GLEB LUKICOV

✉ g.lukicov@ucl.ac.uk
http://www.hep.ucl.ac.uk/~lukicov
http://www.linkedin.com/in/glukicov
http://www.github.com/glukicov/EDMTracking

PERSONAL PROFILE

- Numerate and dynamic postgraduate researcher looking to move into Data Science.
- Practical experience with processing and analysing big-data, proficient in `Python`, `C++`, `SQL`.
- Proven ability in applying advanced statistical methods to large datasets.
- Applied expertise with distributed computing systems: servers, grid, and data acquisition.

WORK EXPERIENCE

Visiting Research Scholar. $g-2$ experiment, Fermilab, USA **Mar 2017 - Nov 2019**

- Developed a software infrastructure (`Python/C++/Fortran`) for detector calibration.
- Increased the yield of data by 6% and derived calibration constants into the production database.
- Deployed the calibration model into production and designed tools for data quality monitoring.
- Analysed (`Python`) complex datasets using regression and Fourier transform methods.
- Supported the data acquisition system as an on-call (24/7) computing expert.
- Liaised with engineers and safety officers to ensure a smooth operation of the experiment.

Trainee. MuSun experiment, Paul Scherrer Institute, Switzerland **Jun 2015 - Sep 2015**

- Used DRS4 development electronics board to test and calibrate neutron detectors.
- Prepared 24 HDD for storage of data and helped to set-up a computing analysis cluster.

EDUCATION

***PhD* in Experimental Particle Physics**. University College London, UK **Sep 2016 - Present**
Thesis submitted for the examination, expected completion date: August 2020
Thesis: *Alignment of the straw tracking detectors for the Fermilab Muon $g-2$ experiment and systematic studies for a muon electric dipole moment measurement.* Supervisor: Prof. Mark Lancaster

Relevant courses: Statistical Data Analysis, Entrepreneurial Skills Bootcamp,
Machine Learning (ML):

- ML theory and techniques for big-data analysis, cloud computing
- Logistic regression, SVMs, random forests, RNNs, unsupervised learning

***MSci Physics* with First Class Honours**. University College London, UK **Sep 2012 - Jul 2016**
Relevant courses: Scientific OOP (`Java`), Mathematical Methods, Experimental Physics (electronics)

A-levels, Woodhouse Sixth Form College, London, UK **Sep 2010 - Jul 2012**

Santa Rosa Christian School (student exchange programme), California, USA **Sep 2009 - Jun 2010**

Secondary School No. 9, Daugavpils, Latvia **Sep 2000 - Jun 2009**

QUALIFICATIONS

Certificate in Advanced Machine Learning **Sep 2019 - Present**
National Research University Higher School of Economics (online course)

- Deep learning with `TensorFlow` and `Keras` on Google Colab using TPU/GPU
- Bayesian methods for ML, CNNs, GANs, reinforcement learning, computer vision, NLP

SKILLS

Programming Languages: `Python`, `C++`, `C`, `PSQL`, `Bash`, `Java`, `FORTRAN`, `PHP`, `HTML`, LaTeX
C-Based Data Analysis and Simulation: `ROOT`, `GEANT4`, `art`, `Millipede-II`
Python-Based Data Analysis: `NumPy`, `pandas`, `SciPy`, `Matplotlib`, `seaborn`
Machine Learning: `Scikit`, `TensorFlow`, `Keras`
Software: Git/SVN, Databases, Docker/Singularity, JupyterLab, MATLAB, Mathematica
OS Proficiency: Linux, macOS, Windows.
Hardware Skills: circuit layout, laser cutter, Arduino, Raspberry Pi, FPGAs, oscilloscope
Languages: English (native), Russian (native), Latvian (intermediate)

GLEB LUKICOV

RESEARCH EXPERIENCE

Research Project. $g-2$ experiment, University College London, UK **Sep 2015 - Jul 2016**
- Developed a hardware solution using an Arduino-controlled (`C`) servomotor, SiPM and Sr-90 source to test (`Python`) the efficiency of the tracking detector.
- Produced a simulation model of the developed setup in `GEANT4` (`C++`).
- Analysed test-beam data using `art` and `ROOT` frameworks (`C++`).

Group Project. University College London, UK **Jan 2015 - Mar 2015**
- Led a group of nine students to successfully build an electrostatic radon detector using a PIN diode.
- Chaired monthly meetings and managed the group's budget.

Summer Research Intern. University College London, UK **Jun 2014 - Sep 2014**
- Programmed in `Python` and `C++` to produce a software trigger solution for beam testing.
- Used KiCad software to design a circuit board solution (FMC) to connect FPGA boards.
- Performed soldering of microelectronic components.
- Coded in `PHP` and `SQL` to develop an equipment database for research laboratories.

SELECTED PUBLICATIONS

1. G. Lukicov, *Set-up of a personal GPU server for Machine Learning with Ubuntu 20.04*, https://towardsdatascience.com/20-04-100e787105ad (2020).
2. G. Lukicov, *The Fermilab Muon $g-2$ straw tracking detectors, internal tracker alignment, and the muon EDM measurement*, arXiv:1909.12900 (2019).

AWARDS

- Visiting Research Scholar Award of the Universities Research Association ($15,000), USA 2018
- Best Poster Prize, High energy physics summer school, UK 2017
- Jack Petchey Foundation Academic Achievement Award (£600), UK 2012

TEACHING EXPERIENCE

Lead Demonstrator. Physics Department, University College London, UK **Sep 2016 - Mar 2017**
- Supervised six students to ensure a smooth learning experience.
- Marked literature reviews and laboratory reports.
- Conducted oral viva examinations.

Academic Tutor. Physics Department, University College London, UK **Sep 2016 - Mar 2017**
- Supervised problem-solving tutorials on mathematical methods for a group of 15 students.
- Marked coursework on electromagnetism.

PUBLIC ENGAGEMENT

Practical Demonstrator. Your Universe Festival of Astronomy **Oct 2010 - Mar 2015**
- Delivered educational activities to 300 school students, as well as the general public.
- Assisted in event organising, logistics and setting-up of equipment.
- Formed confidence in communicating scientific ideas to a broad audience.

Founder and Organiser. Woodhouse College Astronomical Society **Jan 2011 - Jul 2012**
- Developed practical communication skills by organising lectures and trips for a group of 24 students.
- Secured a total funding of £600 to purchase a telescope and binoculars for the society.
- Obtained one hour of observational time on the Faulkes Telescope in Hawaii.

WORKSHOPS

- Virtual CogX 2020, London 2020
- Data science for science workshop, The Alan Turing Institute, London 2019
- Fast (FPGA-based) machine learning workshop, Chicago 2019
- Batavia data science and AI bootcamp, Chicago 2019
- `C++` bootcamp, Chicago 2019
- International school of data acquisition systems, Amsterdam 2017

INTERESTS

Muay Thai (Thai kickboxing), running, travelling