influence of Water Hardness on Accumulation and Effects of Silver in the Green Alga, Raphidocelis subcapitata," Georgia Journal of Science.

Park, S., Venkat, A., Gopinath, A., and Kang, J. (2015). Quantitative Analysis of the Trends Exhibited by the Three Interdisciplinary Biological Sciences: Biophysics, Bioinformatics, and Systems Biology. Journal of Microbiology & Biology Education.

## Conferences and Presentations

Modularity of the hydrophobic core and evolution of functional diversity in fold A glycosyltransferases. Southeast Enzyme Conference, **Invited Speaker** (2022)

Modularity of the hydrophobic core and evolution of functional diversity in fold A glycosyltransferases. Glycoscience Training Program (2022)

Modularity of the hydrophobic core and evolution of functional diversity in fold A glycosyltransferases. Society for Glycobiology (2021)

Mapping sequence-structure-function relationships in glycosyltransferases using deep learning models and data visualization tools. Society for Glycobiology (2021)

Origami: evolution's secret to the complexity of life. Three Minute Thesis (2021)

Playground Learning: Team Learning and Gamification. USG Teaching & Learning Conference (cancelled due to covid-19) (2020)

Deep Evolutionary Analysis Reveals the Design Principles of Fold A Glycosyltransferases. Society for Glycobiology (2019)

Teaching and Laboratory Assistant Orientation. Delivered Lecture on Efficient Grading Practices. University of Georgia (2018)

Teaching and Laboratory Assistant Orientation. "Teaching Tips" Q&A Panelist. University of Georgia (2018)

Does Competition Enhance Learning Over a Relaxed Guided Lesson? Teaching Methods Poster Presentation. University of California, San Diego (2017)

Influence of Water Hardness on Accumulation and Effects of Silver in the Green Alga, Raphidocelis subcapitata. Valdosta State University (2015)

Using Computational QSAR Methods to Propose a New Group of Antibiotics for Dental Applications. Valdosta State University (2015)

Project Based Learning: Connecting Learners through Guided Class Projects in the Sciences. Valdosta State University (2015)

Project Based Learning: Implanted Glucose Sensor and Release Mechanism. Valdosta State University (2015)

# Volunteering

**2020-2022**

National History Day

Judged Performances and Documentaries for middle school and high school students.

**2021-2022**

Sweet Olive Farm

Volunteered at a local animal rescue, coordinated other volunteers, and taught children how to interact with and feed the animals. Additionally helped build new pens and other infrastructure for the animals.

**2017-2020**

Science Olympiad Lab Manager

Aid in setting up Chemistry and Forensic labs for high school Science Olympiad. Ensure lab safety protocols are followed.

**2017-2020**

Computer Literacy

Established and taught weekend computer literacy courses at the Athens-Clarke county library.

**2018**

Teaching Leadership

Developed a curriculum focused on understanding ethics, morals, and empathy and their roles in good leadership.

**2015-2016**

Outreach Advancement Towards Hope (OATH)

UCSD organization helping the underserved in downtown San Diego through medical outreach, performing medical screenings with a certified physician.

**2015**

Aiding Villages after the 2015 Nepal Earthquake

Helped organize and hand deliver supplies, including food and oil, to villagers in the Himalayan mountains affected by the earthquake and recurrent landslides.

# Guest Lectures

AlphaFold2: protein structure-prediction in the modern era. BCMB3600. University of Georgia (2022)

Guest Lecture on Chemical Equilibrium. Chemistry 6B, UCSD (2017)

# Workshops and Symposiums

Protein Engineering Symposium - Organizer. University of Georgia (2022)

Unfolded Protein Response Symposium - Chair. University of Georgia (2020)

Writing a Diversity Statement - GradTeach Workshop - Workshop leader (2020)

Spring Teaching Symposium - Workshop leader (2020)

Spring Teaching Symposium - Organizer. University of Georgia (2020)

Cancer Immunotherapies Symposium - Organizer. University of Georgia (2019)

# Associations

2022– Mentoring Committee, Graduate Retention and Inclusion grant

2021– Member, Society for Glycobiology

2020– Member, American Association for the Advancement of Science

2020–22 Biochemistry Graduate Students Association (BGSA)

2019–20 Fellow, Future Faculty Fellow, University of Georgia

2018– Science Outreach and Social Media Coordinator, Kannan Lab

2018– Chair, UGA Biochemistry Symposium Committee

# Articles written about me

**ARCS Foundation Award (2021):** https://www.bmb.uga.edu/news/stories/2021/aarya-venkat-receives-2021-22-arcs-foundation-award

**Winning the 3 Minute Thesis (2021):** https://news.uga.edu/10th-annual-three-minute-thesis-competition/

**3 Minute Thesis (2021):** https://www.bmb.uga.edu/news/stories/2021/congratulations-aarya-and-brittany

**Anti-Racism in STEM (2020):** https://werepstem.com/2020/09/04/they-wrote-the-guide-on-how-to-respond-to-criticisms-of-anti-racism-action-in-stem-heres-why-they-did-it/

**Future Faculty Fellows (2019):** https://www.bmb.uga.edu/news/stories/2019/congratulations-aarya-venkat