GINA EL NESR

gelnesr /at/ stanford.edu | github.com/gelnesr

EDUCATION

2021-present **Stanford University**, Stanford, CA
Ph.D. in Biophysics, Stanford University

2021 **Johns Hopkins University** (JHU), Baltimore, MD
B.A. in Biophysics
B.S. in Computer Science
B.S. in Applied Math & Statistics
Graduated with General Honors (highest honors), Dean's List

2017 Massachusetts Academy of Math and Science at WPI

AWARDS AND HONORS

2025 The FEBS Journal Prize for Best Talk Award, GRC Computational NMR

2025 Bio-X Travel Award, Stanford University

2023 DE Shaw Research Graduate and Postdoctoral Women's Fellowship

2022 NSF Graduate Research Fellowship

2020 Institute for Data Intensive Engineering and Science (IDIES) Research Fellowship

2019 Jason HP and Beverly N. Kravitt Fund Fellow - *Named Scholar Distinction*

2018 Woodrow Wilson Research Fellowship

2017 Charles O' Thompson Scholarship

PROFESSIONAL EXPERIENCES

Research Experiences

2021-present **Graduate Student**, Stanford University
Advisor: Possu Huang, PhD

2019-2021 **Undergraduate Research Assistant**, Biophysics, JHU
Advisor: Doug Barrick, PhD

2018-2019 **Undergraduate Research Assistant**, Biology and Computer Science, JHU
Advisor: James Taylor, PhD

2017-2018 **Undergraduate Research Assistant**, Integrated Imaging Center, JHU
Advisor: J. Michael McCaffery, PhD

Teaching Experiences

2025 **Lead Instructor**, Protein Design and Modeling using Machine Learning (BIOS 429)
Stanford University

2023 **Teaching Assistant**, Macromolecules (BIOPHYS 241)
Stanford University

2020-2021 **Teaching Assistant**, Biophysical Chemistry (AS.250.372)
Biophysics Department at JHU

2019-2021 **Teaching Team**, Computer Science
The Center for Talented Youth at JHU

2019-2020 **Lab Teaching Assistant**, Protein Engineering & Biochemistry Lab (AS.250.253)
Biophysics Department at JHU

2018 **Teaching Assistant**, Physics II for Physical Science Majors (AS.171.108)
Physics Department at JHU

Industry Partnerships

2025-present **Planning Committee**, Enzyme Protein Engineering Tournament
The Align Foundation

Industry Experience

2018 **Intern**, Process Development: Analytical Development
Shire Pharmaceuticals (Lexington, MA)

2017 **Intern**, Software Development
Senscio Systems (Harvard, MA)

ACADEMIC SERVICE

2024-present **Guest Editor**, American Physical Society's PRX Life

2023-present **General Chair**, NeurIPS Machine Learning in Structural Biology Workshop

2024-2025 **Reviewer**, Workshop Proposal Committee, ICML

2024-2025 **Reviewer**, Generative & Experimental Perspectives for Biomolecular Design, ICLR

2023 **Reviewer**, Generative AI and Biology Workshop, NeurIPS

ACADEMIC CONFERENCES

Invited and Contributed Talks

2025 The 69th Benzon Symposia: Protein structure prediction and design in biology and pharmacology, Speaker

2025 Summer RosettaCon 2025, Speaker & Panelist

2025 GRC: Computational Aspects of Biomolecular NMR, Speaker

2025 ML Protein Engineering Seminar Series, Invited Seminar Speaker

2024 Antibody Engineering: Strategies for Design & Optimization, Invited Speaker

2023 DE Shaw Research Graduate & Post-doctoral Symposium, Flash Talk

2023 California Research Alliance (CARA) Spring Review, Keynote Speaker

2023 ML Protein Engineering Seminar Series, Invited Seminar Speaker

2022 California Research Alliance (CARA) Fall Review, Speaker

2022 California Research Alliance (CARA) Spring Review, Speaker

2022 exploreCSR: Democratize AI, Invited Panelist

2021 Richard Macksey Research Symposium, Invited Panelist

Group & Departmental Talks (Invited)

2025 SF Deep Tech Week, Biotech Summit, San Francisco, CA

2025 Evolutionary Scale Reading Group, remote

2025 Center for Genomic Regulation, Seminar, Barcelona, Spain

2024 Biophysics and Structural Biology Trainee Seminar, Stanford University

Conference Presentations

2024 ICLR Generative & Experimental Perspectives for Biomolecular Design Workshop

2023 Keystone Conference: Computational Design & Modeling of Biomolecules

2021 Johns Hopkins Woodrow Wilson Annual Symposium

2020 34th Gibbs Conference on Biological Thermodynamics

2020 Institute of Data Science and Engineering Annual Symposium

2016 American Junior Academy of Science Meeting

2016 International Sustainable World Engineering Energy Environment Project

CERTIFICATIONS

2022 NVIDIA DLI, Fundamentals of Accelerated Computing with CUDA

PUBLICATIONS

* = equal contribution between authors, § = authors listed in alphabetical order

*H.K. Wayment-Steele, ***G. El Nesr**, R. Hettiarachchi, H. Piyumantha, S. Ovchinnikov, D. Kern (2025) Learning millisecond protein dynamics from what is missing in NMR spectra. *bioRxiv*. https://www.biorxiv.org/content/10.1101/2025.03.19.642801v1 [Under review in Nature]

A.A. Rubio, V.A. Baharani, M. Parada, M.E. Abernathy, Z. Wang, Y.E. Lee, M.R. ESO, J. Phung, I. Ramos, T. Chen, **G. El Nesr**, J.D. Bloom, P.D. Bieniasz, M.C. Nussenzweigh, C.O. Barnes. (202) Bispecific antibodies with broad neutralization potency against SARS-CoV-2 variants of concern. Science Translational Medicine. https://www.science.org/doi/abs/10.1126/scitranslmed.adq5720

§G. Corso, **§G. El Nesr**, §H.K. Wayment-Steele (2024) Editorial: Machine Learning in Structural Biology. PRX Life. https://doi.org/10.1103/PRXLife.2.040001

H. Du, L. Mallik, D. Hwang, Y. Sun, C. Kaku, D. Hoces, S.M. Sun, R. Ghinnagow, S.D. Carro, H.A.T. Phan, S. Gupta, W. Blackson, H. Lee, C.A. Choe, D. Dersh, J. Liu, B. Bell, H. Yang, G.F. Papadaki, M.C. Young, E. Zhou, **G. El Nesr**,... N.G. Sgourakis, P.S. Huang (2024) Targeting peptide antigens using multiallelic MHC I-binding system. Nature Biotechnology. https://doi.org/10.1038/s41587-024-02505-8

*C. Choe, ***G. El Nesr**, A. Espeleta, R. Das, P.S. Huang. (2024) 3D Inverse Design of RNA Using Deep Learning. ICLR. GEM Workshop.

A.E. Chu, J. Kim, L. Cheng, **G. El Nesr**, M. Xu, R. Shuai, P.S. Huang. (2024) An all-atom protein generative model. PNAS. https://doi.org/10.1073/pnas.2311500121

*A.R. Baxter-Koenigs, ***G. El Nesr,** D. Barrick. (2022) Singular value decomposition of protein sequences as a method to visualize sequence and residue space. Protein Science. https://doi.org/10.1002/pro.4422