

# Anthony Hoak

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<b>PROJECTS</b>	<b>img-io</b> [ <a href="https://gitlab.com/onw4rd/img-io">https://gitlab.com/onw4rd/img-io</a> ] • Image Input/Output (IO) Application written in C <b>obj-det-yolov5-rpi</b> [ <a href="https://gitlab.com/onw4rd/obj-det-yolov5-rpi">https://gitlab.com/onw4rd/obj-det-yolov5-rpi</a> ] • Object Detection using PyTorch, YOLO v5, OpenCV, Raspberry PI 5, and Docker <b>semantic-segmentation-api</b> [ <a href="https://gitlab.com/onw4rd/semantic-segmentation-api">https://gitlab.com/onw4rd/semantic-segmentation-api</a> ] • Semantic Segmentation with PyTorch Deployed with Flask and Exposed as Web API	Jan 2025 – Present Oct 2024 – Present Oct 2024 – Present
<b>WORK EXPERIENCE</b>	<b>GE HealthCare</b> , Waukesha, WI 53188 ▪ Systems Engineer • Responsible for Multiple Advanced Technology Projects for Cardiac CT Post Processing Applications • Developed Bayes classifier (machine learning) in Python (Scikit-learn) to classify pixels in dual energy CT images • Created various Python applications (NumPy, Pandas, OpenCV, Matplotlib) to evaluate algorithm performance • Wrote object-oriented C++ code to update DICOM tags and save aorta and coronary segmentation masks • Used Python to evaluate image quality (Likert) scores results (using NumPy, Pandas, Matplotlib) • Created bash scripts to interface with an image database on a Linux workstation (Linux OS) • Used Python to create a simple MySQL (SQL) utility for storing image quality results • Wrote bash scripts for benchmarking algorithm memory consumption and compute performance • Developed bash script(s) to automate batch processing a Linux workstation (Linux OS) • Created a Python script to separate cardiac DICOM Series based on phase (Pydicom) <b>Northrop Grumman Corporation</b> , Rolling Meadows, Illinois, USA ▪ Digital Engineer II • Developed embedded software (C) for verifying FPGA requirements • Wrote basic accessor and mutator functions (object-oriented design) in C++ for an aircraft radar system ▪ Systems Engineer II (Professional Development Program) • Developed, debugged, and validated code in MATLAB / Python and performed integration/verification tests	Aug 2021 – Oct 2024 Jan 2020 – Aug 2021 Jan 2017 – Jan 2020
<b>RESEARCH EXPERIENCE</b>	<b>Computer Vision &amp; Sensing Systems Laboratory</b> , Marquette University ▪ Graduate Student, Electrical & Computer Engineering Department • Focus: multi-target tracking, computer vision, statistical (Bayesian) signal processing	Nov 2014 – Aug 2016
<b>PUBLICATIONS</b>	<b>JOURNALS</b> <u>A. Hoak</u> , H. Medeiros, and R. Povinelli, “Image-Based Multi-Target Tracking through Multi-Bernoulli Filtering with Interactive Likelihoods,” <i>Sensors</i> , vol. 17, no. 501, Mar 2017. <b>CONFERENCES</b> A. Echeverri Guevarra, <u>A. Hoak</u> , J. Tapiero Bernal, and H. Medeiros, “Vision-based Self-contained Target Following Robot using Bayesian Data Fusion,” in <i>International Symposium on Visual Computing</i> , 2016.	
<b>EDUCATION</b>	<b>Marquette University</b> , Milwaukee, Wisconsin, USA ▪ Master of Science (M.S.) in Electrical & Computer Engineering • Cumulative GPA: 3.4 / 4.0 • Thesis: An Interactive Likelihood for the Multi-Bernoulli Filter • Integrated a deep learning technique for pedestrian detection with the Multi-Bernoulli Filter • Advisor: Dr. Henry Medeiros • Teaching Assistant for Circuits I & II <b>Milwaukee School of Engineering</b> , Milwaukee, Wisconsin, USA ▪ Bachelor of Science (B.S.) in Electrical Engineering • Cumulative GPA: 3.3 / 4.0 • Minors: Mathematics and Physics • Internships: Spectrum Brands, Kohler Co., and Johnson Controls Inc.	Aug 2014 – Aug 2016 Sep 2010 – May 2014
<b>AWARDS &amp; SCHOLARSHIPS</b>	▪ Frank Rogers Bacon Research Assistantship, Marquette University ▪ Academic Scholarship \$8,000/yr., Milwaukee School of Engineering ▪ Dean’s List, 6 Semesters, Milwaukee School of Engineering	Aug 2014 – May 2016 Sep 2010 – May 2014 Sep 2010 – May 2014
<b>SKILLS</b>	python, bash, scripting, computer vision, multi-target tracking, signal processing, digital image processing, linux, applied mathematics, probability & statistics, $\LaTeX$ , MATLAB, C/C++, technical communication	
<b>INTERESTS</b>	cycling, coffee, hiking, photography, reading, music, weight lifting	