Charles J. Carver

Computer Science PhD Candidate
Columbia University

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Education

Columbia University — *New York, NY*
Doctorate of Philosophy in Computer Science — June 2022 – Present
2019 NSF GRFP Fellow, Advised by Dr. Xia Zhou

Dartmouth College — *Hanover, New Hampshire*
Master of Science in Computer Science — September 2018 – June 2022
2019 NSF GRFP Fellow, Advised by Dr. Xia Zhou

Fordham University — *Bronx, New York*
Bachelor of Science in Physics, Minor in Mathematics — September 2014 – May 2018
3.70 GPA, Magna Cum Laude

Fellowships and Awards

2022 Grand Prize at Dartmouth Innovation and Technology Festival
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

Publications

[1] **Grand Prize at Dartmouth Innovation and Technology Festival** **Carver, Charles J.**, Qijia Shao, Samuel Lensgraf, Amy Sniffen, Maxine Perroni-Scharf, Hunter Gallant, Alberto Quattrini Li, and Xia Zhou. 2022. Sunflower: locating underwater robots from the air. In Proceedings of the 20th Annual International Conference on Mobile Systems, Applications and Services (**MobiSys '22**). Association for Computing Machinery, New York, NY, USA, 14–27. *DOI*. Press: 1, 2, 3, 4

[2] **Carver, Charles J.**, Qijia Shao, Samuel Lensgraf, Amy Sniffen, Maxine Perroni-Scharf, Hunter Gallant, Alberto Quattrini Li, and Xia Zhou. 2022. Sunflower: locating underwater robots from the air: video. In Proceedings of the 20th Annual International Conference on Mobile Systems, Applications and Services (**MobiSys '22**). Association for Computing Machinery, New York, NY, USA, 607–608. *DOI*.

[3] **Carver, Charles J.**, Zhao Tian, Qijia Shao, Hongyong Zhang, Kofi M. Odame, Alberto Quattrini Li, and Xia Zhou. Air-Water Communication and Sensing with Light. In 2022 14th International Conference on COMmunication Systems & NETworkS (**COMSNETS**), pp. 371-374. IEEE, 2022. *DOI*.

[4] Vimal Kakaraparthi, Qijia Shao, **Charles J. Carver**, Tien Pham, Nam Bui, Phuc Nguyen, Xia Zhou, and Tam Vu. 2021. FaceSense: Sensing Face Touch with an Ear-worn System. Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. 5 (**UbiComp**), 3, Article 110 (Sept 2021), 27 pages. *DOI*.

[5] **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 Comp. and Comm. 24, 3 (September 2020), 26–29. *DOI*.

[6] **Best Paper** **Carver, Charles J.**, Zhao Tian, Hongyong Zhang, Kofi M. Odame, Alberto Quattrini Li, and Xia Zhou. 2020. AmphiLight: direct air-water communication with laser light. In Proceedings of the 17th Usenix Conference on Networked Systems Design and Implementation (**NSDI'20**). USENIX Association, USA, 373–388. *DOI*.

[7] Zhao Tian, **Charles J. Carver**, Qijia Shao, Monika Roznere, Alberto Quattrini Li, and Xia Zhou. 2020. PolarTag: Invisible Data with Light Polarization. In Proceedings of the 21st International Workshop on Mobile Computing Systems and Applications (**HotMobile '20**). Association for Computing Machinery, New York, NY, USA, 74–79. *DOI*.

[8] **Best Demo** Zhao Tian, **Charles J. Carver**, Qijia Shao, Monika Roznere, Alberto Quattrini Li, and Xia Zhou. 2020. Demo: PolarTag – Invisible Data with Light Polarization. In Proceedings of the 21st International Workshop on Mobile Computing Systems and Applications (**HotMobile '20**). Association for Computing Machinery, New York, NY, USA, 107. *DOI*.

[9] **Carver, Charles J.**, Tianxing Li, and Xia Zhou. 2019. Lighting the way to wireless efficiency. **XRDS** 26, 1 (Fall 2019), 28–31. *DOI*.

[10] **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*.

[11] 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*.

[12] **Best Poster Runner-Up** **Charles Carver**, Shela Wu. TETRIS: Smartphone-to-Smartphone Screen-Based Visible Light Communication. NYIT 8th Annual Cyber-security Conference Poster Session, September 28, 2017, New York, NY. Available upon request.

[13] **Carver, Charles**. Rutherford Scattering with Adaptive Runge-Kutta. Fordham University. 2016. Available upon request.

[14] **Carver, Charles**. Efficiencies of Linear-System-Solution Algorithms in Finding Equilibrium Positions of a 2D Mass-Spring System. Fordham University. 2016. Available upon request.

Professional Activities

Vice President, Dartmouth Graduate Student Council	2021 – 2022
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. *New York, NY (Hybrid)*
Summer Research Intern June 2022 – Sept. 2022

Google, Inc. *Mountain View, CA (Remote)*
Summer Research Intern June 2021 – Sept. 2021

Fordham University, Department of Physics and Engineering Physics *Bronx, NY*
Head of IT 2017 – 2018

Fordham University, Department of Physics and Engineering Physics *Bronx, NY*
Grading Assistant 2016 – 2018

Fordham University, Department of Physics and Engineering Physics *Bronx, NY*
Lab Assistant 2016 – 2017

Montserrat Capital *New York, NY*
FinTech Software Engineering Intern Summer 2016

Fordham University, Department of Mathematics *Bronx, NY*
Grading Assistant 2015 – 2018

Carv Creative LLC *Buffalo, NY*
CEO, Co-President 2014 – 2018

Cyberonics *Houston, TX*
Summer Programming Intern Summer 2012

ComiXology *New York, NY*
Digital Comic Author 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