Dmitri B. Ivanov, Ph.D.

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Summary

Years of postdoctoral academic research in a large collaborative physics experiment have taught me how to parse, clean, and validate real-world data and how to frame difficult problems into solvable data science questions that can be answered by exploratory data analysis, modeling, and simulation. Through perseverance and hard work, I was able to tackle very challenging problems that nobody in our field considered solvable, and I have learned the following skills:

- Statistical analysis
- Computer programming
- Problem solving
- Numerical simulations

- Machine learning
- Mentoring
- Public presentation
- International collaboration

Skills

Computer Languages: Python, C, C++, Bash, JavaScript, ROOT, R, FORTRAN, LaTeX, Assembly
Machine Learning: Python, Pandas, SQL, Excel, Tableau, D3.js, R, ROOT, Anaconda, CUDA
Distributed Systems and Virtualization: VirtualBox, VMware, Docker, MapReduce, Apache Beam, Slurm, PBS, Condor
Environments and Operating Systems: Anaconda, RedHat/Debian Linux, MS Windows, macOS
Editors, IDEs, Version Control Tools: Jupyter, Atom, Eclipse, Git, Subversion, Vim, Emacs, MS Office, Google Docs
Natural Languages: English *(fluent)*, Russian *(native)*, German, Latvian, Belarusian *(working knowledge)*

Experience

University of Utah
Postdoctoral Research Associate

Salt Lake City, Utah
June 2012 – Current

Research scientist at the University of Utah cosmic ray group and a member of the Telescope Array international collaboration, which consists of 147 members over 36 institutions from US, Japan, Belgium, Korea, Russia, and Czech Republic. Main contributions are:

- Solved challenging problems, scraped data, built histograms, scatter plots, heat maps, graphs, and interpreted trends in the data. Performed regression analyses, determined model accuracy and confidence intervals, evaluated statistical significance of the results, and studied correlations among variables. A sample of how my skills are applied to a typical business problem can be found at https://dmiivanov.com/analytics-project. Personally authored and was a contributing co-author of at least 40 important scientific publications.
- Wrote over 100,000 lines of production code in C++, Python, Bash, and FORTRAN. Publicly available source code samples can be found at https://github.com/ivanovdmitri.
- Developed, maintained, and executed regression analysis, reconstruction, and Monte Carlo simulation codes on computing clusters in ways functionally similar to running jobs using Kubernetes.
- Mentored students. Traveled and delivered 15 oral presentations at international conferences. Assisted students and colleagues with statistics and programming questions.
- Managed two local 50 Tb data servers for the University of Utah group. Administered and used Web, Git, Subversion, and SQL services. Used SQL to match and compare the analysis results across the collaboration and report the results to the collaborations' executive committee.

Education

Rutgers University - New Brunswick, New Jersey
Doctor of Philosophy in Physics

June 2006 – October 2012

- Above 3.5 GPA.
- Promoted to a Graduate Research Assistant for strong performance in graduate research.
- Awarded GAANN Fellowship in Physics for having a strong academic record.

Rutgers University - New Brunswick, New Jersey
Bachelor of Science in Physics (Hon.), minor in Math

September 2002 – May 2006

- Received Summer Research Internship Award in Experimental High Energy Physics for academic excellence.
- Awarded the Herman Y. Carr Scholarship for academic excellence.