Ilya Manyakin, PhD

+ General information

Date of birth	16.03.1993	Email	ilya0manyakin@gmail.com

+ Skills

Physics : Optics, experimental instrumentation design, Time Correlated Single Photon Counting

Mathematics : Inverse problems, bayesian networks, Monte-Carlo methods, Optimization

Nanotechnology : Focused Ion beam, Microfluidics

Programming : python, bash, Cloud (Amazon Web Services), FPGA (Xilinx Zynq, Verilog), git

+ Work experience

Senior Data Scientist/Quant
08.2019 - current (3 years)
Tenokonda Ltd, UK

- Development of algorithms for the TKRISK platform based on bayesian networks, including both approximate and exact inference techniques.

Skills: bayesian networks, statistics, graph theory, python

DevOps engineer, 10.2016 – 08.2017
Intern, 02.2016– 04.2016
Oxford Nanopore Technologies, UK

- Developed tools for automated type-safe synthesis of AWS Cloudformation cloud infrastructure.
- Development of a PID controlled for autoscaling and balancing cloud workloads generated by Next Generator Sequencing (NGS) experiments.

Skills: python, bash, linux(ubuntu), scala, Amazon Web Services

+ Education

PhD
10.2017 – 12.2021 (4 years)
Nanophotonics group,
Cavendish Laboratory
University of Cambridge

- *Development of Monte-Carlo (MCMC) methods for uncertainty quantified (UQ) solutions of nonlinear inverse problems and their application to photon correlation spectroscopy data analysis.*
- *Development of a multi-channel sub-nanosecond time correlation single photon counting system (TCSPC) based on time-to-digital converters implemented on a Xilinx Zynq SoC. The developed system exhibited a time resolution of 20ps and enabled streaming readout in excess of 3 million photons/second.*
- *Designa, construction and automation of applied optics instrumentation for nanoparticle characterization (Dynamic Ligth Scattering, Optical microscopies).*

Skills: Optics, Inverse problems, Instrumentation, FPGA , TCSPC, nanofabrication, microfluidics

Masters Degree (MSc)
09.2015 – 06.2016 (1 year)
Intelligent Systems
King's College London

- Grade: First (1st)
- *Thesis: Robust synchronization of chaotic Chua circuits*
- *Skills: Convex optimization, Control, MATLAB*

Bachelors degree (BSc, MA)

Experimental and Theoretical Physics
10.2011 – 06.2015 (4 years)

University of Cambridge

- Grade: Upper second (2.1)

+ Teaching

- Experimental interferometry (laboratory) for 3rd year students
- Numerical methods in physics (laboratory) for 3rd year students
- Experimental optics (laboratory) for 2nd year students

+ Prizes

- *Best overall perfomance on the Intelligent Systems MSc, Kings College London*
- *Research scholarship, York Centre of Complex Systems Analysis, University of York*

+ Dissertations

- PhD thesis:
  - https://aspace.repository.cam.ac.uk/handle/1810/338084
- *MSc thesis:*
  - *https://raw.githubusercontent.com/imanyakin/msc_thesis/main/thesis.pdf*

+ Publications

- Jakob, Lukas A., William M. Deacon, Oliver Hicks, **Ilya Manyakin**, Oluwafemi S. Ojambati, Michael Traxler, and Jeremy J. Baumberg. "Single photon multiclock lock-in detection by picosecond timestamping." *Optica* 8, no. 12 (2021): 1646-1653.

- Miele, Ermanno, Wesley M. Dose, **Ilya Manyakin**, Michael H. Frosz, Zachary Ruff, Michael FL De Volder, Clare P. Grey, Jeremy J. Baumberg, and Tijmen G. Euser. "Hollow-core optical fibre sensors for operando Raman spectroscopy investigation of Li-ion battery liquid electrolytes." *Nature communications* 13, no. 1 (2022): 1-10.

- *Khatib, Tasneem Z., Andrew Osborne, Sujeong Yang, Zara Ali, Wanyi Jia, **Ilya Manyakin**, Katie Hall, Robert Watt, Peter S. Widdowson, and Keith R. Martin. "Receptor-ligand supplementation via a self-cleaving 2A peptide–based gene therapy promotes CNS axonal transport with functional recovery." Science Advances 7, no. 14 (2021): eabd2590.*

- *Khatib, Tasneem Z., Paul AR Meyer, Jed Lusthaus, **Ilya Manyakin**, Yusuf Mushtaq, and Keith R. Martin. "Hemoglobin video imaging provides novel in vivo high-resolution imaging and quantification of human aqueous outflow in patients with glaucoma." Ophthalmology Glaucoma 2, no. 5 (2019): 327-335.*

- **Google scholar:** https://scholar.google.com/citations?user=kHxq_v0AAAAJ&hl=en