

Nicholas Attila Kovacs

STRUCTURAL BIOINFORMATICIST & DATA SCIENTIST

Dual US and Hungarian Citizen

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Summary

- Exceptional communication skills, outgoing personality, willingness to travel.
 - 5 oral and 2 poster presentations at international and domestic scientific conferences.
 - Independently wrote and awarded NSF grant to conduct summer research in Taiwan.
 - 2 first-author publications. 3rd in preparation.
- Enjoys working in multidisciplinary teams and teaching others.
 - Coauthored 6 scientific publications with computational and experimental scientists.
 - Awarded materials and travel money for mentoring an undergraduate for a year.
 - Managed 8 senior undergraduates per semester as a teaching assistant for biophysical chemistry lab.

Education

Ph.D. Bioinformatics GPA: 3.47

GEORGIA INSTITUTE OF TECHNOLOGY

Atlanta, GA

Aug 2013 - Fall 2018 (expected)

B.S. Biochemistry and Molecular Biology/Biotechnology GPA: 3.23

MICHIGAN STATE UNIVERSITY

East Lansing, MI

Aug 2008 - May 2012

Experience

Graduate Research Assistant

GEORGIA INSTITUTE OF TECHNOLOGY

Atlanta, GA

Aug 2013 - Current

Dissertation: *Data Mining the Atomic Structure of the Ribosome to Unravel the History of Protein Folding*

- **Summary:** Analyzed atomic structures of ribosomes comprised of over 400,000 atoms, using structural bioinformatics and machine learning.
- **Results:** 2 first-author research articles published. 3rd in preparation.
- **Collaboration:** Coauthored 2 experimental and 4 computational research articles.
- **Communication:** Independently wrote NSF and awarded grant to support summer research in Taiwan. Oral and poster presentations at 7 domestic and international scientific conferences.
- **Mentoring:** Awarded conference and travel funding for mentoring undergraduate student.

Atomic Interaction Network Analysis of the Ribosome

COURSE PROJECT FOR CS 7280 - NETWORK SCIENCE

Atlanta, GA

Fall 2017

- Collaborated with a team member to apply course concepts and algorithms to 3 interaction networks of the ribosome, each composed of more than 100,000 non-covalent interactions (edges) between approx. 50,000 amino acid residues (nodes).
- **Results:** Predicted RNA and protein folding domains within the ribosome by applying community detection algorithms.

Analysis and Interpretation of NGS Data from CDC

COURSE PROJECT FOR BIOL 7210 - COMPUTATIONAL GENOMICS

Atlanta, GA

Spring 2015

- Worked in multidisciplinary teams of biologists and computer scientists to analyze NGS reads provided by the CDC.
- Analyzed 97 genomic single-end and paired-end reads of *Neisseria meningitidis*, *Haemophilus influenza*, and *Haemophilus haemolyticus* generated from GAII or Illumina HiSeq/MiSeq instruments.
- **Results:** Developed a typing-tool that identifies the organism and its serotype/serogroup from fasta file inputs and constructed a genome browser of 53 annotated genomes.

Graduate Teaching Assistant

GEORGIA INSTITUTE OF TECHNOLOGY

Atlanta, GA

9 Semesters

- **Biophysical Chemistry Lab(CHEM 4582)** - 6 semesters - Instructed 8 undergraduate students on experimental and computational protocols.
- **Macromolecular Structure(CHEM 6572)** - 2 semesters - Directed 25 graduate students on the use of computational modelling programs.
- **Survey Biochemistry(CHEM 3511)** - 1 semester - Guided 40 undergraduate students to solve homework problems in weekly recitation.

Skills

Programming	Python, Perl, Bash, SQL, R, Javascript, MATLAB, HTML, CSS
Python Packages	Numpy, Pandas, Scipy, SK-Learn, Matplotlib, Seaborn, Plotly, NetworkX, igraph, Biopython
Machine Learning	Linear Regression, Logistic Regression, SVM, Decision Trees, Random Forest, KNN, K-Means, PCA, Community Detection
Structural Bioinformatics	PyMOL, Maestro, PyRosetta, VMD, NAMD, AutoDock, MODELLER
Computational Genomics	<i>de Novo</i> Genome Assembly, SAMtools, BCFtools, VCFtools, bwa, GATK, JBrowse
OS and Programs	Ubuntu, RHEL, Windows, Amazon Web Services, Microsoft Office, Adobe Illustrator, Git, Cytoscape