

Charlie Murphy

Princeton University
Dept. of Computer Science
35 Olden Street
Princeton, NJ 08540-5233

cs.princeton.edu/~tcm3/
tcm3@cs.princeton.edu

Phone: (740) 249-5925

My research interests lie in formal methods, automated verification and programming languages with a focus on applications to concurrent and distributed systems.

Academics **Princeton University**.....Princeton, NJ
Ph.D. in Computer ScienceSept 2016-present
M.A. in Computer Science April 2018
Area: Automated Verification, Concurrency, Programming Languages
Advisor: Zak Kincaid

Ohio University (Honors Tutorial College) Athens, OH
B.S. in Computer Science..... May 2016
Thesis title: *Examining the Effects of Key Point Detector and
Descriptors on 3D Visual SLAM*
Advisor: David Chelberg ; GPA: 3.964/4.0

Work experience

7/20-9/20 Amazon Web Services, Applied Science Intern Ithaca, NY
Developed techniques to ensure correct runtime operation of distributed
databases at scale with minimal memory, disk, and CPU overheads.

6/18-8/18 GrammaTech, Research Intern Ithaca, NY
Developed a technique to dynamically rerank bug reports using user
feedback, machine learning, and formal methods

5/15-7/15 NOAA VizLab, Ernest F. Hollings Intern Silver Springs, MD
Developed NOAA WeatherView – A 3D Visualization system for
education of global weather patterns.
<https://www.nnvl.noaa.gov/weatherview/index.html>

5/14-5/16 Ohio University, Smart Health Lab..... Athens, OH
National Science Foundation Research Experience for Undergraduates
Created and maintained database and visualization tools for analysis of
physiological sensor data for prediction of hypoglycemia in patients with
type 1 diabetes.

8/13-5/14 Ohio University, Voinovich Research Assistant Athens, OH
Performed data analysis of social networks / surveys for various
educational and incarceration reform programs to determine the
effectiveness of programs given level of involvement.

Teaching

5/20-9/20	Lecturer. CS-103 – Intro to CS (Pilot course), Prison Teaching Initiative
2/19-6/19	Lecturer. Mat-015C – Basic College Math, Prison Teaching Initiative
2/18-6/19	Assistant in Instruction. COS-226 – Data Structures and Algorithms, Princeton
9/17-1/18	Assistant in Instruction. COS-418 – Distributed Systems, Princeton
5/17-present	Course design. CS-103 – Intro to Computer Science, Prison Teaching Initiative

Publications

- [1] **Charlie Murphy**, Zachary Kincaid. A Practical Algorithm for Structure Embedding. *VMCAI'19: 20th International Conference on Verification, Model Checking, and Abstract Interpretation*. Lisbon, Portugal. January 2019.
- [2] **Charlie Murphy**, Patrick Gray, Gordon Stewart. Verified Perceptron Convergence Theorem. *MAPL'17: The first ACM SIGPLAN Workshop on Machine Learning and Programming Languages*. Barcelona, Spain. June 2017.
- [3] **Timothy Murphy**. Examining the Effects of Key Point Detector and Descriptors on 3D Visual SLAM. Advisor David Chelberg. Ohio University. April 2016.
- [4] **Timothy Murphy**, David Chelberg. Development of a Robust Indoor 3D SLAM Algorithm. In *Proceedings of Midstates Conference on Undergraduate Research in Computer Science and Mathematics*. Wooster University. November 2014.

Presentations

- [5] **Charlie Murphy**, Zachary Kincaid (Advisor). A Practical Algorithm for Structure Embedding. *Princeton University General Exam*. January 2018.
- [6] **Timothy Murphy**, Dan Pisut. New Web Interface for Real-Time-Visualization of NOAA Weather Data. American Meteorological Society. *32nd Conference on Environmental Information Processing Technologies*. January 2016.
- [7] **Timothy Murphy**. New Web Interface for Real-Time-Visualization of NOAA Atmosphere Model Data. *NOAA 2015 Science Symposium*. Silver Springs, MD. July 2015.
- [8] **Timothy Murphy**. Developing an Indoor 3D SLAM Algorithm. Ohio University Student Expo. Ohio University. April 2015
- [9] **Timothy Murphy**, Hannah Quillin. Towards the Quantified Self: Fitness Bands for Blood Glucose Prediction. Ohio University Student Expo. Ohio University. April 2015.

Service

5/16-present Princeton Computer Science Graduate Social Committee, Chair
9/17-9/19 Programming Languages Seminar, Organizer
8/17-9/19 Princeton Graduate Board Games, Treasurer
1/17-4/17 Graduate Student Faculty Recruiting Committee (Princeton Computer Science)
12/15 Hour of Code Event (Ohio University), Organizer
5/15-7/16 Ohio University Association of Computing Machinery (ACM), President
5/15-5/16 Bobcat Tabletop (Ohio University), Treasurer
12/14 Hour of Code Event (Ohio University), Organizer
5/14-5/15 Ohio University Association of Computing Machinery (ACM), Web Master

Honors

5/16 Honorable mention for best thesis. Ohio University Honors Tutorial College.
4/15 2nd Place presentation (Undergrad EECS). Ohio University Student Expo.
4/15 2nd Place presentation (Diabetes Institute). Ohio University Student Expo.
5/14 Ernest F. Hollings Scholarship. Class of 2014-2016.
5/13 Benjamin A. Gilman Scholarship Recipient (Ukraine).

Grants

8/14-5/15 Provosts Undergraduate Research Fund.....\$1500
Dean's Research and Creativity Fund\$1500
Development of a Robust Indoor 3D SLAM Algorithm (Robotic Parts)