Garrett Johnson

résumé
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Developer and designer with a passion for solving hard problems, making complicated systems approachable and performant, and working on software for robotics, visualization, high performance rendering, and AR / VR applications.

education

University of California, Los Angeles
Class of 2012
BA Game Design and Development, Independent Major

tools & skills

Breaking down a problem	AR / VR Technologies
Creative Solutions	Meshlab
Quick Learner	Processing
Storyboarding, sketching	C#
User interviews	HTML, CSS, Javascript
Prototyping	Graphics
UI Design	THREE.js, WebGL
Adobe Photoshop, Illustrator	GLSL, HLSL
Github, Git	Unity3D, ShaderLab
Leadership	3D Modeling Concepts

select awards

Best AR Experience
ProtoSpace — Unity Vision Summit 2017

Best VizSim Project
ProtoSpace — Unity Awards 2017

Best AR or MR Experience
OnSight — Unity Awards 2017

Innovation Foundry Discovery Award
Foundry IME — NASA JPL 2017

Workshop and Presentation Team Award
Foundry IME — NASA JPL 2016

OnSight Product Development Team Award
OnSight — NASA JPL 2016

Innovation Foundry Discovery Award
Foundry IME — NASA JPL 2015

personal interests

Cooking & Markets	Open Source Projects
Hydroponic Gardening	Computer Graphics
Traveling	Games

experience & projects

Interface Designer and Software Engineer at
NASA Jet Propulsion Laboratory
NASA JPL is responsible for some of the most ambitious unmanned space missions in history including earth orbiting satellites, many terrestrial Mars spacecraft, and mission beyond our solar system. While at JPL I've worked on mission tools, system design tools, and forward-looking mission operations research serving as both a senior developer and designer on projects.

Web-based Mars 2020 V&V and Operations Tools 2018
Pioneered the use of web based tooling for M2020 Rover operations based in part on prototyping work done for ATHLETE in 2013. Project lead for autonomous drive introspection tools and mobility planning tools both used for V&V and mission operations as web and desktop based Javascript applications. Developed web visualizations for sequencing preview for Rover and ACA / SHA operations.

Hyperdrive & RSVP Tool Suite 2018
Worked on long-running C++ tool used to operate nearly every terrestrial Mars mission. Implemented tools and integrations for safely operating and planning flights for the Mars 2020 Helicopter, Ingenuity, and other quality-of-life features for rover operators. Developed THREE.js, desktop visualization and tool for viewing, planning, and validating all drive sequences for the Mars Rover.

Foundry Integrated Modeling Environment 2014-2018
Observed live Team X processes and conducted user research with expert systems engineers in domains across the spacecraft design process from Team X. These processes involved propulsion, thermal, and power, required to understand the purpose and workflow of the collaborative system design and its problems. Developed novel ideas for quickly integrating model-based systems engineering data and analyses and programmed prototype to communicate the idea and the concept to the team and customers.

ProtoSpace 2015-2018
Worked with assembly room technicians and CAD modelers to understand their work and the problems therein to better address where ProtoSpace could improve their process and define a direction of the project. Developed specialized geometry download and rendering pipeline to enable rendering tens of millions of polygons with user interaction and dynamic, animated models in a web browser using THREE.js and Web Workers. Produced interaction tools and optimized rendering code for the Hololens application.