Boris Boutkov

Personal Data

email: boris.boutkov@gmail.com LinkedIn: https://www.linkedin.com/in/boris-boutkov
website: bboutkov.github.io GitHub: https://github.com/bboutkov

Objective

Obtain a full time computational engineering position in an innovative, scientifically driven organization.

Work Experience

Nov 2019 - Present | **Senior → Lead, Genomic Data Engineer at Regeneron**

Producing high quality quantitative solutions and enterprise data pipelines for genetic data at scale. Enabling statistical analysis, developing bioinformatics tools & algorithms, and optimizing production workflows for next generation analytics tools in the cloud. Led a vpc->public cloud data migration, helped design: etls, erds, browser backend architectures, data governance models, dashboards, and cicd infrastructure across various business units.

Sep 2012 - May 2019 | **Graduate Researcher and Teaching Assistant at U. Buffalo**

Researcher: Developed parameter agnostic PDE solver for composable multi-physics simulations in libMesh - a distributed, open source, C++ library

Teaching: Calculus 1,2,3, Linear Algebra, Differential Equations, High Performance Computing

Dec 2010 - Jun 2012 | **Developer/Analyst at AmkaiSolutions in Armonk, New York**

Helped design and develop a large health software project involving Java, SQL, and XML integration. Experience with project management, database analysis, and algorithm optimization.

Jan 2009 - May 2010 | **Mathematical Researcher at R.P.I.**

Quantified disease propagation via stochastic epidemiology studies over various social network topologies. Studied disease and impact minimization strategies via parameter sensitivity analysis.

Education

Sep 2014 - May 2019 | **Ph.D. in Computational and Data Enabled Sciences**

University at Buffalo, Buffalo, NY

Thesis | Geometric Multigrid for Unstructured Finite Elements: Implementation and Applications

Sep 2012 - May 2014 | **Masters in Mathematics**

University at Buffalo, Buffalo, NY

Sep 2006 - May 2010 | **B.S. Dual Degree in Applied Mathematics and Physics**

Rensselaer Polytechnic Institute, Troy, NY

Thesis : Risk Perception in Epidemic Modeling with Heterogeneous Connection Strengths

Minors : Philosophy, Psychology | Deans list : Fall 2006 - Spring 2009

Select Presentations, Publications, and Awards

May 2021 | Nature Genetics: Computationally efficient whole-genome regression for quantitative and binary traits

May 2019 | Ph.D. Dissertation: Geometric Multigrid for Unstructured Finite Elements: Implementation and Applications

April 2019 | UB CDSE Best Research Poster Award

March 2017 | SIAM Conference on Computational Science and Engineering, Boston, MA

Presented: (Towards a) Variational Immersed Boundary Implementation through grins and libMesh

Dec 2014,2015 | U. Buffalo Computational Data Science Fellowship

June 2014 | Mathematical Problems in Industry, New Jersey Institute of Technology

Investigated various problems posed by industrial representatives while peer reviewing partner groups in week long exploratory project sprints. Presented: A smooth ride on a bumpy road, modeling and numerical investigation of vehicles driving on bumpy roads.

Languages and Computer Skills

Proficient | Russian, Python, C++/C, Scala, (Py)Spark, SQL, AWS(S3/EC2/Athena/RDS/CodeCommit), Databricks, git, (Arch)Linux, HPC systems, Slurm, REST APIs, JIRA, LaTeX

Working Knowledge | Spanish, MPI, Matlab/Octave, Maple, Mathematica, Java, HTML, CSS