Yang Ho

(919)454-8934 — yho@ncsu.edu

Summary

A computer scientist with a background in combinatorial optimization and experimental algorithms. Experienced at implementing clean and efficient code using different programming languages. Has the ability to design, execute, and analyze computational experiments. Is proficient at presenting results and complex ideas in a clear and concise manner.

Education

North Carolina State University Aug 2016–Aug 2018
M.S., Computer Science *Raleigh, NC*

- 4.0/4.0 GPA
- Thesis: *Graph Characteristics and Branch and Reduce Algorithms for Minimum Vertex Cover*
- Advisor: Matthias Stallmann

North Carolina State University Aug 2012–May 2016
B.S., Computer Science and Physics *Raleigh, NC*

- 3.80/4.0 GPA
- Graduated Summa Cum Laude

Research

VC-FRAMEWORK Fall 2016–Present
North Carolina State University
Mentored by: North Carolina State University Dr. Matthias Stallmann

- Developed branch-and-reduce solver for the minimum vertex cover problem using in C++
- Performed detailed experiments to determine graph characteristics that can predict the effectiveness of reductions
- Familarity with optimization software such as CPLEX

BEAVr: Bounded Expansion Algorithm Visualizer Spring 2016
North Carolina State University *Dr. Blair Sullivan*
Mentored by: Dr. Blair Sullivan

- Helped develop a visualization tool for algorithmic pipelines related to bounded expansion as a part of a senior capstone project
- `https://github.com/TheoryInPractice/BEAVr`

Memory Profiling of CONCUSS: Combatting Network Complexity Using Structural Sparsity Fall 2015
North Carolina State University *Dr. Blair Sullivan*
Mentored by: Dr. Blair Sullivan

- Helped maintain and update the CONCUSS software package
- Performed memory profiling experiments to identify memory inefficiencies of the coloring algorithms

Compiler for C-like Language Fall 2015
North Carolina State University *Raleigh, NC*

- Created a compiler for a C-like language using C++ and Java.
- Course project for the Compiler Construction and Code Optimization courses at NC State University.

Modeling of the Rotator Cuff Muscle using MRI Data Summer 2015
North Carolina State University *Raleigh, NC*
Mentored by: Raleigh, NC Dr. Blair Sullivan & Dr. Katherine Saul

- Modeled MRI data of the rotator cuff muscle using graph theory techniques
- Implemented imaging routines to visualize MRI data
- Designed and developed algorithms to quantify the muscle structure

Combinatorial Optimization for Linear Ordering Problem Fall 2014–Spring 2015
North Carolina State University *Raleigh, NC*
Mentored by: Raleigh, NC Dr. Franc Brglez

- Wrote Python based combinatorial solvers of the linear ordering problem
- Carried out profiling experiments to analyze performance compared to a TCL solver
- Developed a general purpose program solver for combinatorial optimization solvers

RiboSim Spring 2012–Fall 2013
North Carolina State University *Raleigh, NC*
Mentored by: Raleigh, NC Dr. Donald Bitzer, Scott Vu

- Compared the RiboSim gene model of *E. Coli* with other existing models
- Maintained the RiboSim website

X-ray Photoelectron Spectroscopy Studies of Graphene Summer 2013
North Carolina State University *Raleigh, NC*
Mentored by: Raleigh, NC Dr. Jack Rowe

- Measured the XPS spectra of various graphene samples using X-ray photoelectron spectroscopy

Employment

SAS May 2016–May 2018
Year Long Graduate Intern *Cary, NC*

- Implemented network audit system to log/track external traffic
- Setup and developed a project dependency graph database using Neo4j
- Developed a framework for collecting and processing metrics.

SAS May 2014–August 2014
JMP Development Intern *Cary, NC*

- Used the JMP Scripting Language to develop the Distance Tool Add-on
- Implemented algorithms for polygon detection and computing polygon area

Poster Presentations

Linear Ordering Puzzle and Combinatorial Solvers

- Spring 2016: NCSU CSC Undergraduate Research Poster Session. *Raleigh, NC*

Applying Graph Theoretical Methods to 3D MRI Rotator Cuff Data

- Fall 2015: BMES Annual Meeting. *Tampa, FL*

Methodology and results for XPS and AFM of films on Graphene

- Spring 2014: NCSU Undergraduate Research Symposium. *Raleigh, NC*
- Spring 2014: McCormick Symposium. *Raleigh, NC*

A Comparative X-ray Photoelectron Spectroscopy Study of Graphene Grown by Different Methods

- Summer 2013: NCSU Undergraduate Research Symposium. *Raleigh, NC*

Relevant Courses

Data Structures, Grammars & Automata, Operating Systems, Computational Physics, C Software and Tools, Introduction to Computer Systems, Discrete Mathematics, Competitive Programming, Linear Algebra, Compiler Construction, Artificial Intelligence, Code Optimization for Scalar and Parallel Programs, Graph Theory, Computer Networks

Professional Memberships

- Association of Computing Machinery
- Phi Kappa Phi

Skills

Programming Languages:	C/C++, Python, Java, JSL
Source Control:	Git
Operating Systems:	Windows, Linux
Document Preparation:	vim, LaTex, Microsoft Office Suite
Other Software:	LabView, Unity 3D, JMP, Neo4j

Professional Service

STARS Alliance Fall 2014–Present
North Carolina State University *Raleigh, NC*

- President for the Fall 2017-Spring 2018 academic year
- Program leader for the Fall 2016-Spring 2017 academic year
- Volunteer for the SPARCS program
- Helped run monthly classes on computer science topics for middle school students
- Outcomes: Encouraged middle school students to computing careers

C++ Tutor Fall 2014–Present
Cary, NC

- Tutoring high school student in programming using C++

Software Developer Fall 2013–Spring 2017
Tryhard Games LLC *Raleigh, NC*

- Founding member.
- One of the main developers of the DotDrop! mobile game
- Designed and developed the game's sound system and UI
- Assisted in implementation of core game mechanics

Teaching Assistant
North Carolina State University *Raleigh, NC*

- Spring 2017: Code Optimization
- Fall 2014: Introduction to Scientific Computing in Physics

Serious About Math and Science Club May 2014–Fall 2016
William G. Enloe High School *Raleigh, NC*

- Co-founder of after school club at Enloe High school
- Gave lectures on advanced search algorithms, graph theory, and automata theory
- Outcomes: Exposed high school students to various STEM topics not covered in their curriculum

Physics Tutor Spring 2016
North Carolina State University *Raleigh, NC*

- Tutor for the advanced physics courses at the Physics Tutorial Center