ARIANNA ISABELLA KRINOS

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EDUCATION

Ph.D. student in Biological Oceanography, **MIT/Woods Hole Oceanographic** Joint Program — June 2019 - present
B.S. in Computer Science, **Virginia Tech**, overall GPA: 3.96, Minor: Mathematics, *summa cum laude* — 2015-2019
B.S. in Biological Sciences, **Virginia Tech**, in-major GPA: 4.00 — 2015-2019
B.S. in Computational Modeling and Data Analytics, **Virginia Tech** — 2015-2019

FULL-TIME RESEARCH EXPERIENCE

NOAA Hollings Intern, Geophysical Fluid Dynamics Laboratory, Princeton, NJ — May 2018 - August 2018
- Chesapeake Bay blue crab population modeling using agent-based model implemented in Python.
- Used statistically downscaled global climate model output to drive projected futures in a marine resource.

Intern, Advanced Computing and Information Systems Laboratory, U. of Florida — July 2017 - August 2017
- Developed modifications to distributed computing platform created and used by the Carey Lab at Virginia Tech.

NSF Research Experience for Undergraduates in Coastal Biology, Ahearn Lab, U. North Fla. — May 2016 - August 2016
- Used isotopic tracing to determine the effects of ocean acidification on lobster physiology.
- Experience in dissection, isotope handling, scintillation counting; lab methods including vesicle creation, lab reagent preparation.

ACADEMIC YEAR RESEARCH EXPERIENCE

Undergraduate Research Assistant, Carey Laboratory, Biological Sciences, Virginia Tech — September 2016 - May 2019
- Use of the General Lake Model (GLM) to understand impacts of climate and land use change on lake ecosystems.
- Experience working with climatological and limnological data; field work at freshwater sites (biological, chemical, physical sampling).
- Distributed computing applications: design and management of the GRAPLEr platform for high-throughput analysis and modeling.

Undergraduate Research Assistant, Belden Laboratory, Biological Sciences, Virginia Tech — November 2015 - May 2019
- Data analysis in R: multivariate statistics, abundance assessment; bioinformatics work in Qiime, BLAST.
- Study skin bacterial isolates obtained from Panamanian frogs affected by chytridiomycosis, a globally devastating fungal infection.

Undergraduate Research Assistant, Chung Laboratory, Mathematics, Virginia Tech — December 2017 - May 2019
- Atmospheric carbon dioxide modeling; use & evaluation of Markov Chain Monte Carlo (MCMC) methods for parameter estimation.

Undergraduate Research Assistant, Sridhar Laboratory, Biol. Sys. Engr., Virginia Tech — September 2015 - July 2016
- Studied evapotranspiration in the New River Valley through the use of computational techniques, GIS.

AWARDS, SCHOLARSHIPS, & GRANTS

Computational Science Graduate Fellowship, U.S. Department of Energy/Krell Institute — March 2019
- Full funding for up to 4 years of graduate study (tuition, fees, stipend, health insurance); total award >$400,000, subject to renewal.

Outstanding Winner, International Mathematical Competition in Modeling — April 2018
- One of 16 teams internationally of 10,670 entrants recognized for research solution to a time-constrained math modeling challenge.
- COMAP International Scholarship, $10,000 to school & two participants; Mathematical Association of America (MAA) award.

Senior Undergraduate Research Award, Virginia Tech College of Science — April 2019
- Award across Virginia Tech's entire College of Science for the most outstanding research activities by a senior undergraduate.

Outstanding Senior, Virginia Tech Department of Computer Science — February 2019
- Award for one exemplary senior graduating with a degree in Computer Science in May or December 2019.

Senior Excellence Award, Virginia Tech Division of Computational Modeling and Data Analytics — March 2019
- Awarded to four exemplary seniors graduating with a degrees in Computational Modeling & Data Analytics in May 2019.

Ernest F. Hollings Scholarship, NOAA; $30,000 internship, tuition, conference funds — May 2017 - May 2019
- Two-year fellowship awarded for scholastic and extracurricular excellence including tuition support and a summer internship.

Barry Goldwater Scholarship, Goldwater Scholarship Foundation; $7,500 scholarship — March 2018
- Award for undergraduates who demonstrate an aptitude in STEM fields and desire to pursue research.

