Carter Slocum

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Dept. of Computer Science and Eng.
University of California, Riverside Riverside, CA
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Research Experience

University of California, Riverside 2018-Present
Ph.D Candidate and Research Assistant Riverside, CA
Advisor: Jiasi Chen
Thesis Area: Virtual and Augmented Reality
Computer Science and Engineering Ph.D with focus on Augmented and Virtual Reality Quality of Service. My work involves discovery and mitigation of security threats for head mounted devices and augmented reality services, improved latency for web-based virtual reality, and tools for measuring accuracy for augmented reality.

KBR Wyle, NASA Ames Research Center 2020
Research Intern Moffett Field, CA
My work was on building an Unmanned Aerial Vehicle simulation in Unity 3D. I developed a real-time edge network simulation for autonomous aerial vehicles in urban environments.

NASA Jet Propulsion Laboratory 2016
Research Intern Pasadena, CA
I worked on the PRISM (Portable Remote Imaging SpectroMeter) project. My work involved writing, testing, and maintaining Multi-band, gray-scale, correlation and segmentation software. This involved state of the art computer vision with machine learning algorithms in MATLAB and C++.

Harvey Mudd College 2015
Research Assistant Claremont, CA
Mentor: Ran Libeskind-Hadas
My group's computational biology research involved developing a cophylogeny reconciliation browser using Python + Flask along with HTML/CSS + Javascript. I also developed web-based tools for teaching computer algorithms.

Education

University of California, Riverside 2018-Present
Ph.D Candidate in Computer Science and Engineering Riverside, CA
Advisor: Jiasi Chen

Thesis Area: Virtual and Augmented Reality
California State Polytechnic University, Pomona 2014-2018
B.S Computer Science, Minor Mathematics Riverside, CA
Completed in three and one half years

Industry Work

Northrop Grumman 2018
Embedded Software Engineer Woodland Hills, CA
My work involved implementing a DARPA specification message passing interface between two computers on the E2-D aircraft. This involved C, C++, and Ada 95 programming as well as static code analysis tools.

Northrop Grumman 2017
Software Engineering Intern Woodland Hills, CA

My work involved static code analysis tools for detecting errors and assisting in their repair.

Teaching Experience

Associate Instructor: CS 10A (UCR) 2022
Introduction to Computer Science for Science, Mathematics, and Engineering
Introductory Computer Science and C++ programming course for any major. Required for Computer science and Electrical engineering Majors, optional core and elective for others. 150 students.

Teaching Assistant: CS 135 (UCR) 2019-2022
Virtual Reality Laboratory.
Hands-on Virtual Reality app development with Oculus (Meta) Rift. Elective. 27-54 students per quarter.

Grader: CS 256 (Cal Poly Pomona) 2018
C++ Programming.
I graded weekly assignments and exams while providing feedback to Prof Amar Raheja. 60 students.

Publications

Carter Slocum, Yicheng Zhang, Nael Abu-Ghazaleh, Jiasi Chen, “Going through the motions: AR/VR typing inference using head motion tracking,” USENIX Security 2023 (Under Revision).

Yicheng Zhang, **Carter Slocum**, Jiasi Chen, Nael Abu-Ghazaleh. “It's all in your head(set): Side-channel attacks on AR/VR systems,” USENIX Security 2023 (Under Revision).

Carter Slocum, Jingwen Huang, Jiasi Chen. “VIA: Visibility-aware Web-based Virtual Reality,” ACM Web3D 2022.

Carter Slocum, Xukan Ran, Jiasi Chen.“Reality Check: A Tool to Evaluate Spatial Inconsistency in Augmented Reality,” IEEE ISM, 2021.

Xukan Ran, **Carter Slocum**, Yi-Zhen Tsai, Kittipat Apicharttrisorn, Maria Gorlatova, Jiasi Chen. “Multi-User Augmented Reality with Communication Efficient and Spatially Consistent Virtual Objects,” ACM CoNEXT, 2020.

Xukan Ran, **Carter Slocum**, Maria Gorlatova, Jiasi Chen. "ShareAR: Communication-Efficient Multi-User Mobile Augmented Reality," ACM HotNets Workshop, 2019.

Weiyun Ma, Dmitriy Smirnov, Juliet Forman, Annalise Schweickart, **Carter Slocum**, Srinidhi Srinivasan and Ran Libeskind-Hadas "DTL-RnB: Algorithms and tools for summarizing the space of DTL reconciliations." IEEE/ACM transactions on computational biology and bioinformatics 15.2 (2016): 411-421.

Service and Volunteering

Reviewer. 2020-Present
- ACM Multimedia, IEEE/ACM International Symposium on Quality of Service, IEEE ISM

ACM SIGGRAPH Student Volunteer. 2019

Citrus Hack Judge. 2019

ACM Chapter President. 2017-2018
(Cal Poly Pomona Computer Science Society)