

Charles J. Carver
Computer Science PhD Candidate
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Education

Dartmouth College

Doctorate of Philosophy in Computer Science
Advised by [Dr. Xia Zhou](#)

Hanover, New Hampshire
September 2018 – Present

Fordham University

Bachelor of Science in Physics, Minor in Mathematics
3.70 GPA, Magna Cum Laude

Bronx, New York
September 2014 – May 2018

Fellowships and Awards

2020 Best Paper Award at NSDI'20
2020 Best Demo Award at HotMobile'21
2019 NSF Graduate Research Fellowship Program (GRFP) Fellow
2018 Dartmouth Fellowship
2018 Fordham University [Victor F. Hess Award](#)
2017 NSF Research Experiences for Undergraduates (REU) Fellow

Active Projects

My current research focuses on laser-based light communication, light sensing, and systems design.

Google, Inc.

Lead 3-person fiber-optic sensing project

Mountain View, CA (Remote)
June 2021 – Present

Dartmouth College

Lead 7-person visible light communication/sensing project

Hanover, NH
March 2020 – Present

Publications

- [1] Vimal Kakaraparthi, Qijia Shao, **Charles J. Carver**, Tien Pham, Nam Bui, VP Nguyen, Xia Zhou, and Tam Vu. “FaceSense: Sensing Face Touch with an Ear-worn System.” Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies. Vol. 5, No. 3, Article 110, 2021 (**UbiComp 2021**).
- [2] **Charles J. Carver**, Zhao Tian, Hongyong Zhang, Kofi M. Odame, Alberto Quattrini Li, and Xia Zhou. 2021. “AmphiLight: Direct Air-Water Communication With Laser Light”. **GetMobile: Mobile Computing and Communications** 24, no. 3 (2021): 26-29. [DOI](#).
- [3] **Best Paper!** **Carver, Charles J.**, Zhao Tian, Hongyong Zhang, Kofi M. Odame, Alberto Quattrini Li, and Xia Zhou. “AmphiLight: Direct Air-Water Communication with Laser Light.” Proceedings of the 17th USENIX Symposium on Networked Systems Design and Implementation (**NSDI’20**), February 25-27, 2020, Santa Clara, CA. [DOI](#).
- [4] Zhao Tian, **Charles J. Carver**, Qijia Shao, Monika Roznere, Alberto Quattrini Li, and Xia Zhou. “PolarTag: Invisible Data with Light Polarization” Proceedings of the 21st International Workshop on Mobile Computing Systems and Applications (**HotMobile ’20**), March 3-4, 2020, Austin, TX, USA. [DOI](#).
- [5] **Best Demo!** Zhao Tian, **Charles J. Carver**, Qijia Shao, Monika Roznere, Alberto Quattrini Li, and Xia Zhou. “Demo: PolarTag - Invisible Data with Light Polarization” Proceedings of the 21st International Workshop on Mobile Computing Systems and Applications (**HotMobile ’20**), March 3-4, 2020, Austin, TX, USA. [DOI](#).
- [6] **Carver, Charles J.**, Tianxing Li, and Xia Zhou. “Lighting the way to wireless efficiency.” **XRDS: Crossroads, The ACM Magazine for Students** 26.1 (2019): 28-31. [DOI](#).
- [7] **Carver, Charles**, Shela Wu, Adriana Rogers, Matthew Stafford, N. Sertac Artan, and Ziqian Dong. “Indoor Localization Through Visible Light Characterization Using Front-Facing Smartphone Camera.” In 2017 IEEE 14th International Conference on Mobile Ad Hoc and Sensor Systems (**MASS**), pp. 575-579. IEEE, 2017. [DOI](#).

- [8] Stafford, Matthew, Adriana Rogers, Shela Wu, **Charles Carver**, N. Sertac Artan, and Ziqian Dong. "TETRIS: Smartphone-to-Smartphone Screen-Based Visible Light Communication." In 2017 IEEE 14th International Conference on Mobile Ad Hoc and Sensor Systems (**MASS**), pp. 570-574. IEEE, 2017. [DOI](#).
- [9] **2nd Place for Best Poster!** **Charles Carver**, Shela Wu. "TETRIS: Smartphone-to-Smartphone Screen-Based Visible Light Communication," NYIT 8th Annual Cybersecurity Conference, September 28, 2017, New York, NY.
- [10] **Carver, Charles**. "Rutherford Scattering with Adaptive Runge-Kutta." Fordham University. 2016. Unpublished.
- [11] **Carver, Charles**. "Efficiencies of Linear-System-Solution Algorithms in Finding Equilibrium Positions of a 2D Mass-Spring System." Fordham University. 2016. Unpublished.

Professional Activities

Vice President, Dartmouth Graduate Student Council	2021 – Present
ACM MobiSys 2021 Web Chair	2021
CS Representative, Dartmouth Graduate Student Council	2020 – 2021
United Technologies STEM U Mentor	2019
Physics Tutor	2015 – 2018

Industry Experience

Google, Inc.	<i>Mountain View, CA (Remote)</i>
Summer Research Intern	June 2021 – September 2021
Fordham University, Department of Physics and Engineering Physics	<i>Bronx, NY</i>
Head of IT	2017 – 2018
Fordham University, Department of Physics and Engineering Physics	<i>Bronx, NY</i>
Grading Assistant	2016 – 2018
Fordham University, Department of Physics and Engineering Physics	<i>Bronx, NY</i>
Lab Assistant	2016 – 2017

Montserrat Capital FinTech Software Engineering Intern	<i>New York, NY</i> Summer 2016
Fordham University, Department of Mathematics Grading Assistant	<i>Bronx, NY</i> 2015 – 2018
Carv Creative LLC CEO, Co-President	<i>Buffalo, NY</i> 2014 – 2018
Cyberonics Summer Programming Intern	<i>Houston, TX</i> Summer 2012
ComiXology Digital Comic Author	<i>New York, NY</i> 2009 – 2010

Teaching Experience

Dartmouth College, Department of Computer Science TA for Introduction to Programming and Computation	Spring 2019
TA for Software Design and Implementation	Winter 2018
TA for Discrete Mathematics in Computer Science	Fall 2018
Fordham University, Department of Physics and Engineering Physics Lab Assistant	Fall 2016