NEGIN FOROUZESH

Ph.D., Assistant Professor

Email: neginf@calstatela.edu | Website: https://www.calstatela.edu/faculty/negin-forouzesh

SUMMARY

I am a tenure-track assistant professor in computer science at California State University, Los Angeles (Cal State LA). I apply physics-based/mathematical modelings, high performance computing, and machine learning to simulate and understand biomolecular systems. With strong background in theoretical computer science, I also have interests in design and analysis of algorithms and data structures.

RESEARCH INTERESTS

- Computational Biology and Bioinformatics
- Computational Molecular Biophysics and Biochemistry
- Computational Geometry

EDUCATION

- **Ph.D. in Computer Science** 2015- 2020
  Virginia Polytechnic Institute and State University
  (Virginia Tech), Blacksburg,VA, USA
  Advisor: Dr. Alexey Onufriev
  Thesis: Efficient Biomolecular Computations Towards Applications in Drug Discovery
- **Master's Degree in Computer Science** 2011- 2013
  Amirkabir University of Technology
  (Tehran Polytechnic), Tehran, IRAN
  Advisor: Dr. Ali Mohades
  Thesis: Prediction of Protein Binding Sites Using Geometric Algorithms
- **Bachelor's Degree in Computer Science** 2007- 2011
  Amirkabir University of Technology
  (Tehran Polytechnic), Tehran, IRAN

PROFESSIONAL EXPERIENCE

- **Tenure-Track Assistant Professor** Aug. 2020- Present
  Computer science department at California State University, Los Angeles. Principle investigator of Computational Molecular Biology (COMB) Lab. In COMB lab, we develop efficient computational models to simulate and analyze protein-ligand interactions.
- **Graduate Research Assistant** Jan. 2019- June 2020
  I worked on "accurate yet fast implicit solvation" research project funded by NIH (R21) at Virginia Tech. My role was to perform optimizations on biomolecular surfaces to obtain an accurate estimation of binding free energies.
- **HPC Technical Support** Jan. 2018- Jan. 2019
  Advanced Research Computing (ARC), Virginia Tech
  I was mainly in charge of providing HPC consultancy and support for ARC users. Moreover, I built, tested and deployed software packages on clusters.
- **Biomedical Research Intern** May 2018- Aug. 2018
  Stanford Center for Genomics and Personalized Medicine (SGCPM), Stanford University.
  My role was to automate data import from large number of public annotation datasets to Google Cloud Platform (GCP) and keep the datasets up-to-date without human intervention.

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AWARDS & HONORS

- **Graduate Student of the Year Award** Mar. 2020
  Recognized by the Virginia Tech Graduate School based on academic achievements, service contributions, and commitment to advancing women in science.
- **Computer Science Scholars and Pratt Fellowships** 2017, 2019
  Exceptional scholar admitted at Computer Science Department, Virginia Tech.
- **ACM Student Research Competition Award** Sept. 2018
  Third place in graduate students competition track, GHC 2018.

PUBLICATIONS

Peer-Reviewed Journals & Conferences:

1. **Forouzesh, N.** (2020, September). Binding Free Energy of the Novel Coronavirus Spike Protein and the Human ACE2 Receptor: An MMGB/SA Computational Study. In Proceedings of the *11th ACM International Conference on Bioinformatics, Computational Biology and Health Informatics* (pp. 1-7).
2. **Forouzesh, N.**, Mukhopadhyay, A., Watson, L. T., and Onufriev, A. V. (2020). Multidimensional Global Optimization and Robustness Analysis in the Context of Protein-Ligand Binding. *Journal of Chemical Theory and Computation.*
3. **Forouzesh, N.**, Watson, L. T., and Onufriev, A. V. (2020, May). Robustness of multidimensional optimization outcomes: a general approach and a case study. *2020 Spring Simulation Conference (SpringSim)* (pp. 1-12). IEEE.
4. **Forouzesh, N.**, Izadi, S, and Onufriev, A. (2017, August). Grid-based Surface Generalized Born Model for Calculation of Electrostatic Binding Free Energies, *Journal of Chemical Information and Modeling.* 2017, 57, 2505-2513.
5. **Forouzesh, N.**, Kazemi, M. R., and Mohades, A. (2014, June). Structure-Based Analysis of Protein Binding Pockets Using Von Neumann Entropy. *International Symposium on Bioinformatics Research and Applications* (pp. 301-309). Springer International Publishing.
6. Banyassady, B., **Forouzesh, N.**, Mohades, A., Davoodi, M., and Khanteimouri, P. (2011, June). Data Imprecision Under Lambda- Geometry : Finding Stabber Lines for Parallel line segments. *The International Conference on Contemporary Issues in Computer and Information Science.*

