Sonia Karkar https://soniakarkar.github.io

Research Engineer, PhD.

Work experience

Years	Field	Activity	Technology
3 Paris, FR	Cosmology	Design, construction and installation of the spectral calibration system for DESI.	Spectral arc lamps, photodiodes, spectrometers, Python
7 Paris, FR Stanford	Gamma ray astronomy	From prototype to mass produced fully tested readout electronic boards for the NetcarCam camera of CTA.	Photomultipliers (PMT), Analog Ring Sampling (ARS) ASIC, FPGA, LEDs Python
4 Marseille FR	Medical imaging	POC of simultaneous PET- CT with ImXgam. Upgrade of the PET system and integration of the CT system.	Multi anode PMTs, scintillators, gamma ray, Xray, Silicon detector, Labview
2 Annecy FR	Gravitational wave astronomy	Set-up of a second, independent calibration system for VIRGO using radiation pressure.	Laser, photodiodes, ROOT, C++
3 Marseille FR	Neutrino astronomy	Design and set-up of the nanosecond time calibration of optical modules at the integration site of ANTARES.	PMTs, ARS ASIC, Optical fiber, Laser, LEDs, ROOT, C++

Skills

Development, integration, test, validation and calibration of complex scientific instruments.

- System perspective: involved from the hardware specification to the final, ready to use data.
- Interactions with scientists, engineers and technicians of all specialties : physicists, astrophysicists, biologists, computing, electronics, mechanics.
- International collaborations : adapt to different cultures and mindsets. Native French speaking, fluent in English (one year in Stanford, CA).
- Big projects: be agile in a structure that isn't necessarily so.
- Computing:

Tools (Python):	Environment:
Test bench instruments control : eth sockets, SCPI	Linux : Scientific Linux, Ubuntu
Data analysis and reporting : Numpy, Pandas, Matplotlib, MySQL (Alchemy), ELK stack	Version control : SVN, Git
User interface : PyQt, Kivy	Documentation : Sphinx

- Self-learning (Linux, Python, Machine Learning: finished Andrew Ng's Coursera class with grade 96.1%), Problem solving, Solution oriented, Structured and Organized, Team player/leader