Jon Toledo, PhD

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EDUCATION

Ph.D. Physics, May 2011 - July 2016, Perimeter Institute and University of Waterloo
M.Sc. Physics, Aug 2009 - June 2010, Perimeter Institute and University of Waterloo

EXPERIENCE

Insight Data Science
Fellow, Jan 2019 - present

- Developed an end-to-end resume parser for the Toronto startup Fintros
- Built a custom document embedding model and text segmentation algorithm for classifying data on resumes

Swiss Federal Institute of Technology Lausanne
Postdoctoral fellow, Sept 2016 - Aug 2018

- Developed a practical numerical method for extracting experimentally relevant insights from systems described by quantum field theory using quadratic optimization
- Extensive use of cluster computing for distributing quadratic optimization processes
- Taught a master's level physics course on group theory for two semesters

Perimeter Institute
Graduate research fellow, May 2011 - June 2016

- Developed analytical and numerical methods for studying quantum field theory (QFT) based on the connection between QFT and string theory in higher-dimensional spaces
- Programmed extensively in Mathematica developing numerical recipes for solving partial-differential and integral equations
- Teaching assistant – Mathematica Summer School on Theoretical Physics (5 consecutive years, developed problem sets, answered questions in tutorials)
- John Brodie Memorial Award for outstanding junior researcher (2013)

SIDE PROJECTS

2-step – Solver for a modified Traveling Salesman Problem: https://github.com/jon-toledo/2-step

- A local search algorithm that improves solutions to the standard Traveling Salesman Problem to account for global constraints on the path
- Highly optimized and vectorized code capable of operating on networks with 10^5 vertices

Flash – A neural network for climbing route recognition: https://github.com/jon-toledo/Flash

- Trained a simple CNN to recognize different sections of the local climbing area Mt. Nemo
- Performed extensive data augmentation in order to account for variability in lighting conditions

TECHNICAL SKILLS

- Expert in Mathematica (computer algebra and numerics)
- Proficient in Python (numpy, sklearn, scipy, pandas, matplotlib, keras, doc2vec, spaCy)
- Experienced with common machine learning models (Bayes nets, logistic regression, SVM, neural nets, EM, clustering)
- Experienced with cluster computing
- Experienced with quadratic optimization
- Basic knowledge of SQL, Git