Jonathan Cole

Senior Developer

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GitHub LinkedIn

Multifaceted developer with a strong history of execution and innovation in a wide variety of software projects and interaction media. Can help you make your next great iOS app, or dive deep into experimental technology to make something nobody has ever seen before. Skilled with **iOS app development**, **virtual / augmented reality**, and **computer vision**. Looking for new ways to bring innovation to human-centric computing.

SKILLS

iOS Development

Swift Objective-C Metal ARKit SceneKit SwiftUI

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WORK EXPERIENCE

Senior Software Developer, Software Developer at Rightpoint (formerly Raizlabs)
Jan 2018 - Current

Builds world-class iOS apps in a fast-paced team environment.

- Responsible for architecture and implementation on large, high-visibility projects
- Go-to for difficult experimental / trailblazing projects requiring an investigative approach; these ranged from occupancy grid vectorizers forcleaning robots to real-time Android movement detectors
- Worked extensively with Bluetooth, BLE, and Internet of Things devices
- Pinch hitter and primary consultant for augmented reality projects

Experience Designer (Contract) at Maine Discovery Museum
Jan 2016 - Jan 2017

Worked in collaboration with the museum to create interactive exhibits for children.

- *Sea What Grows*: Created an iOS-based kiosk as part of a wider aquaculture exhibit to teach children about the ocean
- *The X-Ray Hand*: Developed interactive exhibit that uses Leap Motion to show an x-ray visualization of a visitor's hand

VR / AR Engineer at Virtual Environment and Multimodal Interaction Laboratory
Sep 2011 - Jan 2018

Worked in close collaboration with researchers to develop and prototype several VR simulations using Unity3D; responsible for code and design in solo and team projects.

- Provided leadership in lab environment to push into new territories with self-directed and wide-ranging projects, from the development of a custom-built wearable AR platform to the usage of VR to prototype AR techniques for enhancing human spatial perception
- Mentored for more than 30 students in programming and design
- Integrated VR technologies with Unity3D before official support, often involving hardware hacking or creating native plugins
- Developed VR experiences for multiple human interface platforms, including the HTC Vive, Oculus Rift, Leap Motion, Microsoft Kinect, andoptical marker tracking systems by Phasespace and WorldViz
- Created a full-stack implementation of the W3C Web Annotation Model for Dartmouth's Semantic Annotation Tool as part of the Media Ecology Project
- Created native and Unity3D-based iOS apps for AR and data visualization contexts

PROJECTS

Liquid Math at https://apps.apple.com/us/app/liquid-math/id1331320224
Conceived, designed, an implemented an interactive, Metal-powered Reaction-Diffusion simulator for iOS and macOS.

iOS macOS Swift Objective-C Metal GPGPU Creative Coding

Kino at https://github.com/colejd/Kino
Master's thesis. Created a software and hardware platform to empower researchers to rapidly design computer vision experiments for wearable AR headsets without needing to worry about threading, camera synchronization, or OS details. An example plugin was developed for real-time object recognition via machine learning.

OpenCV Augmented Reality C++ Homebrew Research

Semantic Annotation Tool at https://mediaecology.dartmouth.edu/sat/
Created the frontend and co-created the backend implementations of the W3C Web Annotation Model for Dartmouth's Media Ecology Project. Waldorf (the frontend) comprises an embeddable video player which allows users to create and edit rich annotations for web videos, while Statler (the backend) is a RESTful Rails backend that manages these annotations. The purpose of this system was to provide researchers with an interface for automatic tagging of videos via computer vision techniques.

Rails Ruby Javascript REST Frontend Backend

EDUCATION

Bachelor of Science - Computer Science at University of Maine
May 2015

Object-Oriented Programming Algorithms Data Structures Operating Systems Discrete Math Agile/Scrum

Master of Science - Spatial Information Science and Engineering at University of Maine
Dec 2017

R Prolog Spatial Analysis Spatial Database Systems Human Computer Interaction Information Systems Law Real-Time Sensor Data Streams