Nicholas Rainville
Teaching Assistant Professor
Department of Aerospace Engineering Sciences
University of Colorado
Boulder, CO 80309-0429
nick.rainville@gmail.com

Professional Preparation

Northeastern University	Boston, Ma	Electrical and Computer Engineering	B.S., 2006
Purdue	West Lafayette, In	Aeronautics and Astronautics	M.S., 2014
University of Colorado	Boulder, Co	Aerospace Engineering Sciences	PhD, 2019

Appointments

University of Colorado, Boulder, 2019-Present — *Teaching Assistant Professor*
IBM, Westford, Ma, 2006-2012 — *Microprocessor Design Engineer*

Products

Journal Articles

Rainville, N., Palo, S., and Larson, K. M., "Modeling GPS Signal Propagation through Volcanic Plumes. Journal of Geophysical Research: Atmospheres", 2021. https://doi.org/https://doi.org/10.1029/2020JD034526

Rainville, N., Palo,S.E., and Larson, K. M., and M. Mattia, "Design and Preliminary Testing of the Volcanic Ash Plume Receiver Network." J. Atmos. Oceanic Technol, 2019. doi:10.1175/JTECH-D-18-0177.1

PhD Thesis

Rainville, N.,"GPS Volcanic Ash Plume Detection Modeling and Instrumentation Development", University of Colorado Boulder, 2019.

Master's Thesis

Rainville, N., "Development of a Real Time Bistatic Radar Receiver using Signals of Opportunity", Purdue, 2014.

Conference Presentations

Rainville, N., Marino, J., Palo, S.E., Volz, R., Lind, F.D., "G2.3 Development of the Colorado Zephyr Meteor Radar Network", Union Radio-Scientifique Internationale, NRSM, Boulder, Co, 2022.

Rainville, N., Palo, S.E., Larson, K., "F01-AM1-2 L-band Signal Propagation through Volcanic Plumes", Union Radio-Scientifique Internationale, GASS, Rome, 2021.

Rainville, N., Palo, S.E., Larson, K., Roesler, C., Mattia, M., Pulvirenti, M., Pellegrino, D., and Rossi, M., "V11E-07: Applying the GPS Volcanic Ash Plume Detection Technique to Consumer Navigation Receivers", American Geophysical Union, Fall Meeting, New Orleans, 2017.

Conference Posters

Rainville, N., Palo, S.E., Larson, K., Roesler, C., Mattia, M., Coltelli, M., Rossi,M., and Fee, D., "Detecting Volcanic Ash Plumes with GPS Signals", American Geophysical Union, Fall Meeting, San Francisco, 2016.

Rainville, N., Palo, S.E., Larson, K., and Naik, S. " Development of a GNSS Volcano Ash Plume Detector. AGU", American Geophysical Union, Fall Meeting, San Francisco, 2015.

Palo, S.E., N. Rainville, J. Stark, A. Dahir, N. Nell, C. Rouleau, A. Antunes de Sa and J. Fukushima, "One of 50: Challenger, the University of Colorado Boulder QB50 Constellation Satellite", American Geophysical Union, Fall Meeting, San Francisco, 2015.

Rainville, N., Vaudrin, C., and Palo, S. E. "Multistatic Specular Meteor Radar". CEDAR, Summer Workshop, Seattle, 2014.

Conference Papers

Aboaf, A.P., Harrod, E.S., Zola, M., Prakash, A., Palo, S. E., Marshall, R., Pilinski, M.D., Rainville, N. Dahir, A., Nataraja, V., Schwab, B. Gardell, A., Warshaw, L., "A Methodology for Successful University Graduate CubeSat Programs", 34th Annual AIAA/USU Conference on Small Satellites , 2020.

Grants and Awards Received

CubeSat Attitude Determination & Control System for Astrophysics Applications Graduate Project, PI: Nicholas Rainville, Aerospace Corporation, 09/15/2021-06/30/2022, AWD-21-08-0179

Collaborative Research: DASI Track 1: Development of a Distributed Multiple-Input Multiple-Output (MIMO) Meteor Radar Network for Space Weather Research, PI: Scott Palo, CO-PI: Nicholas Rainville, National Science Foundation, 01/01/2020 – 12/31/2023, AWD-19-04-0087

Space Domain Awareness Orbit Research Partnership Graduate Project, PI: Nicholas Rainville, Aerospace Corporation, 09/01/2020-06/30/2021, AWD-20-08-0132

A Small Satellite Lunar Communications and Navigation System, PI: Scott Palo, CO-I: Nicholas Rainville, NASA Ames Research Center, 07/01/2020-06/30/2022, AWD-19-10-0172

2019/2020 AES Grad Project: Lunar Lander Mock-up Design Graduate Project ASEN 5018/6028, PI: Nicholas Rianville, Lockheed Martin, 07/01/2019-12/31/2020 AWD-19-06-0178