

Léa Bonnefoy

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FORMATION

CORNELL UNIVERSITY, College of Arts and Sciences, Ithaca, NY Mai 2015
Bachelor of Arts in Physics, concentration in Astronomy
Moyenne générale: 3.694

LYCÉE FRANCO-MEXICAIN, Mexico City, Mexico June 2011
Baccalauréat, mention très bien avec les félicitations du jury
Schooling carried out in several countries: Morocco, Burkina Faso, Belgium, and Mexico

WORK EXPERIENCE

PLANETARY REMOTE SENSING GROUP, Cornell University, Ithaca NY since January 2014
Research assistant, PI: A.G. Hayes

JET PROPULSION LABORATORY, Pasadena CA, USA May to August 2014
Intern, PIs : P.O. Hayne et M.J. Malaska

- Created binary masks of Titan's dunes from Cassini Synthetic Aperture RADAR (SAR) data, using an automated algorithm verified by comparison with dunes mapped by hand with ArcMap
- Combined dune masks with Cassini and spectral data over dune fields to extract new compositional constraints for Titan's dune and interdune regions.
- Pursued the project as a summer intern at the Jet Propulsion Laboratory to collaborate with P.O.Hayne and M.J.Malaska.

COMPUTER SCIENCE DEPARTMENT, Cornell University, Ithaca NY January to May 2015
Consultant for the classes CS1112 (Introduction to Matlab) and CS1132 (Transition to Matlab)

- Graded examinations and programming projects.
- Provided personalized help to students during consulting hours.

INSTITUT D'ASTROPHYSIQUE SPATIALE, Orsay, France December 2012 to January 2013
Intern, PI : N. Nesvadba

- Identified and cataloged extreme high-z galaxy clusters and gravitationally lensed galaxies unveiled by Planck.
- Assembled data from proposals, AORs, surveys and public databases in an organized wiki.

SUBMILLIMETER ASTROPHYSICS GROUP, Cornell University, Ithaca NY January 2012 to May 2013
Research assistant, PI : G. Stacey

First project January to May 2012

- Reduced and calibrated spectra from the new redshift and Early Universe Spectrometer (ZEUS-2).
- Analyzed observations before and after a change of filter to verify that it did not entail extra calibration.

Second project

June 2012 to May 2013

- Repaired and modified a motor box to control stepper motors and their limit switches, used inside the spectrometer (for the heat gauge, chopper, and grating).
- Designed a PCB with Protel and installed it in the motor box to read the limit switch outputs.
- Created a LabView program to remotely control the stepper motors and read the limit switch outputs.

SKILLS

- **Languages:** French (native language), English (fluent), Spanish (fluent), Russian (intermediate), German (beginner)
- **Programming experience:** Matlab (expert), LabView (expert), Java (advanced), Mathematica (intermediate), Python (beginner), bash shell (beginner), IDL (beginner)
- **Software:** ArcGIS (expert), Latex (expert), Microsoft Office products (expert), Altium (intermediate)

PUBLICATIONS

L.E. Bonnefoy, A.G. Hayes, P.O. Hayne, M.J. Malaska, A. Le Gall, A. Solominodou, A. Lucas. "Compositional and spatial variations in Titan dune and interdune regions from Cassini VIMS and RADAR." *Icarus* 2015 (in review)

PRESENTATIONS

L.E. Bonnefoy, A.G. Hayes, P.O. Hayne, M.J. Malaska, A. Le Gall. Cornell Planetary Lunch Seminar. *Marrying Cassini VIMS and RADAR to extract dune and interdune compositional signatures*. Oral presentation, May 2015.

L.E. Bonnefoy, A.G. Hayes, P.O. Hayne, M.J. Malaska, A. Le Gall. Titan Surface Workshop, *Titan dune composition: constraints from Cassini VIMS and RADAR*. Poster presentation, October 2014.

AWARDS

Cranson and Edna B. Shelley Undergraduate Research Award May 2015

Dean's List, Cornell University Fall 2012, Spring 2013, Fall 2013, Spring 2014, Fall 2014

LEADERSHIP EXPERIENCE

CORNELL/NASA SPACECRAFT PLANETARY IMAGING FACILITY, Ithaca NY, USA 2015

- Demonstrated and explained astronomy and planetary science concepts to elementary and middle school.
- Participated in the updating of the Sagan Planet Walk in Ithaca, an educational walkable scaled model of the solar system.

CORNELL ORIGAMI CLUB, Ithaca, NY September 2013 to May 2015
Treasurer (Sept 2013-Mai 2014), president (Sept 2014-Mai 2015)

REFERENCES

- Dr. Alexander Hayes, Cornell University
Relationship: Undergraduate advisor; professor
Email: hayes@astro.cornell.edu

- Dr. Gordon Stacey, Cornell University
Relationship: Undergraduate advisor
Email: stacey@astro.cornell.edu

- Dr. Marco Mastrogiuseppe, Cornell University
Relationship: Collaborator
Email: marco.mastrogiuseppe@uniroma1.it

- Dr. Michael Malaska, Jet Propulsion Lab, California Institute of Technology
Relationship: Collaborator
Email: Michael.J.Malaska@jpl.nasa.gov

- Dr. Paul Hayne, Jet Propulsion Lab, California Institute of Technology
Relationship: Collaborator
Email: Paul.O.Hayne@jpl.nasa.gov