ROBIN NEWHOUSE

Physics PhD, Software Engineer, Data Scientist

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236-513-0304 · Vancouver, BC
Eligible to work in USA & Canada

Profile

PhD in particle physics with CERN's Large Hadron Collider. Currently a Software Engineer at AWS in RDS MySQL, driving open source collaboration. Extensive experience in software engineering, data science, and machine learning. Over 8 years of experience extracting insights from large datasets and implementing robust software solutions. Seeking to leverage my skills to tackle complex challenges in technology and business.

Technical Skills

Languages

Python, SQL, Java, Linux (bash), C++, MATLAB, JavaScript, Perl

Software Development

Cloud computing (AWS)
Version control (git)
Agile development
CI/CD (GitLab, Jenkins)
Containerization (Docker)

Data Science

AWS SageMaker
TensorFlow, Keras
Scikit-learn
Pandas

Experience

Software Engineer — Oct 2022 – Present

Amazon Web Services, RDS MySQL and MariaDB Engine Team

Maintained AWS's Relational Database Service, enhancing stability, open-source collaboration, and operational efficiency

- Led AWS's upstream contributions, positioning the team as the largest external contributor to MariaDB
- Reduced spurious internal system test failures by 80% through automation, debugging, and process optimization
- Spearheaded operational improvements including documentation, tooling, training, and sensitive data protection
- Implemented testing pipelines using GitLab CI for rapid identification and resolution of regressions
- Designed and proposed database integrations with AWS machine learning infrastructure

Experimental Physics PhD — Sep 2016 – Aug 2022

The University of British Columbia & The ATLAS Experiment at CERN's Large Hadron Collider

Contributed to pioneering high-energy physics research and widely-cited publications, focusing on data analysis and machine learning

- Developed particle reconstruction and analysis software in C++, Python, and ROOT, searching for sterile neutrinos
- Modernized analysis framework with advanced data science and processed petabytes of collision data on the LHC computing grid
- Extended charged-particle tracking for long-lived particle searches and developed DNN-based discriminants, reducing mislabeled tracks by 95%
- Liaised with the ATLAS Machine Learning Working Group on algorithm development
- Presented research at international conferences and plenary meetings
- Led the ATLAS Analysis Software Tutorial, training over 300 new PhD students

Accelerator applications developer — May 2014 – Dec 2014

TRIUMF, Canada's particle accelerator centre

Developed high-level applications for commissioning & operating the Advanced Rare Isotope Laboratory (ARIEL)

- Substantially contributed to open-source Java software project
- Wrote an academic analysis of software engineering techniques used in the project

Education

PhD — Experimental Particle Physics — Sep 2016 – Aug 2022

University of British Columbia, Vancouver, Canada – CERN, Geneva, Switzerland
ATLAS Outstanding Achievement Award – International Doctoral Fellowship (awarded four-year full scholarship)

BSc — Maj. Astronomy, Min. Computer Science, Sci. Co-op — Sep 2009 – May 2015

University of British Columbia, Vancouver, Canada
Graduating Class Speaker – Faculty of Science International Student Scholarship – International Community Achievement Award

Interests

Black Rock Observatory educational non-profit — Board member: 2019 – Present
UBC Physics Graduate Student Association — President: 2017 – 2018
UBC Astronomy Club — President: 2012 – 2014, Lecturer: 2011 – 2015

Sailing, long-distance running, public art, renewable energy, science outreach & education initiatives, German language