Astronaut Scholarship, Astronaut Scholarship Foundation; $20,000 total scholarship — May 2017 - May 2019
- Scholarship founded by Mercury 7 astronauts to support future leaders in STEM; includes mentorship and professional networking.

Eleanor Davenport Leadership Scholarship, Virginia Tech Engineering; $28,000 total scholarship — May 2015 - May 2019
- Recruitment scholarship for incoming freshmen in Virginia Tech's College of Engineering based on leadership potential.

William C. McAllister Leadership Scholarship, Virginia Tech Engineering; $5,500 scholarship — May 2018
- Scholarship for promising undergraduates in engineering representing one of the College's highest honors.

Luther and Alice Hamlett Research Grant, Virginia Tech Academy of Integrated Science — December 2017

· $3,000 in grant money to be used to enhance the research of an Academy of Integrated Science undergraduate.

Deborah Ayers Koller Scholarship, Virginia Tech Biological Sciences May 2017

· Awarded for academic and campus accomplishments and a desire/aptitude for a research career.

PUBLICATIONS, *authors contributed equally

Nagle, L., Brown, S., Krinos, A.I., & Ahearn, G.A. (2018). Ocean acidification: effects of pH on ^{45}Ca uptake by lobster branchiostegites. *Journal of Comparative Physiology B*. https://doi.org/10.1007/s00360-018-1173-2

Maurais, A.E.* and Krinos, A.I.* (2018). Better to Marry Renewables than to Burn Fossil Fuels in Border States. *UMAP Journal*.

Walke, J.B., Becker, M.H., Krinos, A.I., Burzynski, E.A., Santiago, C., Umile, T.P., Minbiole, K.C., Belden, L.K. Seasonal changes & impact of environmental disturbance on the skin microbiome of individual amphibians in a natural habitat. *In preparation*.

Carey, C.C., Ward, N.K., Farrell, K.J., Lofton, M.E., Krinos, A.I., McClure, R.P., Subratie, K.C., Figueiredo, R.J., Doubek, J.P., Hanson, P.C., Papadopoulos, P., Arzberger, P. (2019). Enhancing collaboration between ecologists and computer scientists: lessons learned and paths forward. *Ecosphere 10*(5). https://doi.org/10.1002/ecs2.2753

Krinos, A.I.*, Maurais, A.E.* Parameter and Uncertainty Estimation for a Model of Atmospheric CO_2 Observations. *SIAM Undergraduate Research Online*. February 2019, in revision.

Krinos, A.I., Medina, D.M., Walke, J.B., Hughey, M.C., Sarment, L.S., Gajewski, Z., and Belden, L.K. 16S rRNA gene sequences are a poor predictor of antifungal capacity of amphibian skin bacterial isolates. *In preparation*.

Krinos, A.I., Farrell, K.J., Daneshmand, V., Subratie, K.C., Figueiredo, R.J., and Carey, C.C. Including variability in air temperature warming scenarios in a lake simulation model highlights uncertainty in predictions of cyanobacteria. *In preparation*.

WORKSHOPS, COLLABORATIVE CONFERENCES, & HONOR SOCIETIES

Ocean Carbon and Biogeochemistry Summer Workshop, Woods Hole, MA, June 2018

Grace Hopper Celebration for Women in Computing, Houston, TX, September 2018

Phi Sigma Biological Sciences Honor Society; Honor Society of Phi Kappa Phi

SELECTED PRESENTATIONS & CONTRIBUTIONS, *presenting author

Krinos, A.I.*, K. Dixon, A. Ross, and C. Stock. Understanding spatial effects of climate change on Chesapeake Bay blue crab using statistical downscaling and agent-based modeling. Association for the Sciences of Limnology and Oceanography (ASLO) Aquatic Sciences Meeting, San Juan, Puerto Rico, February 2019.

Krinos, A.I.*, D.M. Medina, M.C. Hughey, J.B. Walke, Z. Gajewski, L.S. Sarment, and L.K. Belden. An evaluation of the predictive potential of gene sequences for antifungal capacity of amphibian skin bacterial isolates. Society for Integrative and Comparative Biology Annual Meeting, Tampa, FL, January 2019.

