Federico M. **Barabas**

POSTDOCTORAL RESEARCHER

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Profile

Physicist with strong technical skills in Python programming, optics of bioimaging and statistics. Data scientist, machine learning and visualization enthusiast. I enjoy teamworking in interdisciplinary settings.

Skills

Programming	Python (Numpy, matplotlib, pandas, PyQt, device control libraries, multiprocessing), Linux, LaTeX, Git.
Optics	Microscopy system design and construction. Fluorescence bioimaging beyond the diffraction limit.
Statistics	Probability distributions, parameter estimation, experiment design and hypothesis testing.

Experience

Advanced Optical Bio-Imaging Lab, SciLifeLab   *Stockholm, Sweden*

POSTDOC RESEARCHER   *2017 - PRESENT*

- Developing new methods for pushing the resolution limits of fluorescence microscopy.

Applied NanoPhysics Group, Bionanosciences Research Center   *Buenos Aires, Argentina*

PHD CANDIDATE   *2012 - 2017*

- Designed and built a localization fluorescence microscope, capable of acquiring images of biological samples at the nanometric scale. The open-source control software description was published in doi.org/10.1063/1.4972392. Code repository: github.com/fedebarabas/tormenta.
- Developed an image analysis tool to automatically quantify a periodical structure currently under study within the community. The work was published in https://doi.org/10.1038/s41598-017-16280-x. Code repository: github.com/fedebarabas/ringfinder.

Detection Technologies and Astroparticles Institute   *Buenos Aires, Argentina*

UNDERGRADUATE STUDENT   *2011 - 2012*

- Studied the statistical counting efficiency of muon detectors for the Pierre Auger Observatory.

Education

Buenos Aires University   *Buenos Aires, Argentina*

PHD IN PHYSICAL SCIENCES   *2012 - 2017*

Buenos Aires University   *Buenos Aires, Argentina*

LICENCIATURA IN PHYSICAL SCIENCES   *2006 - 2012*

Courses

deeplearning.ai   *www.coursera.org*

DEEP LEARNING SPECIALIZATION   *Feb 2018 - PRESENT*

Stanford University

Machine Learning Course

Teaching experience

Physics Dept., Faculty of Exact and Natural Sciences, Buenos Aires University   *Buenos Aires, Argentina*

Graduated advanced laboratory teaching assistant   *2015 - 2017*

Science and Technology School, San Martín National University   *Buenos Aires, Argentina*

Graduated teaching assistant   *2012 - 2013*

Physics Dept., Faculty of Exact and Natural Sciences, Buenos Aires University   *Buenos Aires, Argentina*

Student teaching assistant   *2011 - 2012*

Management

Optical Society of America (OSA) Student Chapter   *Buenos Aires University*

President   *2015 - 2017*

- Planning and coordination of local and national professional development activities.
- Proposal and organization of a new semestral activity where young researchers gave short talks to spark local collaborations and inspire students to pursue a career in optics.
- Recruitment activities organization: during my term, the number of members doubled.
- Chapter resources administration and writing of grant applications.

Optics and Photophysics Student National Meeting   *Buenos Aires, Argentina*

Organizing committee member   *2013*

- Schedule organization.
- Book of abstracts design.
- Logistic support during the National Meeting.

Other

Languages   Spanish, English, Swedish (basic), Italian (basic).

Interests   bike touring, DIY culture, space exploration fan, guitar.