ALEXANDROS TAVERNARAKIS, PHD

Physicist and researcher trained in experimental quantum mechanics.
Transitioned to industry and responsible for a few R&D projects.
Experienced in data analysis and treatment.
Looking for an extensive expertise in data science.

CONTACT

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homepage
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SKILLS

Science
Physics
Quantum optics
Scientific writing
Research & Development
Data analysis
Data science

Programming
Python
Matlab/Mathematica
C/Fotran
Labview
LaTeX

Software & Tools
Visualisation
(e.g. matplotlib, gnuplot, ...)
Data handling/analysis
(e.g. numpy, scipy, pandas, ...)
Graphic tools
(e.g. Inkscape, Blender, ...)
Office
(e.g. MS office, Libre office)

Operating Systems
Linux
Mac OS
Windows

Languages
Greek
English
French
Spanish

INTERESTS

Books (e.g. literature, psychology, ...)
Cinephilia
Rock Climbing
Electric guitar
Tennis

KEY WORDS

Physics | R&D | Data analysis | Laser | Quantum optics | Optomechanics | Metrology

WORK EXPERIENCE

04/2018 - present
Raymetrics SA
Athens, Greece
Research & Development
New product development - Data treatment and analysis - Project management

04/2018 - 12/2020
National Obserbatory of Athens
Raymetrics SA
Athens, Greece
Research & Development
New product development - Data treatment and analysis

01/2018 - 3/2018
Fasmatech
Athens, Greece
Research engineer
Development of a fluorescent microscope for mass spectroscopy applications

01/2013 - 12/2016
Institut of Photonic Sciences (ICFO)
Barcelona, Spain
Research fellow
Quantum nano-electro-optomechanics

10/2011 - 12/2012
École Normale Supérieure de Paris
Paris, France
Research and teaching assistant
Teaching 3rd-year students - Quantum optics

EDUCATION

10/2008 - 12/2012
Université Pierre et Marie Curie,
Paris, France
PhD degree
Experimental quantum optomechanics

10/2006 - 12/2008
Université Pierre et Marie Curie
Paris, France
Master's degree
Sciences de la matière / Physique et applications

10/2000 - 12/2005
University of Crete
Heraklion, Greece
Bachelor's degree

PUBLICATIONS/CONFERENCES

- 9 peer-reviewed publications including:
  1 in Nature Communications
  2 in NanoLetters
  3 in Physical Review Letters
- participation as a lecturer in 13 international conferences

COVER LETTER

With this letter I express my interest to apply for a position in the ”Data science and machine learning” master program provided by the National Technical University of Athens.

I hold a PhD in experimental quantum optics (Laboratoire Kastler Brossel - Paris) and I possess a 6-year experience in both fundamental research (ICFO - Barcelona) as a post-doctoral researcher and in Research and Development in high-technology companies (Fasmatech - Athens, Raymetrics - Athens) as a R&D engineer.

PhD and research

Since my first career steps I have been involved in developing applications ranging from small optical measurement apparatus to complex table-top experiments in the fields of quantum optics and solid-state physics. I therefore possess a very strong and all-around profile which entails experimental expertise, computer programming and scientific communication. I received my training from internationally known research institutes (Laboratoire Kastler Brossel - Paris and Institut for Photonics Sciences - Barcelona) which includes the use of interferometric and telemetric measurements, vacuum and nanofabrication techniques, analogue and digital electronics, computer programming, data processing and scientific writing.

Research and Development in industry

After a quite fulfilling journey through academic institutions I chose to use my knowledge and skills on applied technological fields. I was led to work with a couple of Athens-based dynamic R&D teams where I have worked in product development and data analysis. Currently, I work on behalf of Raymetrics S.A. which develops and manufactures lidar systems for meteorological purposes. One of my main tasks was to develop a python-based package in order to analyze, quickly and efficiently, telemetry data from lidar stations installed across the globe. I have therefore acquired an important expertise in data analysis while the desire to go further in depth towards data science has been fostered by novel data management challenges. .

Studies in perspective: data science

In terms of professional evolution, a career in data science rises as a natural next step that I am determined to pursue with vigor. Within the specific master’s program, I will have the opportunity to combine my computer programming skills with my solid analytical and mathematical base I have acquired through my research experience, two assets that are difficult to find in the market. A master program in data science and machine learning will provide me with a profound understanding of the algorithms and the methods in use, while satisfying my scientific curiosity. My drive and motivation being so high, I have no doubt that I will excel in this data science and machine learning program, and that it will greatly promote my professional ambitions in the related fast-emerging domain.

I appreciate your time to examine my application and I remain on your disposal for an eventual interview.

Alexandros Tavernarakis

PUBLICATIONS

Unveiling the fundamental limits of nonlinear mechanical sensors

A. Tavernarakis, A. Stavrinadis, A. Bachtold and P. Verlot

2020 submitted in Nature Nanotechnolgoy

Mass sensing for the advanced fabrication of nanomechanical resonators

G. Gruber, C. Urgell, **A. Tavernarakis**, A. Stavrinadis, S. Tepsic, C. Magen, S. San- giao, J. M. De Teresa, P. Verlot, and A. Bachtold

2019 Nano letters, vol. 19, no. 10, pp. 6987– 6992 NanoLett

Improving the read-out of the resonance frequency of nanotube mechanical resonators

J. Schwender, I. Tsioutsios, **A. Tavernarakis**, Q. Dong, Y. Jin, U. Staufer, and A. Bachtold

2018 Applied Physics Letters, vol. 113, no. 6, p. 063104 arXiv

Optomechanics with a hybrid carbon nanotube resonator

A. Tavernarakis, A. Stavrinadis, A. Nowak, I. Tsioutsios, A. Bachtold, and P. Verlot

2018 Nature communications, vol. 9, no. 1, p. 662 NatComm

Real-time measurement of nanotube resonator fluctuations in an electron microscope,

I. Tsioutsios, **A. Tavernarakis**, J. Osmond, P. Verlot, and A. Bachtold

2017 Nano Letters, vol. 17, no. 3 arXiv

Atomic monolayer deposition on the surface of nanotube mechanical resonators

A. Tavernarakis, J. Chaste, A. Eichler, G. Ceballos, M. C. Gordillo, J. Boronat, and A. Bachtold

2014 Physical review letters, vol. 112, no. 19, p. 196103 arXiv

Backaction Amplification and Quantum Limits in Optomechanical Measurements

P. Verlot, **A. Tavernarakis**, T. Briant, P. F. Cohadon, and A. Heidmann

2010 Physical Review Letters, vol. 102, p. 103601, arXiv

Scheme to Probe Optomechanical Correlations between Two Optical Beams Down to the Quantum Level

P. Verlot, **A. Tavernarakis**, T. Briant, P. F. Cohadon, and A. Heidmann

2009 Physical Review Letters, vol. 102, p. 103601, arXiv

Quantum random number generator based on spin noise

G. Katsoprinakis, M. Polis, **A. Tavernarakis**, A. Dellis, and I. K. Kominis

2008 Physical Review A, vol. 77, p. 054101