Krinos, A.I.*, K. Dixon, A. Ross, and C. Stock. Understanding spatial effects of climate change on Chesapeake Bay blue crab using statistical downscaling and agent-based modeling. Society for Integrative and Comparative Biology Annual Meeting, Tampa, FL, January 2019.

Krinos, A.I.* and A.E. Maurais*. Parameter and Uncertainty Estimation for a Model of Atmospheric CO_2 Observations. Department of Mathematics Annual Research Presentations, Blacksburg, VA, May 2018. ***Layman Prize Award***.

Krinos, A.I.*, J. Han, P. Kogta, and S. McCrickard. Assessing Youth Attitudes on the Use of Sensor Technologies and Modeling in Managing Drinking Water. VT Undergraduate Research in Comp. Sci. Symposium, Blacksburg, VA, May 2018.

Farrell, K.J.*, C.C Carey, A.I. Krinos, N.K. Ward, P.C. Hanson, R.J. Figueiredo, V. Daneshmand, K. Subratie. GRAPLEr Platform Accelerates Whole-Ecosystem Simulation Modeling to Increase Understanding of Climate Change Impacts on Lake Nutrient Cycling. Ecological Society of America Annual Meeting, New Orleans, LA, Aug. 2018.

Carey, C.C.*, R.J. Figueiredo, P.C. Hanson, A.L. Hetherington, A.I. Krinos, K. Subratie, and J.T. Sukumar. Ensemble-based simulation modeling reveals non-linear water quality responses to climate and land use change scenarios in a eutrophic lake. Ecol. Society of America Annual Meeting, Portland, OR, Aug. 2017.

Krinos, A.I.*, R.J. Figueiredo, P.C. Hanson, A.L. Hetherington, K. Subratie, J.T. Sukumar, and C.C. Carey. Numerical simulation modeling coupled to the GRAPLEr distributed computing platform provides insight into lake water quality responses and land use change. Pacific Rim Applications and Grid Middleware Assembly (PRAGMA) 32nd Bi-Annual Meeting, Gainesville, FL, April 2017. ***Best Student Poster Award***.

Krinos, A.I.*, and G.A. Ahearn. Effect of pH on uptake of calcium by crustacean gills. Society for Integrative and Comparative Biology Annual Meeting, New Orleans, LA, Jan. 2017.

Krinos, A.I.*, L. Sarment*, J.B. Walke, D. Medina, M. Hughey, and L.K. Belden. Batrachochytrium-Battling Bacteria Foils Fungus Found on Frogs. Virginia Branch of the American Society for Microbiology Annual Meeting, Roanoke, VA, November 2016.

Krinos, A.I.*, M. Billah, P. Valayamkunnath, and V. Sridhar. Hydroclimatology of the New River Basin for effective land and water management. Amer. Soc. of Agricultural & Biological Engineers Annual International Meeting, Orlando, FL, July 2016.

PEER EDUCATION & MENTORING ACTIVITIES

Engineers' Forum Magazine at Virginia Tech August 2015 - May 2019

- Staff writer at undergraduate-run engineering magazine featured in most quarterly issues.
- Editor-in-Chief (2018 - 2019): handled finances and manage staff; organized advertisements and ordering/distribution
- Webmaster (2016 - 2018): managed website and online presence
- Led outreach activities at science-writing interface (VT Science Festival & the Kindergarten-to-College (K2C) program).

Virginia Tech Writing Center Coach January 2018 - May 2019

- Mentored undergraduates and graduate students seeking writing help; technical, personal, and curricular pieces.

Virginia Tech Computer Science Ambassador January 2017 - May 2019

- Represented the Computer Science department at various recruiting and public relations events and to prospective & current students.

Teaching Assistant, Biology Orientation Seminar, Biological Sciences, Virginia Tech August 2017 - December 2017

- Graded papers submitted by students; assisted with mentoring activities; served as resource to freshmen.

COMMUNITY SERVICE ACTIVITIES AND OUTREACH

Renew the New river cleanup; the Big Event at VT (April 2018 team captain); science/environmental outreach activities (daycare & festival volunteering); beach and road cleanups; VT Green Gamedays; animal shelter volunteer; organized workshop for coding for girls; Virginia Tech Science Festival; SAFE Training for Autism Awareness; Kindergarten 2 College.