Nicholas Attila Kovacs

Structural Bioinformaticist

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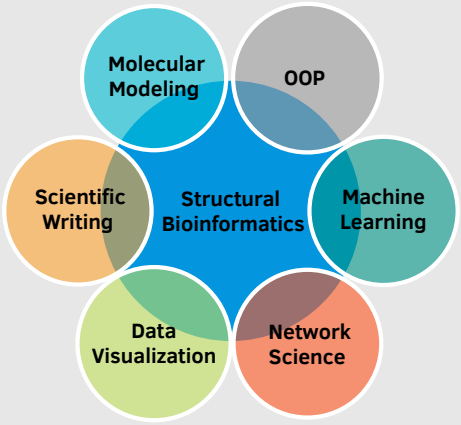
Skills

Overview



Programming

$0\ LOC \longrightarrow 5000\ LOC$

Python Numpy • Pandas • SK-Learn • NetworkX • BioPython

SQL

JavaScript

Projects

Ribosomal PPI Evolution: Ribosomal protein-protein interface classification
Ribosomal Protein Folding Evolution: Inferred protein folding evolution from the structure of ribosomal proteins
PyRo: Python module for analyzing Ribosomal mmCIF files
CS 7280 • Network Science: Atomic network analysis of rRNA evolution
BIOL 7210 • Computational Genomics: Built a genome browser from the analysis of raw NGS reads

Education

Dec 2018 (Expected) — **PhD, Bioinformatics** — Georgia Institute of Technology, Atlanta, GA, USA

May 2012 — **BS, Biochemistry** — Michigan State University, East Lansing, MI, USA

Experience

Aug 2013 - Dec 2018 — **PhD Candidate, Graduate Research Assistant** — Georgia Inst. of Tech.
Adviser: Dr. Loren Williams
Thesis: The History of Proteins Revealed by Data Mining the Ribosome
- **Hypothesis**: The ribosome is a molecular fossil; its strucuture can be mined to unravel the evolution of life
- **Tools**: Python, PyMOL, Adobe Illustrator, JavaScript
- **Funding**: NASA Astrobiology Institute
- **Support**: Data analysis for experimental labmates

Mar 2017 - Mar 2018 — **East Asia and Pacific Institutes Fellow** — National Taiwan University
Project: The Evolution of Proteins in Eukaryotes
- **Tools**: Python, PyMOL
- **Funding**: National Science Foundation - East Asia and Pacific Summer Institutes
- Independently wrote grant to conduct international research
- Awarded stipend, living allowance, and airfare to Taipei, Taiwan

Jan 2017 - Dec 2017 — **Petit Scholar Mentor** — Georgia Inst. of Tech.
- Mentored undergraduate in laboratory project
- Awarded travel and materials allowance

Aug 2013 - Dec 2016 — **PhD Candidate, Graduate Teaching Assistant** — Georgia Inst. of Tech.
Course: Macromolecular Structure - 2 semesters
- CHEM 6572, Graduate-level
- Trained ∼25 students on the use of molecular modeling software

Course: Biochemistry Lab II - 7 semesters
- CHEM 4582, Undergraduate-level
- Instructed biophysical chemistry laboratory course of 8 students

Publications (selected)

- **Kovacs, N.A.**, Petrov, A.S., Lanier, K.A., Williams, L.D. 2017 "Frozen in Time: The History of Proteins", *Mol. Biol. Evol.* **34**, 1252-1260

- Gómez Ramos, L. M., Degtyareva, N. N., **Kovacs, N. A.**, Holguin, S. Y., Jiang, L., Petrov, A. S., Williams, L. D. 2017 "Eukaryotic Ribosomal Expansion Segments as Antimicrobial Targets" *Biochemistry* **56**, 5288–5299

- Petrov, A. S., Gulen, B., Norris, A. M., **Kovacs, N. A.**, Bernier, C. R., Lanier, K. A., Williams, L. D. 2015 "History of the ribosome and the origin of translation" *Proc. Natl. Acad. Sci. U.S.A.* **112**, 15396–15401

Presentations (selected)

Jun 2017 — **Astrobiology Graduate Student Conference** — Charlottesville, VA
Title: The History of Proteins

Apr 2017 — **Graduate Research Symposium** — Atlanta, GA
Title: Eukaryotic Ribosomal Protein Evolution
Awarded 3rd place

Dec 2016 — **Search for Life: From Early Earth to Exoplanets** — Quy Nhon, Vietnam
Title: Frozen in Time: The History of Proteins