PRESENTATIONS

1. The 257^{th} American Chemical Society (ACS) National Meeting Apr. 2019
   Orlando, FL
2. Grace Hopper Celebration (GHC) of Women in Computing Sept. 2018
   Houston, TX
3. The 254^{th} American Chemical Society (ACS) National Meeting Aug. 2017
   Washington D.C., VA
4. The 2^{nd} Molecular Biophysics Symposium Apr. 2017
   Virginia Tech Biocomplexity Institute, Blacksburg, VA
5. Computing Research Association- Women (CRA-W) Apr. 2017
   Grad Cohort Workshop, Washington D.C., VA
6. Drug Discovery Day Nov. 2016
   Virginia Tech Center for Drug Discovery (VTCDD), Blacksburg, VA

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TEACHING EXPERIENCE

- Instructor
  - CS 5112: Design and Analysis of Algorithm, Cal State LA — Spring 2021
  - CS 2148: Discrete Structures, Cal State LA — Spring 2021
  - CS 2148: Discrete Structures, Cal State LA — Fall 2020
  - CS 3114: Data Structures and Algorithms, Virginia Tech — Summer 2017
- Graduate Teaching Assistant
  - CS 5114: Theory of Algorithms, Virginia Tech — Fall 2017
  - CS 4104: Data and Algorithm Analysis, Virginia Tech — Spring 2017
  - CS 4104: Data and Algorithm Analysis, Virginia Tech — Fall 2016
  - CS 5114: Theory of Algorithms, Virginia Tech — Spring 2016
  - CS 4104: Data and Algorithm Analysis, Virginia Tech — Fall 2015
  - Design and Analysis of Algorithms, Tehran Polytechnic — Spring 2015
  - Design and Analysis of Algorithms, Tehran Polytechnic — Spring 2012

MENTORING & ADVISING

- Current Students, Cal State LA
  1. Sahar Rohanizeidanlou, M.Sc. in Computer Science — Spring 2021-
  2. Nikita Mishra, B.Sc. in Chemistry and Biochemistry — Spring 2021-
- Graduate Thesis Committees, Cal State LA
  1. Kevin Delao, M.Sc. in Computer Science, — Fall 2020
- Previously Mentored Students, Virginia Tech
  1. Dan Folescu, B.Sc. in Mathematics — Summer 2019
  2. Karthik Ram, M.Sc. in Industrial Engineering — Fall 2016
  3. Rohan Kaul, B.Sc. in Computer Science — Spring 2016

PROFESSIONAL MEMBERSHIP & SERVICE

- Reviewer, IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB) — 2021-
- Reviewer, Journal of Computational Biophysics and Chemistry (JCBC) — 2020-
- Reviewer, Journal of Computers in Biology and Medicine (CIBM) — 2020-
- Reviewer, Iranian Conference on Computational Geometry (ICCG) — 2018
- Featured speaker at Future Tech: Women in Tech 2021 — 2021
- Board Member of Biomedical Engineering (BME) Program, Cal State LA — 2020-
- Member of Industry Advisory Board (IAB), Cal State LA — 2020-
- Member, American Chemical Society (ACS) — 2017-
- Member, Association for Computing Machinery (ACM) — 2016-
- Member, ACM Special Interest Group on Bioinformatics, Computational Biology, and Biomedical Informatics (SIGBio) — 2020-
- Mentor of "Iranian Women in Computing (IranWiC)" — 2018-
- Treasurer of "Computer Science Grad Council at Virginia Tech", — 2018- 2019
- Treasurer of "Iranian Society at Virginia Tech (ISVT)", — 2017- 2018