Kilian Walsh

26 Stoddard Place, Brooklyn, NY 11225 • (646) 363 - 5779 • kiliantics@gmail.com

 github.com/kilianbreathnach linkedin.com/in/kilianwalsh

Astrophysicist-turned-ML-scientist-engineer, proficient in statistical modeling, deep learning for computer vision and NLP, data engineering for ML infrastructure. Primary languages used are python, julia, C/C++ in Linux. Open source contributor, passionate about the latest technology, developments in software tools and data science methods. Experienced educator and team worker, communicating complex topics at technical and lay levels. Speaks English and German fluently, some French and basic Mandarin. Enjoys sports (esp. swimming, cycling), woodwork (incl. boats, timber frame structures, and musical instruments), bicycle/motorcycle maintenance, gardening, brewing and baking, reading, volunteering and civic engagement.

Work

Artisight Inc.
Mar 2019 - Present

Machine Learning Scientist-Engineer
- wearing many hats in an early stage (starting headcount of 5) medical technology startup
- built entire research and deployment infrastructures end-to-end for computer vision and NLP in hospitals
- experience with fast-paced, high intensity environments, demoing and deploying for clients and investors

Education

New York University
Sep 2011 - Jan 2019

Ph.D. – Physics – thesis: "An Exploration of New Links in the Galaxy-Halo Connection"
- Research Topics: astrophysics, cosmology, galaxy evolution, dark matter
- Funded by NYU scholarships, NSF, and research/teaching assistantships

Trinity College Dublin
Sep 2007 - Jun 2011

B.A. – Natural Science (Physics & Astrophysics major) with First Class Honours
- Final year dissertation project completed at University of Aarhus in Denmark
- Completed voluntary advanced exams to win competitive Foundation Scholarship, granting free tuition, housing, meals, and stipend

Research & Projects

Artisight Inc.
March 2019 - Present

Computer Vision and NLP research and ML infrastructure engineering
- building computer vision algorithms deployed in hospital automation systems
- employing NLP models for virtual assistant systems
- *Skills:* deep learning, self-supervised learning, computer vision, object detection, audio processing, NLU, data pipeline engineering, project management
- *Achievements:* Significant accuracy and efficiency of models, built robust infrastructure to deploy on site
- *Tools:* pytorch, caffe, hydra, docker, Azure, CUDA, C/C++, django, flask, rabbitmq, kafka

New York University
May 2013 - Jan 2019

Cosmological large scale structure and galaxy evolution (with Prof. Jeremy Tinker and David Hogg)
- Projects involving statistical modeling of galaxy data from the largest survey made to date (SDSS) as part of a large scientific collaboration (1000s of researchers), in order to understand the universe's underlying dark matter structure and how it affects the galaxy distribution
- *Skills:* Mathematical modeling, Bayesian inference, large datasets, MCMC, numerical simulation, parallel computing, problem-solving, scientific writing/presentation, data analysis, visualisation, literature review
- *Achievements:* Made scientific-grade measurements and analysis for several papers, presented at conferences across USA, mentored student researchers, made contributions to widely-used astronomy code
- *Tools:* julia, python (scipy, cython, emcee, matplotlib...), C, bash, PBS, MPI, SQL

Various Locations
2012 - Present

Data-hacking projects
- Participated in hackathons, classwork, and personal projects with diverse datasets (astronomy, web, gov/geo, financial, hardware sensors) to study trends and to understand and test novel techniques and models.
- *Skills:* Data-mining, statistical modeling, machine learning, data visualisation, financial modeling, deep learning, project presentation
- *Tools:* python, git, javascript, julia, R, SQL, Hadoop, AWS, pytorch, raspberry pi, and more, generally staying current on developments in tech tools

New York University
Mar 2012 - Aug 2013

Probabilistic Sky Catalogue (with Prof. David Hogg)
- Constructing models for 100k+ astronomical images to build a probabilistic catalogue with astrometry.net
- *Skills:* Statistical modeling, data mining, visualisation, model selection

University of Aarhus, Denmark
Sep 2010 - Jan 2011

Asteroseismology thesis project (with Prof. Jørgen Christensen-Dalsgaard)
- *Skills:* Numerical simulation and astrophysical modeling, data analysis, scientific presentation
- Resulted in important corrections to widely-used astrophysical simulation code

UC Santa Barbara, California
Jun 2010 - Sep 2010

Studying structure and function of Proteorhodopsin in Songi Han lab
- *Skills:* DNA mutation, protein expression and isolation, MRI signal analysis, presentation
- Part of a competitive research experience funded by Biomedical Diagnostics Institute in Ireland