

Nicholas Attila Kovacs

BIOINFORMATICIST & DATA SCIENTIST

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Profile

After successfully spearheading the transition of a theoretical project into a data-driven PhD thesis, a computational biologist graduating from Georgia Tech in December 2018 is seeking a position as a management consultant at McKinsey&Company. Relevant skills and experience for consulting: team leading experience gained as a laboratory-course teaching assistant, mentoring experience through a graduate-undergraduate mentoring scholarship program, public speaking experience from presentations at international and domestic conferences, project management skills via providing coworkers with computational analyses for five projects during PhD candidacy, and written communication skills sharpened through academic journal article and grant writing.

Education

Ph.D. Bioinformatics GPA: 3.47

GEORGIA INSTITUTE OF TECHNOLOGY

Aug 2013 - Dec 2018

Atlanta, GA

B.S. Biochemistry and Molecular Biology/Biotechnology GPA: 3.18

MICHIGAN STATE UNIVERSITY

Aug 2008 - May 2012

East Lansing, MI

Experience

Graduate Research Assistant

GEORGIA INSTITUTE OF TECHNOLOGY - ADVISOR: DR. LOREN WILLIAMS

Aug 2013 - Current

Atlanta, GA

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

- **Summary:** Applied structural bioinformatics methods and machine learning algorithms such as clustering to atomic coordinate datasets from over 100 biomolecules composed of 150,000-200,000 atoms to unravel the interrelatedness and origin of life.
- **Results:** Two 1st-author research articles published. 3rd in preparation. 143 total citations.
- **Funding:** NASA Astrobiology Institute
- **Collaboration:** Provided computational analysis for coworkers' projects; coauthor of 2 experimental and 4 computational research articles.
- **Communication:** Independently wrote and awarded \$7,000 NSF grant to support summer research in Taiwan. Oral and poster presentations at 7 domestic and international scientific conferences.
- **Mentoring:** Awarded \$2,500 conference and travel funding for mentoring undergraduate student.

Atomic Interaction Network Analysis of the Ribosome

COURSE PROJECT FOR CS 7280 - NETWORK SCIENCE

Aug 2017 - Dec 2017

Atlanta, GA

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

Graduate Teaching Assistant

GEORGIA INSTITUTE OF TECHNOLOGY

Aug 2013 - Dec 2016

Atlanta, GA

- **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 of Biochemistry(CHEM 3511)** - 1 semester - Guided ~40 undergraduate students to solve homework problems in weekly recitation.

Analysis and Interpretation of NGS Data from CDC

COURSE PROJECT FOR BIOL 8803B - PROGRAMMING FOR BIOINFORMATICS AND BIOL 7210 - COMPUTATIONAL GENOMICS

Aug 2014 - May 2015

Atlanta, GA

- Worked in multidisciplinary teams of biologists and computer scientists to identify pathogens from DNA sequences provided by the CDC.
- Analyzed 97 NGS 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 DNA sequence file inputs and constructed a genome browser of 53 annotated genomes to view annotated genomes.

Skills & Interests

Clubs	GaTech PhD2Consulting Club, Bioengineering & Bioscience Unified Grad Students, Data Science for Scientists
Computational Acumen	Python, R, SQL, Bash, Perl, MATLAB, Javascript, Git, PySpark, Tableau, Adobe
Computational Sciences	Structural Bioinformatics, Next-Generation Sequencing, Molecular Dynamics, Drug Docking
Data Science	Machine Learning, Network Science, Statistics, Software Engineering
Experimental Sciences	Molecular Biology, Biochemistry, Organic Chemistry, Analytical Chemistry
Personal Interests	Bodyweight Fitness, Yoga, Nutrition, Snowboarding, Guitar, Bachata Dance, Korean Culture

Awards & Scholarships

NSF East Asia and Pacific Summer Institutes

EAPSI FELLOW

Mar 2017 - Mar 2018
National Taipei University

- **Project:** The Evolution of Proteins in Eukaryotes: Data Mining the Ribosome Structure
- **Advisor:** Dr. Chiaolong Hsiao
- **PI:** Nicholas Attila Kovacs
- Awarded \$5,400 stipend, \$1,667 living allowance, and roundtrip airfare to conduct summer research in Taipei, Taiwan

Petit Undergraduate Research Scholars Program

GRADUATE MENTOR

Jan 2017 - Dec 2017
Georgia Institute of Technology

- Research mentor for undergraduate student
- Awarded \$2,500 for materials and conference travel

BASF Chemistry Symposium

3RD PLACE

Apr 2017
Georgia Institute of Technology

- Oral presentation of PhD thesis research to Chemistry Department and science panel from BASF
- Awarded \$300

Graduate Courses & Workshops

Biochemistry	Enzymology & Metabolism, Macromolecular Structure, Molecular Biochemistry, Biophysical Chemistry
Biology	Computational Genomics, Programming for Bioinformatics, Proteomics (Audit)
Business	Chemistry Concept-to-Market
Computer Science	Network Science, CS for Bioinformatics, Intro to Database Systems (Audit)
Korean	Elementary Korean I (Audit), Elementary Korean II (Audit)
Math	Probability & Statistics
Workshops	Scalable and Reproducible Structural Bioinformatics, Data Science and Scientific Computing

Presentations

The Evolution of Proteins: Data Mining the Ribosome Structure

EARTH AND LIFE SCIENCE INSTITUTE 6TH INTERNATIONAL SYMPOSIUM · POSTER

Jan 2018
Tokyo, Japan

The History of Proteins

ASTROBIOLOGY GRADUATE STUDENT CONFERENCE · ORAL

Jun 2017
Charlottesville, VA

Eukaryotic Ribosomal Protein Evolution

BASF CHEMISTRY SYMPOSIUM · ORAL

Apr 2017
Atlanta, GA

Frozen in Time: The History of Proteins

SEARCH FOR LIFE: FROM EARLY EARTH TO EXOPLANETS · ORAL

Dec 2016
Quy Nhon, Vietnam

Frozen in Time: The History of Proteins

GEORGIA TECH CHEMISTRY RETREAT · ORAL

Oct 2016
Atlanta, GA

The History of Protein Folding

ASTROBIOLOGY GRADUATE STUDENT CONFERENCE · ORAL

Jul 2015
Madison, WI

The History of Protein Folding

ASTROBIOLOGY GRADUATE STUDENT CONFERENCE · POSTER

Jul 2014
Troy, NY