Andrew Price

Aerospace Engineer

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Summary

Canadian research engineer with diverse international experience. Software strengths in MATLAB and Python. Professional expertise in flight data acquisition, large scale testing and computer vision pose estimation. Career objective to be part of the sustainable space movement.

Employment

Postdoctoral Researcher
6DoF Pose Estimation, Network Compression, In-orbit Imaging
Ecole Polytechnique Fédérale de Lausanne
2023 – Present *Switzerland*
Dr. Mathieu Salzmann

Associate Researcher
Large-Scale Testing, Flight Measurement, Signal Processing
National Research Council
2015 – 2019 *Canada*
Dr. Sebastian Ghinet

Research Assistant
Data Acquisition, Teaching
Carleton University
2012 – 2015 *Canada*
Dr. Mojtaba Ahmadi
Dr. Craig Merrett

Education

PhD
Aerospace
Tohoku University
2019 – 2023 *Japan*
Dr. Kazuya Yoshida

Master Applied Science
Aerospace
Carleton University
2013 – 2015 *Canada*
Dr. Fred Nitzsche

Bachelor Engineering
Aerospace
Carleton University
2009 – 2013 *Canada*
Dr. Jeremy Laliberté

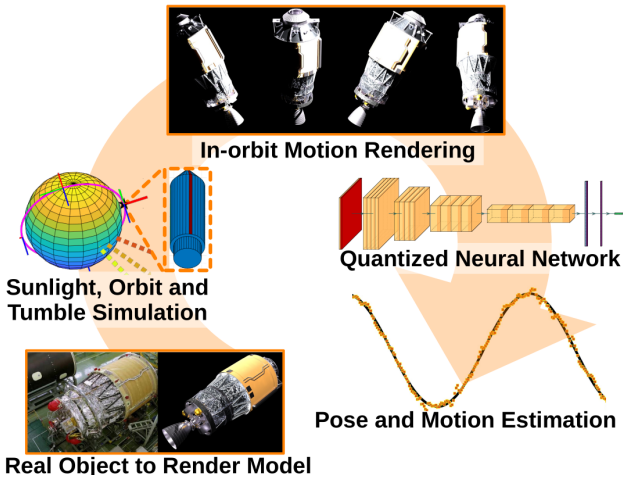
Software

MATLAB / SIMULINK
Blender / SOLIDWORKS
NI LabVIEW
C++
Python
GIMP / Kdenlive
Ansys STK
Visual Basic

Extras

- 30+ international paper publications
- CVPR2021 AI4Space Best Presentation Award
- Japan Monbukagakusho MEXT Scholarship
- NRC Early Career Network Co-Founder
- Spaceonova invited lecturer
- Innosuisse Business Creation Certification
- Beginner level Japanese and French

Projects



Small Network Pose Estimation

2022

In support of the JAXA Commercial Removal of Debris Demonstration (CRD2) program, developed a synthetic image dataset, accounting for rigid body tumbling and earth orbit. Trained a small lightweight pose estimation neural network and further compressed the network. Reconstructed the tumble estimation. The final network was 5.5MB and designed for limited processor edge-computing.

Left: Project Flow

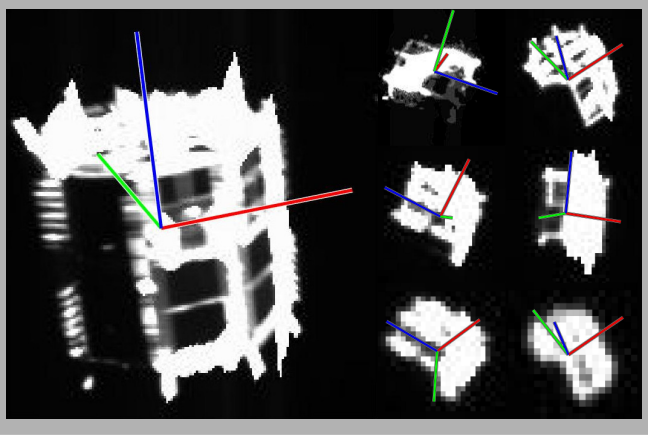
Hayabusa2 Minerva-II2 Pose Estimation

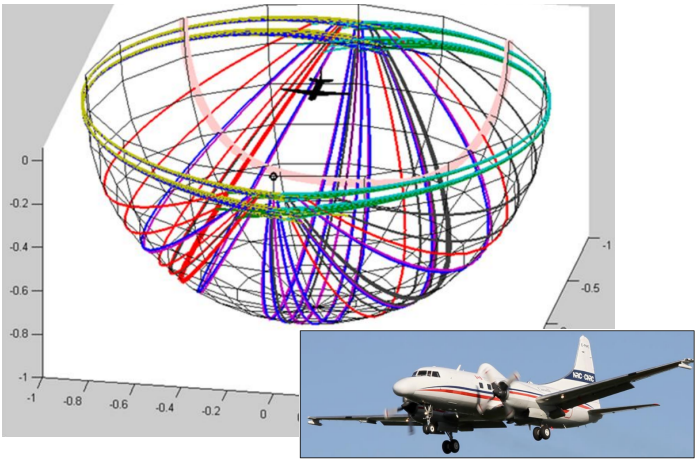
2021

Given 61 images of the Minerva-II2 rover taken by the Hayabusa2 spacecraft during deployment above asteroid Ryugu, estimated the 6DoF pose of the rover. Project challenges included:

1) No training dataset
2) Highly symmetric target (Minerva rover)
3) Low resolution images with high noise

Right: Pose Estimation Result





GPS Time-Synchronized Array

2019

Designed and built a 1 square kilometre, GPS synchronized, microphone and camera array for aircraft detection. Developed the LabVIEW control system and analyzed the data using MATLAB custom algorithms and Fourier analysis techniques. Required flight planning, safety briefings and control of an airfield for several hours.

Left: Measured Flight Contours

Other projects include:

1. Satellite qualification test engineer at the NRC Aeroacoustic facility; acoustic excitation, shaker table operation and associated Fourier analysis.
2. The design, flight certification and deployment of a data acquisition system on 4 Royal Canadian Air Force aircraft; subsequent analysis of all data.
3. Development of the real-time active noise controller for the National Research Council (NRC) new Centre for Air Travel Research (CATR) facility.
4. System subcontracting, validation testing and participation in airworthiness review boards for the NRC Hybrid Electric Aircraft Testbed (HEAT) project.