Nathan LaPierre

925 Weyburn Place, Los Angeles, CA, 90024
NathanL2012@gmail.com
(571) 839-5008

EDUCATION

PhD in Computer Science, 2016 - 2021/2022 (Projected)
University of California, Los Angeles

B.S. *magna cum laude* in Applied Computer Science, 3.86 GPA, 2015
George Mason University

RESEARCH EXPERIENCE

Graduate Research Assistant (GRA) / Student Researcher
George Mason University   January - August 2016 (June-August as GRA)
- Worked with Professor Huzefa Rangwala,
- Developed CAMIL, a pipeline that uses whole metagenome shotgun sequence reads to predict whether or not a patient has a disease. Predicted with 90-96% accuracy depending on dataset, over 10% better than other leading methods.
- CAMIL paper accepted into IEEE BIBM 2016 (19% acceptance rate).
- Second author of paper on using canopy clustering and locality sensitive hashing to reduce clustering time for biological datasets. Manuscript in preparation.

Predicting Clinical Phenotype using OTU-based Metagenome Representation
George Mason University   January 2015 - November 2015
- Worked with Professor Huzefa Rangwala
- Developed a computational pipeline that uses machine learning and data mining techniques to quickly and accurately predict whether a patient has a disease based on a data set of metagenomic samples from patients with the disease
- Paper accepted for publication, and poster presentation won Outstanding Undergraduate Project Award (see publications and presentations sections)

PUBLICATIONS

Nathan LaPierre, Mohammad Arifur Rahman, and Huzefa Rangwala, "CAMIL: Clustering and Assembly with Multiple Instance Learning for Phenotype Prediction", in *IEEE International Conference on Bioinformatics and Biomedicine*, Shenzhen, China, 2016. Accepted.

Nathan LaPierre and Huzefa Rangwala, "Predicting Clinical Phenotype using OTU-based Metagenome Representation", in *IEEE International Conference on Data Mining Workshop on Biological Data Mining and its Applications in Healthcare*, Atlantic City, New Jersey, 2015, pp. 156-163.

PRESENTATIONS

Predicting Clinical Phenotype using OTU-based Metagenome Representation
IEEE International Conference on Data Mining workshop on Biological Data Mining and its Applications in Healthcare   November 14, 2015
- Conducted an oral presentation of the paper that I co-authored (as first author)
- Paper was published in the conference workshop proceedings
- Won a travel grant from the Undergraduate Student Travel Fund of the Office of Student Scholarship, Creative Activities, and Research at my university

Developing a Computational Pipeline for Metagenomic State Classification with Feature Engineering
Volgenau School of Engineering Undergraduate Research Celebration   April 2015

- Presented an earlier iteration of my research project in poster form
- Won Outstanding Undergraduate Research Project Award for this presentation

WORK EXPERIENCE

Security Engineering Intern   Summers 2013-2015
Sony Corporation of America
- Wrote secure and scalable software and worked with Big Data in order to help analyze, detect, and prevent attacks on Sony's networks
- Used Python, Javascript (Node, Express, Meteor), MongoDB, X/HTML, CSS
- Developed a workplace communications system using Meteor.js; solo project
- Assisted in the development of a web application based on a searchable database system using Node.js, Express.js, and MongoDB
- Assisted in the development of a network forensics system; wrote backend python scripts and XML web layouts

TEACHING EXPERIENCE

Undergraduate Teaching Assistant   Fall 2014 - Spring 2015
CS 306 - Computer Law and Ethics, Computer Science Department, George Mason University
- Received Outstanding Undergraduate Teaching Assistant Award
- Assisted students with legal research, writing, and oral communication
- Responsible for grading student assignments worth 25% of their grade; one of the only Undergraduate Teaching Assistants entrusted with this responsibility

AWARDS AND HONORS

Merit-Based Scholarships
- *Bersoff Endowed Scholarship*, Outstanding Academic Achievement, Awarded twice in 2015 and 2014
- *SWIFT Scholarship*, Outstanding Academic Achievement, Awarded in 2015

Selected Honors
- *Honorable Mention in NSF Graduate Research Fellowship*, 2015-16
- *Outstanding Undergraduate Student Award*, given to overall best undergraduate student in Computer Science, May 2016
- *Outstanding Academic Achievement Award*, given for outstanding performance in Computer Science, May 2016
- *Outstanding Undergraduate Research Project* for presentation of my research project at Volgenau School of Engineering Undergraduate Research Symposium, April 2015
- *Outstanding Undergraduate Teaching Assistant* for two semesters of excellence as a teaching assistant, April 2015
- *Dean's List* every semester

Honors Societies and Organizations
- *Honors College* at George Mason University
- *Alpha Lambda Delta Honor Society*
- *Golden Key International Honour Society*

Technical Competitions
- *Top 5 at VTHacks*, a software development competition at Virginia Tech with over 45 teams, April 2014
- *2nd Place in the Technical Innovation Challenge*, a week-long competition at George Mason University to design a viable software product, jointly refereed by Computer Science and Business Departments, October 2014

VOLUNTEER EXPERIENCE

Executive Curriculum Planner and Mentor, Community Programming Initiative

George Mason University Honors College and SRCT   2014 - 2015

- Volunteer effort to teach basic programming to local 5th-8th grade students
- Planned and developed parts of the curriculum for the sessions, involved designing games and hints to help the students create them
- Mentored the elementary and middle school students during the sessions

COMPUTER SKILLS

Languages: Python, Java, C, Javascript, XML, HTML, CSS

Other Technologies: Git, jQuery, NodeJS, MongoDB, Bootstrap, Django, Meteor.js

Operating Systems: Windows, Linux

MEMBERSHIPS AND LEADERSHIP

Student-Run Computing and Technology (SRCT)   2013 - 2016

- Student organization at George Mason University that works on software projects and competitions to benefit the university and broader local community
- Secretary and Member of Executive Board, Fall 2015 Semester