

Batuhan Yildirim

PHD PHYSICS · UNIVERSITY OF CAMBRIDGE

✉ by256@cam.ac.uk | 🌐 <http://www.mole.phy.cam.ac.uk/people/by.php> | 📷 by256 | 📄 batuhanyildirim

Education

University of Cambridge

Cambridge, UK

PHD PHYSICS - MOLECULAR ENGINEERING GROUP

Oct. 2018 - Oct. 2022

- materials discovery using deep learning - generative models for inorganic crystal structures and graph neural networks for structure-property prediction.
- developing segmentation algorithms to detect, locate and quantify systems of particles from electron microscopy images.

Queen Mary, University of London

London, UK

MSC DATA SCIENCE

Sep. 2017 - Sep. 2018

- Notable examinations: Machine Learning - 90%, Computer Vision and Deep Learning - 85%, Applied Statistics - 84%.
- Thesis - Unsupervised deep learning for optical flow estimation.

University of Manchester

Manchester, UK

MENG MATERIALS SCIENCE AND ENGINEERING

Sep. 2013 - Sep. 2017

- First-Class Honours - awarded the Rolls-Royce/Tin Plate Workers prize for finishing top of the class during my 3rd year.

Skills

Programming Python; MATLAB; Git; LaTeX.

Machine Learning PyTorch; Keras; sklearn; ability to design and implement machine/deep learning pipelines.

Research ability to conceptualise and implement ideas; ability to turn papers into code and results.

Languages English, Turkish

Honors & Awards

- | | | |
|------|--|-----------------|
| 2019 | College Senior Scholarship (£350) , Fitzwilliam College, University of Cambridge - Awarded on the basis of excellent work to the highest performing PhD students. | Cambridge, UK |
| 2018 | 2nd Place (£5000) , Citadel Dublin DataOpen. | Dublin, Ireland |
| 2017 | Rolls-Royce/Tin-Plate Workers Award (£250) , Awarded for finishing top of my class (3rd year) at the University of Manchester. | Manchester, UK |

Employment Experience

StatusToday

London, UK

DATA SCIENCE INTERN

Jun. 2018 - Oct. 2018

- Implemented machine learning models to classify user activity from automated system activity: the model incorporated methods to deal with class imbalance and data leak.
- Deployed model to production, leading to more accurate employee insights and features computed by StatusToday.

Rolls-Royce Motor Cars

Chichester, UK

MATERIALS AND PROCESS ENGINEER INTERN

Jun. 2015 - Jun. 2016

- Development of automotive components by failure analysis and functional testing.
- Researched the suitability of using 3D-printed components in production vehicles.
- Collected and analysed data to provide detailed technical forensic reports on damaged components.

Projects and Open-Source

rdfpy

Cambridge, UK

CORE DEVELOPER

2020 - PRESENT

- rdfpy is an open-source Python library for fast computation of 2D and 3D radial distribution functions.
- <https://github.com/by256/rdfpy>

ChemDataExtractor – Molecular Engineering Group (Cavendish Laboratory)

Cambridge, UK

CONTRIBUTING DEVELOPER

Oct. 2018 - Oct. 2019

- Maintaining and pushing features to my research group's open source machine learning based chemical information extraction software.

Publications

- C. J. Court*, B. Yildirim*, A. Jain, J. M. Cole, "3-D Inorganic Crystal Structure Generation and Property Prediction via Representation Learning", J. Chem. Inf. Model. **(2020)**
<https://doi.org/10.1021/acs.jcim.0c00464>
* - equal contribution
- K. T. Mukaddem, E. J. Beard, B. Yildirim, J. M. Cole, "ImageDataExtractor: A Tool to Extract and Quantify Data from Microscopy Images", J. Chem. Inf. Model. **(2019)**
<https://doi.org/10.1021/acs.jcim.9b00734>