

Daniel J. Butler

Research Engineer - Motion Capture & Analysis
Salk Institute for Biological Studies

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Employment

2018-	Salk Institute for Biological Studies - Mocap Research Engineer
2016-2018	Freelance Software Developer
2011-2016	U. of Washington, Seattle - PhD Student, Robotics / AI / Vision
2014-15	Heuristic Labs (startup), Boston - Computer Vision Engineer
2011	Max Planck Institute for Intelligent Systems - Research Intern
2009-10	MIT Lincoln Laboratory - Assistant Technical Staff
2009	Brown University - Research Asst., Human Body Shape Analysis

Education

PhD work in Computer Science - University of Washington, 2014-2016
MS, Computer Science - University of Washington, 2014
BS, Applied Math / Computer Science - Brown University, 2009 (*magna cum laude*, PBK)

Selected Projects

Mocap system for studying neural motor control and movement disorders (@ Salk)

Developed ML data management system, ran hundreds of ML experiments.
Analyzed animal movement data from neuroscience lab studying motor control.
Wrote embedded control software for multi-camera / multi-light capture system.
Tools: Python, C++, Qt, OpenCV, Arduino.

iOS Metal Implementation of Keras deep learning (@ Body Labs)

Ported Keras programming interface to the Apple Metal GPU framework

Humanoid robot control interface development (@ U. of Washington)

Developed semi-autonomous robot control system with vision and motion planning.
Tools: C++, Qt, OpenCV, PointCloud Library, MoveIt (motion planner), Pandas.

Custom 3D Sensor (@ Heuristic Labs)

Implemented 3D stereo calibration & reconstruction pipeline with OpenCV, MATLAB.
Developed custom calibration algorithm for projector-camera stereo pair.
Tools: C++, MATLAB.

Patents

Systems, Software, and Methods for Generating Training Datasets for Machine Learning Applications. Patent App. No. 63/092,841. Inventors: **DJ Butler**, E Azim, and A Keim. (Pending.)

Assisted video surveillance of persons-of-interest. JR Thornton, **DJ Butler**, JT Baran-Gale. US Patent App. US20130155229 A1. (Granted.)

Personal references and academic research papers available on request.