Jackson Burzynski

jackson.carl.burzynski@cern.ch | 1-203-586-8206| linkedIn/jackson-burzynski-4220ab108 | github/jburzy01

EDUCATION

University of Massachusetts Amherst, MA | June 2021
PhD. Physics
GPA: 3.88/4.0
Dissertation: A Search for Exotic Higgs Decays or: How I Learned to Stop Worrying and Love Long-lived Particles

- ATLAS Thesis Award and Springer Thesis Prize

Tufts University Medford, MA | May 2016
BSc. Physics, Mathematics
GPA: 3.85/4.0 (*summa cum laude*)

WORK EXPERIENCE

SIMON FRASER UNIVERSITY | Postdoctoral Research Fellow Burnaby, BC | July 2021 – Present

- Led a team of 18 researchers across 7 institutes in a search for new long-lived particles at the ATLAS Experiment
- Oversaw and advised the performance of ATLAS reconstruction as Convener of the Tracking and Vertexing group
- Direct supervisor of graduate students

UNIVERSITY OF MASSACHUSETTS | Research Assistant Amherst, MA | June 2016 - June 2021

- Led a team of 11 researchers across 4 institutes in a search for new long-lived particles at the ATLAS Experiment
- Software development for a high-precision robotic system used for detector element QA/QC

TUFTS UNIVERSITY DEPT. OF CS | Teaching Assistant Medford, MA | Sept 2014 – May 2016

- Led lab sections, held office hours, and graded assignments for the Data Structure and Algorithms course (C++)

RESEARCH PROJECTS

SEARCHES FOR LONG-LIVED PARTICLES

Leading ATLAS researcher in the field of long-lived particle searches. Full analysis chain development and optimization. Building deep graph models for classification of exotic processes.

Selected talks:

- *Searches for BSM physics using challenging and long-lived signatures with the ATLAS detector*: The XXIX International Conference on Supersymmetry and Unification of Fundamental Interactions Ioannina, GR

Selected Publications:

- *Search for exotic decays of the Higgs boson into long-lived particles in pp collisions at $\sqrt{s} = 13$ TeV using displaced vertices in the ATLAS inner detector*

TRACK AND VERTEX RECONSTRUCTION OPTIMIZATION

Optimizing charged-particle track reconstruction software, researching novel vertex reconstruction algorithms for exotic particle identification using deep learning. Recipient of the ATLAS Outstanding Achievement Award for helping to introduce a new track reconstruction algorithm into the ATLAS reconstruction software.

Selected talks:

- *Improved Track Reconstruction Performance for Long-lived Particles in ATLAS*: Connecting the Dots Princeton, NJ

ATLAS ANALYSIS MODEL

Building and maintaining efficient data pipelines for the future of the Large Hadron Collider, optimizing data storage formats unconventional analyses,

Selected talks:

- *Reduced formats for long lived particles in ATLAS*: Analysis Ecosystem Workshop Orsay, FR

SKILLS

Languages: C/C++, Python, C#, Bash, SQL
Technology: Git, Docker, LaTeX
Libraries: Numpy, Pandas, Keras, PyTorch, Matplotlib
Physics: ROOT, MadGraph5_aMC@NLO, Pythia8