

# Nicholas Attila Kovacs

## BIOINFORMATICIST & DATA SCIENTIST

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## Profile

A personable and team-oriented computational biologist with an experimental science background graduating from Georgia Tech December 2018 seeking a consultant position at Digital McKinsey beginning in 2019. Team leading experience as a laboratory-course teaching assistant, mentoring experience through graduate-undergraduate mentoring scholarship program, public speaking experience from presentations at international and domestic conferences, and written communication skills sharpened through academic journal article and grant writing.

## Education

### Ph.D. Bioinformatics GPA: 3.5

GEORGIA INSTITUTE OF TECHNOLOGY

Aug 2013 - Dec 2018

Atlanta, GA

### B.S. Biochemistry and Molecular Biology/Biotechnology GPA: 3.3

MICHIGAN STATE UNIVERSITY

Aug 2008 - May 2012

East Lansing, MI

## Experience

### Graduate Research Assistant

GEORGIA INSTITUTE OF TECHNOLOGY

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 1<sup>st</sup>-author research articles published. 3<sup>rd</sup> in preparation.
- **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.
- **Courses:** 9 courses in biochemistry, computational biology, statistics, and computer science. Concept-to-Market business short-course.

### 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 GAI 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

### Computational Acumen

Python, R, SQL, Bash, Perl, MATLAB, Javascript, Git, Spark, 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