

# Viktor D. Khristenko

- *Address* 510/1-004 CERN, CH-1211, Geneva 23, Switzerland
- *Phones* +41 (0)76 617 67 50 • +41 (0)75 411 28 74 • +7 (8)910 748 15 14
- *Email* vdkhristenko1991@gmail.com
- *Linkedin* <https://www.linkedin.com/in/viktor-khristenko>
- *Languages* Russian(native) • English(native fluency) • French(B1-B2)

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## Professional Activities

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- Group Lead - CMS Hadron Calorimeter Data Quality Monitoring Group** 2014-Current  
*CERN - European Organization for Nuclear Research, Geneva, Switzerland*
- Responsible for Data Certification Process - Validating the Usability of Collected Data by Physics Analyses
  - Designed and Implemented Criteria & Instructions targeting Calorimeter Performance Evaluation
  - Critical *Data-driven Quality Control Applications*
- Deputy Coordinator - CMS Hadron Calorimeter Operations Group** 2015-2016  
*CMS - Compact Muon Solenoid Experiment @CERN, Geneva, Switzerland*
- “CMS 2015 Achievement Award”
  - Responsible for Operational Aspects of all the Components of the *Calorimeter* System
  - Coordination  $\Rightarrow$  Installation  $\Rightarrow$  Debugging  $\Rightarrow$  DataTaking  $\Rightarrow$  Status Report  $\Rightarrow$  Collaboration  $\Rightarrow$  Training Newcomers
- Graduate Research Assistant** 2014-Current  
*CMS Experiment @CERN, Geneva, Switzerland • The University of Iowa, Iowa City, IA, USA*
- *Big Data* Analyses, e.g. *Higgs Boson* Searches
  - Design, construction and analysis of *Monte Carlo* Simulations of Particle Detectors using *Geant4*
  - Data Analysis and Operations Support for *Fermilab* T-1041 “CMS Forward Calorimetry R&D” Experiment
- Graduate Teaching Assistant** 2012-Current  
*The University of Iowa, Iowa City, IA, USA*
- Teaching Laboratory and Discussion Sections for General Physics Courses.
- Research Assistant** 2009-2012  
*Coe College, Cedar Rapids, IA, USA*
- *Raman Spectroscopy* Measurements of Titanium Oxide-based glasses
  - *Scientific Application Development* for *Nuclear Magnetic Resonance Spectroscopy*

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## Software Projects

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- ROOT4J**  
<https://github.com/diana-hep/root4j>
- ROOT I/O for JVM
- Spark-Root**  
<https://github.com/diana-hep/spark-root>
- Extension of ROOT4J for use with Apache Spark

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## Programming Skills

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- Experienced**  
*C/C++/STL/Boost • python • Scala • Apache Spark/MapReduce • SQL • Graphlab • ROOT • git • • LaTeX • scikit-learn*
- Familiar**  
*Java • JScript • php • Elixir/Erlang • Pascal • Go*

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# Education

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<b>PhD in Physics</b> <i>The University of Iowa, Iowa City, IA, USA</i> <ul style="list-style-type: none"><li>Thesis Title, “Search for the Standard Model Higgs Boson in the <math>\mu^+\mu^-</math> decay channel in pp collisions at <math>\sqrt{s} = 13</math> TeV in CMS, Calibration of CMS Hadron Forward Calorimeter and Simulations of Modern Calorimeter Systems”</li></ul>	2012-2017(Expected)
<b>BA Physics and Mathematics; Cum Laude</b> <i>Coe College, Cedar Rapids, IA, USA</i> <ul style="list-style-type: none"><li><b>Minor in Computer Science</b></li><li>Dean’s List Spring 2010 &amp; Fall 2010</li></ul>	2009-2012
<b>Department of Cybernetics</b> <i>Moscow Engineering Physics Institute, Moscow, Russia</i>	2008-2009
<b>Online Education Certificates</b> <i>Coursera</i> <ul style="list-style-type: none"><li><b>Functional Programming</b> Principles in <i>Scala</i> (EPFL).</li><li><b>Functional Program</b> Design in <i>Scala</i> (EPFL).</li><li><b>Machine Learning</b> Foundations: A Case Study Approach (University of Washington)</li><li><b>Machine Learning</b>: Regression (University of Washington)</li><li><b>Machine Learning</b>: Classification (University of Washington)</li></ul>	Certificate Certificate Certificate Certificate Certificate

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# Athletic Activities

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<b>Volunteer Assistant Tennis Coach</b> <i>The University of Iowa Hawkeyes Men’s Tennis Team, NCAA Division 1</i>	2013-2014
<b>Student Athlete</b> <i>Coe College, Varsity Men’s Tennis Team, NCAA Division 3</i> <ul style="list-style-type: none"><li>IIAC Team Champion (2012)</li><li>NCAA Regionally Ranked in Singles (2011, 2012)</li><li>IIAC All-Conference (2009, 2011, 2012)</li><li>IIAC Conference Champion (2009, 2010, 2011, 2012)</li><li>Team Captain (2011, 2012)</li></ul>	2009-2012

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# Publications & Presentations

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- “SPARK-ROOT: ROOT I/O for JVM and Applications for Apache Spark”  
“ROOT I/O Workshop”, CERN, Feb 2017
- “10B NMR Powder Pattern Optimized for Distribution of the Quadrupole Parameters”  
“Borate 2011: 7th International Conference on Borate Glasses, Crystals and Melts” Halifax, NS Canada
- V. Khristenko et al., “SpectraFit: A New Program to Simulate and Fit Distributed 10B Powder Patterns: Application to Symmetric Trigonal Borons.”, Phys. Chem. Glasses: Eur. J. Glass Sci Technol. B, June 2012, 53 (3), 121-127.
- U. Akgun, ..., V. Khristenko et al., “Characterization of 1800 Hamamatsu R7600-M4PMTs for CMS HF Calorimeter upgrade”, Journal of Instrumentation, 2014 JINST 9 T06005
- M. Dettmann, ..., V. Khristenko et al., accepted for publication, “Radiation Hard Plastic Scintillators for a New Generation of Particle Detectors”, JINST\_023P\_0716
- U. Akgun, ..., V. Khristenko et al., “Quartz Plate Calorimeter Prototype with Wavelength Shifting Fibers”, Journal of Instrumentation, JINST 002P 0412, 2012
- A. Albayrak-Yetkin, ..., V. Khristenko “Secondary Emission Calorimetry: Fast and Radiation-Hard”, Snowmass White Paper, arXiv: 1307.8051.