Curriculum Vitae — Kiri Nichol

Data Scientist, Physicist & Art Forger

contact kiri.nichol@gmail.com
Github: small-yellow-duck.github.io **Kaggle**: small yellow duck (78/~320,000)
citizenship Canada, New Zealand

Career goal

I use data to tell a story. I build mathematical models and software tools to describe and understand patterns in images and data. I like to stumble on to new problems, clarify vague problems and make abstract problems concrete. I like to learn from my colleagues and to share my own expertise.

Education

2011 **Ph.D. Physics,** Leiden University, The Netherlands
2006 **M.Sc. Physics,** McMaster University, Canada
2004 **B.Sc (Hons) Physics, minor English Literature,** University of British Columbia, Canada

Skills

programming Python. I have substantial prior experience in Delphi, Matlab, IDL, Labview and Fortran. I can ask for directions and order coffee with C++, JavaScript and html. I run my GPU code on an Amazon instance.
data analysis, stats Matlab, R, IDL, Maple, Mathematica, ImageJ
machine learning scikit-learn, nltk, theano.
database pandas, xml, SQL (SQLAlchemy), DICOM, Excel
lab tools Experimental design, particle tracking, automatic image segmentation, electronic data acquisition with Labview
math statistics, linear algebra, differential equations, waveform analysis
business skills project management, writing technical reports (Word, LateX) and presentations (Powerpoint). "Kiri is one of the best talkers I know." / "Kiri can talk to anyone."
languages English (native), Dutch (fluent)

.... Looking for something not on the list? I am always keen to learn.

Experience

July 2013- **Data Scientist, Programmer & Generalist Hack, small-yellow-duck.github.io**
• I love tackling problems on **Kaggle.com**. I have **Kaggle Master** status. (Python, sklearn, pandas)
• Developed **circadelic.appspot.com** – an app for generating colourful circle packings from the palette in a photograph. The app includes a numpy-only implementation of k-means which runs on Google App Engines. (Python, html, JavaScript)
• Developed **victory-boogie-woogie.appspot.com** – an app for faking images that look like Piet Mondrian's famous painting. (Python, html, JavaScript)

2011–2013 **Postdoctoral Researcher**, Radiotherapy Department of the Dutch Cancer Institute (NKI)
• Developed software for implementing and evaluating new image-based tools and treatment strategies in radiotherapy. (Delphi, Matlab, Python)
• Quality assurance: assessing the consistency and accuracy of deformable registration and automatic segmentation routines for CT images. As part of this problem, I developed meaningful metrics for comparing and evaluating delineated organs.
• Managed a DICOM database with data from different hospitals.

2007-2011 **Ph.D. Researcher**, Granular and Complex Matter Lab, Leiden University
• Modeled and analyzed fluctuations in sheared granular matter (IDL, Labview)
• Described viscous drag and Archimedes's Rule in sheared granular matter. (IDL,Labview)
• Developed rheometry tools and instrumentation (… a rubber bath duck)

2010-2011 **Visiting Researcher,** Complex Matter Lab, North Carolina State University
• Generalized models from statistical mechanics to describe the motion of 150 air hockey pucks.
• Developed and optimized particle tracking software to determine the position of the air hockey pucks. (Matlab)

2007 **Visting Researcher,** Nanoscale Devices Lab, University of Canterbury
• Modeled deposition of metal clusters for the production of nanoscale wires (Maple)
• Performed electron microscopy to image clusters deposited on substrates

2004-2006 **M.Sc. Researcher**, Superconductivity Theory, McMaster University
• Developed software to map the electronic states of endohedral doped fullerene molecules for use in quantum computing. (Fortran, C++)

Teaching Experience

2008-2010 • Introduction to Labview, lab instruction and course development (Leiden)
2008-2009 • Statistical Physics, tutorial teaching assistant (Leiden)
2007 • First-Year Physics , tutorial teaching assistant (U Canterbury)
2004-2006 • First-Year Physics for Engineers, lab and tutorial teaching assistant (McMaster)
2004-2006 • First-Year Physics for Life Sciences, tutorial teaching assistant (McMaster)
2005-2006 • Physics for Arts and Science, tutorials, project guidance (McMaster)

Volunteer Experience

2008-2010 Lab tours, Open Days (Leiden) 2008 - 2011
2006-2008 May@Mac, Physics Paper Triathalon (McMaster)
2008-2010 Physics Olympics (UBC) 2001 - 2004
I enjoy planning and running demos and activities for schoolchildren. By the end of my PhD, my spoken Dutch was fluent enough to ask and answer questions.
2004-2006 Social Coordinator, McMaster Physics Grad Student Council 2004-2006
2002-2004 VP Academic, Physics Students Society, UBC
I managed the sale and production of solution manuals for first-year physics exams. I coordinated a team of Physsoc members to write the solutions in Latex.

Awards & Distinctions

2013 2nd prize, setup.nl's "Elegante Algoritmes" competition
(victory-boogie-woogie.appspot.com)
2000, 2003, 2004 UBC Faculty of Science Dean's List
1999-2004 UBC Chancellor's Entrance Scholarship

References are available on request