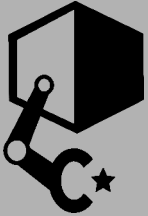


Andrew Price



Doctoral Candidate

Laboratory:

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Summary

Doctoral Candidate at Tohoku University, Japan studying machine vision systems for orbital debris capture applications. Software strengths in MATLAB and Python. Significant experience in flight data acquisition and large scale testing. Career objective to be part of the debris-removal solution in the near-Earth orbital environment.

Education

Doctoral Candidate, Aerospace **Tohoku University**
2019 - Present
Sendai, Japan

Master of Applied Science, Aerospace **Carleton University**
2013 - 2015
Ottawa ON, Canada

Bachelor of Engineering, Aerospace **Carleton University**
2009 - 2013
Ottawa ON, Canada

Employment

Associate Researcher **National Research Council**
Data Acquisition, 2015 - 2019
Flight Measurement, Dr. Sebastian Ghinet
Aero-Acoustics

Research Assistant **Carleton University**
Data Acquisition, 2013 - 2015
Flight Measurement Professor Fred Nitzsche

Teaching Assistant **Carleton University**
Various Courses 2012 - 2015
Professors M. Ahmadi,
C. Merrett and E. Hua

Software Skills

- MATLAB
- Python
- Linux / Windows
- NI LabVIEW
- C++
- GIMP (Image Editing)
- Blender (Rendering)
- Visual Basic

Publications

1 Journal
14 Conf. Proceedings
12 NRC Public Reports
1 Trade Journal

Journal of Intelligent Material
Systems and Structures, AIAA
Scitech, CVPR2021, American
Helicopter Society, Inter-Noise

Awards

- CVPR 2021 AI For Space Workshop Best Presentation Award
- Japan Monbukagakusho MEXT Scholarship
- Tohoku University GP-Mech Scholarship
- International Institute of Noise Control Engineering: Young Professional's Grant
- Various Departmental and Dean's List Scholarships

Projects

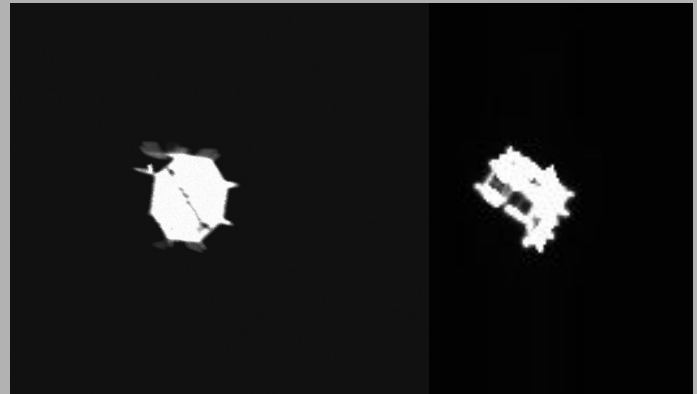
Hayabusa2 Minervall-2 Pose Estimation 2020

Given 61 real images of the Minervall-2 rover taken by the Hayabusa2 ONC-W2 camera during deployment, estimate the 6DoF pose of the rover. This project posed particularly difficult challenges:

- 1) No training dataset
- 2) Minerva rover is D_8 Order 16 Symmetric
- 3) Image quality is poor by ML standards

Workflow: Develop synthetic dataset, train detector, solve symmetric PnP problem.

Right: Synthetic Dataset Example Image



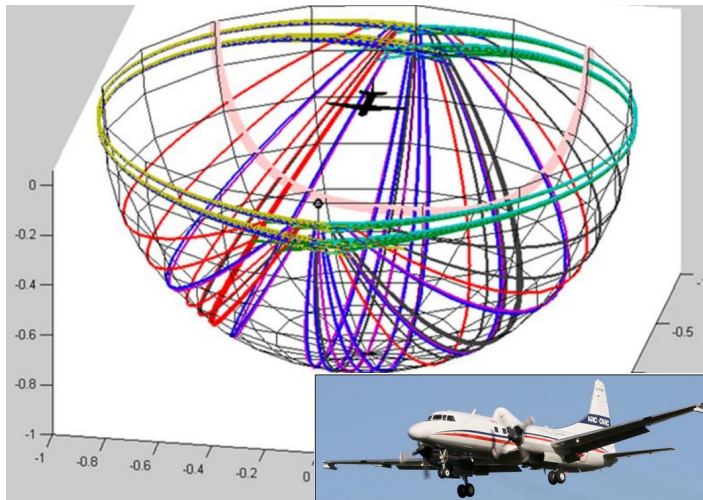
Synthetic

Real

GPS Time-Synchronized Array 2018

Characterize the parameters that dominate the visual and acoustic detection of an aircraft. The project required a time synchronized microphone array and camera system spread over 1 square kilometre; too large for cables. Developed a LabVIEW system featuring five GPS time synchronized data acquisition stations. Custom autonomous post-processing algorithms had to be coded to work through several hours of data.

Left: Measured Flight Contours



Other projects include:

1. The development and deployment of a data acquisition system on 4 Royal Canadian Air Force aircraft. Subsequent analysis of all data.
2. Development of the real-time active noise controller for the National Research Council (NRC) new Centre for Air Travel Research (CATR) facility.
3. Satellite qualification test engineer apprenticeship at the NRC Aeroacoustic facility.

Extra-curricular

- Co-founder of the National Research Council (NRC) Early Career Network (ECN)
- PADI open water diver certified
- Can speak beginner level Japanese and French