Dylan Colli

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Education

Masters of Science in Robotics — Expected Graduation: May '24
University of Michigan
GPA: 3.65

Bachelors of Science in Chemical Engineering, *summa cum laude* — May '18
University of Kentucky

Relevant Employment History

Arriver* | *Algorithm Engineer - Perception — Jan '21 - Jun '22
C++, Python, Agile, Sensor Fusion, Target Tracking — Ann Arbor, MI

- Developed module and validation tooling for L2+ target tracking solutions.
- Implemented point occupancy caching resulting in a 7% module speedup
- Architected and implemented KPI exploration/visualization tool used in seven person team.

Loyola University Chicago* | *Research Assistant (Remote) — Jul '20 - Dec '20
Python, Julia, Scientific Communication — Ann Arbor, MI

- Improved parallelizability of in-house genetic algorithm through test-driven development.

University of Kentucky* | *Research Assistant — Aug '19 - Jul '20
C++, RapidJSON, Python, Blender — Lexington, KY

- Implemented RapidJSON C++ library to improve simulation input/output.
- Increased user-friendliness of numerical model by implementing GUI using Tkinter package.
- Developed visualization tool for model of heart contraction via Blender's Python API.

University of Kentucky* | *Research Assistant - Image Analysis Team Lead — May '18 - Jul '19
Python, OpenCV, Event/Feature Detection, Linux — Lexington, KY

- Architected a calcium spark event detection/quantification tool using Scikit-Image and SciPy.
- Developed image analysis software for classification of cardiac subcellular remodeling.

Projects And Selected Publications

Macro/Micronutrient Information System — *C++, CMake, Linux, Qt5*
github.com/dcolli23/ingreedyents
Motivation: Optimize diet via UPC lookup of ingredient nutrition information.

- Built using CMake on Linux machine with minimalist Qt5 GUI.
- Utilizes cURL library for nutrition information retrieval via REST API.

Calcium Spark Video Analysis — *Python, Scikit-Image, Event detection*
bitbucket.org/dcolli23/spark_analysis — doi.org/10.1113/JP277360
Motivation: Employ image analysis techniques for investigating cardiac cell signaling heterogeneity.

- Developed and published algorithm for quantification of signaling events in 2D videos.
- Implemented denoising and segmentation routines to detect regions of interest in images.

Biomedical Image Analysis — *Python, OpenCV, Feature detection*
bitbucket.org/pkh_lab/matchedmyo_git — doi.org/10.1016/j.bpj.2019.03.010
Motivation: To assess the subcellular remodeling elicited by heart failure in preserved tissue.

- Designed, tested, and optimized published “MatchedMyo” software that employs image processing/analysis routines from the OpenCV Python module.
- Improved feature detection rate by employing OpenCV’s CLAHE algorithm.