

# Zigfried Hampel-Arias

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## Experience

### Lab41

*Data Scientist*

Menlo Park, CA

09/2018 - Present

- Designed statistical testing suite for identifying data generated by GAN
- Built and deployed secure machine learning API CypherCat for testing model vulnerabilities

### Insight Data Science

*Artificial Intelligence Fellow*

Palo Alto, CA

06/2018 - 08/2018

- Designed TensorFlow [layer](#) to embed image orientation invariance in deep learning models
- Improved image classification accuracy 10% on Planet Labs dataset with no impact on training time

### Université Libre de Bruxelles

*Postdoctoral Research Associate, IceCube Observatory*

Brussels, Belgium

06/2017 - 10/2018

- Wrote & co-released [PyUnfold](#) statistical deconvolution package in PyPI for use outside of particle physics, [published](#) in open-source software journal *JOSS*
- Developed GPU enhanced Markov Chain Monte Carlo statistical sampling routine
- Taught physics & statistics courses, supervised two students through analysis projects

### University of Wisconsin–Madison

*Graduate Research Assistant, HAWC Observatory*

Madison, WI

08/2010 - 04/2017

- Improved signal to noise ratio  $\times 2$  with custom image analysis routines
- Accelerated crucial simulations  $\times 90$  with GPUs & designed visualization [toolkit](#)
- Documented research projects to 100-member collaboration via custom built website
- Refactored data pipeline for computing of  $>100$  TB data set, increasing efficiency 10%
- Presented at more than a dozen international conferences & seminars, seven as invited speaker

## Skills

### Programming

Python (NumPy, SciPy, matplotlib, PyOpenCL), C/C++, Git, Subversion, distributed computing (SLURM, PBS). Familiar with Keras, TensorFlow, scikit-learn, CUDA, PyOpenGL, PHP, SQL

### General

Big Data Analysis, Deconvolution Techniques, GPU Computing, Machine Learning, Data Visualization, Science Communication (Oral, Written), Working in Large Remote Teams, Self-Guided/Independent Work Environments

### Languages

English (native), Spanish (native), French (intermediate), Greek (basic)

## Education

### PhD, University of Wisconsin–Madison

*Physics - concentration in Particle Astrophysics, NSF Fellow*

Madison, WI

08/2010 - 04/2017

### BS, Rice University

*Chemical Physics - concentration in Nuclear & Particle Physics*

Houston, TX

09/2005 - 05/2009