

## EDUCATION

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<b>PhD in Computer Science</b> , <i>Columbia University</i> Advisor: Prof. Peter Allen, Thesis: <i>Learning Mobile Manipulation</i> <i>Army Research Lab Research Fellow</i>	Sep 2017 — May 2022
<b>MPhil in Computer Science</b> , <i>Columbia University</i>	Sep 2017 — May 2019
<b>MS in Computer Science</b> , <i>Columbia University</i> , 4.0 GPA <i>CA Fellowship</i>	Sep 2016 — May 2017
<b>BS in Computer Science</b> , <i>Columbia University</i> , 3.7 GPA	Sep 2012 — May 2016

## SELECTED RESEARCH EXPERIENCE (ADDITIONAL EXPERIENCE LISTED ON MY WEBSITE)

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<b>Multiple View Performers for Shape Completion</b> <i>Robotics at Google, Army Research Lab, Columbia University</i> <ul style="list-style-type: none"><li>Researched novel deep learning approach for multiple view completion without registering views</li><li>Developed a process to leverage Performer attention layers developed by Google to encode multiple reconstruction images</li><li>Work submitted to ICRA 2023</li></ul>	<b>Dec 2021 — Present</b> <i>New York, NY</i>
<b>Mobile Manipulation Leveraging Multiple Views</b> <i>Columbia Robotics Lab</i> <ul style="list-style-type: none"><li>Researched deep learning approaches to mobile manipulation without localizing the robot at runtime</li><li>Improved previous navigation work via predicted panoramic target goals from nearby environment reconstruction</li><li>Published to IROS 2022 and nominated for best paper award</li></ul>	<b>Jan 2020 — Oct 2022</b> <i>New York, NY</i>
<b>MineRL Basalt Competition</b> <i>Neurips 2021</i> <ul style="list-style-type: none"><li>Researched the intersection of engineered and learned knowledge to develop an autonomous Minecraft agent using human demonstration data and won first place at MineRL Basalt at Neurips 2021 in collaboration with ARL and UMBC</li><li>Work published at AAAI-Make 2022 and presented at Neurips 2021</li></ul>	<b>Jul 2021 — Dec 2021</b> <i>New York, NY</i>
<b>Learning Your Way Without Map or Compass: Panoramic Target Driven Visual Navigation</b> <i>Columbia Robotics Lab</i> <ul style="list-style-type: none"><li>Researched novel visual navigation methodology using RGBD panoramic target goals and behavioral cloning</li><li>Developed a system architecture to embed images using an autoencoder and a policy model to control the robot</li><li>Explored optimization strategies to develop training data from real-world environments without human intervention</li><li>Work published to IROS 2020 and presented at NERC 2019</li></ul>	<b>Jan 2018 — Sep 2019</b> <i>New York, NY</i>

## SELECTED PROFESSIONAL EXPERIENCE (ADDITIONAL EXPERIENCE LISTED ON MY WEBSITE)

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<b>Research Fellow</b> <i>Army Research Lab</i> <ul style="list-style-type: none"><li>Participating in drone, robotic navigation, robotic grasping, and simulation research for the Army Research Lab</li><li>Developing hardware acquisition and deployment strategies for research in ARL facilities</li></ul>	<b>Sep 2018 — Jul 2022</b> <i>Aberdeen, MD</i>
<b>Co-Founder / Odefi Inc.</b> <i>Columbia IBM Blockchain Accelerator</i> <ul style="list-style-type: none"><li>Created a startup company Odefi to deliver liquidity to the MakerDAO network by auto terminating expired contracts as part of the Columbia IBM Blockchain Accelerator in 2019</li><li>Learned the lean launchpad startup process and pitched to several investors: <a href="https://www.youtube.com/watch?v=kGa5QHL28FE">https://www.youtube.com/watch?v=kGa5QHL28FE</a></li></ul>	<b>Mar 2019 — Jan 2022</b> <i>New York, NY</i>

## SELECTED PUBLICATIONS (ADDITIONAL PUBLICATIONS LISTED ON MY WEBSITE)

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- Watkins-Valls, D.**, Maia H., Varley J., Seshadri M., Sanabria J., Waytowich, N., & Allen, P. (2022). Mobile Manipulation Leveraging Multiple Views. 2022 IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2022
  - Watkins-Valls, D.**, Xu, J., Waytowich, N., & Allen, P. (2020). Learning your way without map or compass: Panoramic target driven visual navigation. 2020 IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2020
  - Watkins-Valls, D.**, Varley, J. & Allen, P. Multi-Modal Geometric Learning for Grasping and Manipulation. 2019 IEEE International Conference on Robotics and Automation (ICRA). IEEE, 2019.

## SKILLS

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<b>Languages</b>	Python, C++, ROS, Tensorflow, PyTorch, CUDA, Javascript, Bash, $\LaTeX$ , Markdown, Angular.js
<b>Software</b>	Gazebo, PyBullet, GraspIt!, MoveIt!, OpenCV, Blender, Windows, Ubuntu, JetBrains, Git, Docker
<b>Quantitative Research</b>	Robotics, Machine Learning, Simulation, Grasping, Navigation, Graphics, GPUs, EMG
<b>Communication</b>	English, Spanish