CURRICULUM VITAE

# Mark Jarzynski


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## Education

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| 2020 - present | University of Maryland, Baltimore County; Ph.D. Student, Computer Science |
| 2007 - 2011 | University of Maryland, Baltimore County; B.S., Computer Science |

## Experience in Higher Education

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| 2014 - present | University of Maryland, Baltimore County; Imaging Research Center; Technical Director. All previous duties at IRC plus led and supervised technical teams of students and staff on all IRC technical projects. |
| 2011 - 2014 | University of Maryland, Baltimore County; Imaging Research Center; Systems Administrator & Programmer. Maintain IRC's desktops and servers. Developed and maintained mission critical software to meet research needs. Work with students to ensure IRC researcher needs were being met. |
| 2010 - 2011 | University of Maryland, Baltimore County; Computer Science & Electrical Engineering; UNIX Administrator & Web Developer. Maintained CSEE linux desktops and servers across classroom labs and TA rooms. Designed and developed CSEE's website. |

## Experience in other than Higher Education

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| 2008 - 2010 | Zeroed-In Technologies LLC; Programmer |

## Publications

Mark Jarzynski and Marc Olano, Hash Functions for GPU Rendering, *Journal of Computer Graphics Techniques (JCGT)*, vol. 9, no. 3, 21-38, 2020
Available online http://jcgt.org/published/0009/03/02/

Mark Murnane, Don Engel, Stephen Freeland, Lee Boot, Mark Jarzynski, Katrine Lindvig, Line Hillersdal, and David Earle. 2020. Extending CoNavigator into a Collaborative Digital Space. *In Companion of the 2020 ACM International Conference on Supporting Group Work (GROUP '20).* Association for Computing Machinery, New York, NY, USA, 127–130. DOI:https://doi.org/10.1145/3323994.3369890

## Research Projects

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| 2021 - present | RAY TRACING FOR ACCELERATED METROLOGY. Using Nvidia Optix ray tracing to simulate electron micropsy. https://github.com/markjarzynski/RTAM/tree/develop |
| 2021 - present | EGIS IMPORTER. Plugin for Unreal Engine 4 for importing, manipulating, and displaying geospatial data. |
| 2020 - 2021 | LOSING WINTER. AR mobile app to experience and share vlogs of memories of snow and the winter. https://www.losingwinter.net |
| 2020 - present | VR COVID-19 DATA VISUALIZATION. VR experience to visualize 3D charts and graphs of various factors of COVID-19 related health data. |
| 2018 - 2020 | HASH FUNCTIONS FOR GPU RENDERING. Evaluated existing hash functions for random number quality using TestU01 and GPU execution speed through benchmarking. Published in Journal of Computer Graphics Techniques Oct 17th, 2020. http://jcgt.org/published/0009/03/02/ https://www.shadertoy.com/view/XlGcRh https://www.youtube.com/watch?v=dwi5qJ6oPjE&t=65s |
| 2018 | UMBC 2018 FACILITIES MASTER PLAN. VR experience of future plans of the UMBC Campus. https://www.irc.umbc.edu/projects/master-plan-2018 |
| 2016 - 2018 | ECOMIMESIS. VR experience of 3D photogrammetry scanned plants. Exhibited at Hustle at the Science Lab Gallery Detroit. https://www.irc.umbc.edu/projects/plantelligence |
| 2015 - 2019 | MAPTU. Cloud based software for mapping and modeling ideas in 3D spaces. |
| 2014 - 2017 | RETRIEVER STORIES. Online space for alumni and other members of the UMBC community to share their memories, reconnect with one another, and |

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| | tell their stories of grit and greatness through the years. https://retrieverstories.umbc.edu/ |
| 2014 - 2016 | KENDRA. iPad app that allows the user to control a digital crab puppet. Crab may be controlled via touchscreen to walk, move its arms, claws, and eye stalks with inverse kinematics. The crab may also pick up objects throughout the space and attach them to it's back. Exhibited at Light City Baltimore 2016. https://www.irc.umbc.edu/projects/hoarder-crab-digital-puppet |
| 2014 - 2016 | BIO MAPPING. Surveyed subjects regarding their health and location. Anonymized health data and fuzzy mapped the information. |
| 2013 - 2016 | CRANES IN MOTION/MIMICKING WHOOPER. Interactive 3D application utilizing Microsoft Kinect for motion controlling a 3D whooping crane. On permanent display at the Patuxent National Wildlife Visitor Center. https://www.irc.umbc.edu/projects/cranes-in-motion |
| 2013 | THREE.SIXTY PANORAMA ENGINE. Web based three hundred and sixty degree panorama viewer. https://www.irc.umbc.edu/projects/three-sixty |
| 2013 - 2014 | SHERMAN'S MARCH AND AMERICA: MAPPING MEMORY. Digital map that depicts Sherman's March to the sea during the Civil War. http://shermansmarch.org/ |
| 2012 - 2016 | BEARINGS OF BALTIMORE, CIRCA 1815. Interactive touch screen display of a digitally recreated 3D map of Baltimore, Maryland circa 1815. On permanent display at the Maryland Historical Society. https://earlybaltimore.org/ |
| 2012 - 2015 | NATIONAL ACADEMY OF SCIENCES GREAT HALL. iPad app that explores the history of science through an augmented reality tour of the Great Hall ceiling at the National Academy of Sciences building in Washington, D.C. On permanent display at the National Academy of Sciences. https://www.irc.umbc.edu/projects/dome-explorer |
| 2012 - 2014 | BALTIMORE ART+JUSTICE PROJECT. Social network that brings together individuals and organizations working at the intersection of art and social justice in Baltimore, Maryland. https://www.irc.umbc.edu/projects/baltimore-art-plus-justice |
| 2012 - 2014 | PARISIENNES: WOMEN AND THE CITY IN FRENCH CINEMA. Research tool used to map scenes from historical French films. https://www.irc.umbc.edu/projects/parisiennes-women-and-the-city-in-french-cinema |

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| 2011 - 2013 | SYMPHONY INTERACTIVE. iPad app which provides contextual notes and additional information during live symphony performances. https://www.irc.umbc.edu/projects/symphony-interactive |
| 2011 - 2013 | MAPPING BAYBROOK. Digital map illustrating the history and culture of an industrialized community in Baltimore, Maryland. https://www.irc.umbc.edu/projects/mapping-baybrook |

## Awards

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| 2006 | Eagle Scout. Boy Scouts of America. Troop 447. |

## Service to the Community

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| 2006 - 2008 | Assistant Scout Master. Boy Scouts of America. Troop 447. |
| 2008 - present | Merit Badge Counselor. Boy Scouts of America. Troop 447. |