Arnau Quera-Bofarull

Department of Computer Science
Oxford University

arnau.quera-bofarull@cs.ox.ac.uk
+44 7736996791
www.arnau.ai

EDUCATION

Ph.D. Astrophysics and Data Science, Durham University, UK, 2022

M.S. Physics, Heidelberg University, Germany, 2017

B.S. Physics, University of Barcelona, Spain, 2015

B.S. Mathematics, University of Barcelona, Spain, 2015

RESEARCH EXPERIENCE

2022– Department of Computer Science, Oxford University, UK
Calibration of agent-based models

2017-22 Institute for Computational Cosmology, Durham University, UK
Development of HPC code to calculate black hole outflows.

2020– United Nations Global Pulse, USA
Modelling the spread of Covid-19 in refugee camps with agent-based simulations.

2020-22 Institute for Data Science, Durham University, UK
Main developer of the June codebase, an agent-based model to simulate the spread of Covid-19 with fine grained population data.

2019 Centre for Computational Sciences, Tsukuba University, Japan
Modelling of Active Galactic Nuclei accretion discs with HPC simulations.

2019 Centre for Research on Education and Social Justice, York University, UK
Application of Machine Learning algorithms to predicting progression to postgraduate studies in England.

2019 Boeing Digital Aviation & Analytics, Germany
Computer vision for process tracking in aircraft ground operations.

2018 Ibex Innovations, UK
Computer vision for X-ray medical image segmentation.

PUBLICATIONS

Journal Articles

2021 Carolina Cuesta-Lazaro, Arnau Quera-Bofarull, Joseph Aylett-Bullock, Bryan N. Lawrence, Kevin Fong, Miguel Icaza-Lizaola, Sedgewick Aidan, Henry Truong, Ian Vernon, Julian Williams, and Frank Krauss. Vaccinations or Non-Pharmaceutical Interventions:Safe Reopening of Schools in England. *Submitted to Nature Comms., preprint*, September 2021

2021 Joseph Bullock, Carolina Cuesta-Lazaro, Arnau Quera-Bofarull, Anjali Katta, Katherine Hoffmann Pham, Benjamin Hoover, Hendrik Strobelt, Rebeca Moreno Jimenez, Aidan Sedgewick, Egmond Samir Evers, David Kennedy, Sandra Harlass, Allen Gidraf Kahindo Maina, Ahmad Hussien, and Miguel Luengo-Oroz. Operational response simulation tool for epidemics within refugee and IDP settlements. *PLOS Computational Biology (Accepted)*, January 2021

2020 Joseph Aylett-Bullock, Carolina Cuesta-Lazaro, Arnau Quera-Bofarull, Miguel Icaza-Lizaola, Aidan Sedgewick, Henry Truong, Aoife Curran, Edward Elliott, Tristan Caulfield, Kevin Fong, Ian Vernon, Julian Williams, Richard Bower, and Frank Krauss. June: open-source individual-based epidemiology simulation. *Royal Society Open Science*, 8(7):210506

2020 Arnau Quera-Bofarull, Chris Done, Cedric Lacey, Jonathan C. McDowell, Guido Risaliti, and Martin Elvis. Qwind code release: a non-hydrodynamical approach to modelling line-driven winds in active galactic nuclei. *Monthly Notices of the Royal Astronomical Society*, 495(1):402–412, June 2020

2018 Carolina Cuesta-Lazaro, Arnau Quera-Bofarull, Robert Reischke, and Björn Malte Schäfer. Gravitational corrections to light propagation in a perturbed FLRW universe and corresponding weak-lensing spectra. *Monthly Notices of the Royal Astronomical Society*, 477(1):741–754, June 2018

Conference Proceedings

2019 Joseph Bullock, Carolina Cuesta-Lázaro, and Arnau Quera-Bofarull. XNet: a convolutional neural network (CNN) implementation for medical x-ray image segmentation suitable for small datasets. In *Medical Imaging 2019: Biomedical Applications in Molecular, Structural, and Functional Imaging*, volume 10953, pages 453–463. SPIE, March 2019

INVITED TALKS

2020 "JUNE: Modelling the spread of Covid-19 in England". Public Health England modelling group, Cambridge, UK. Jul 3.

2020 "Simulating UV line-driven winds in AGNs." Hokkaido University, Japan. Feb 5.

2019 "Computer vision for X-ray medical image segmentation." Rutherford Appleton Laboratory, UK, Mar 5.

Campus Talks

2021 "10 reason why I use (and love) Julia" Institute for Computational Cosmology, Durham, UK, Mar 29.

2019 "Deep Learning and graph networks" Institute for Data Science, Durham, UK, Oct. 17

2018 "Simulating AGN feedback." Institute for Computational Cosmology, Durham, UK, Dec 18.

CONFERENCE ACTIVITY

Talks

2021 "UV line-driven winds: Dependence on black hole properties." Black hole accretion disc winds. Durham, UK. Sep 6–9.

2019 "Computer vision for X-ray medical image segmentation." Beyond the Lab. Edinburgh, UK. Jan 24.

Poster presentations

2019 "UV line-driven winds". Feedback and its role in galaxy formation. Spetses, Greece. June 25–29.

Sessions Organized

2021 STFC Data Intensive Science Summer School 2021. Durham, UK. Sep 13–17.

GRANTS AND AWARDS

Awards and Honors

2021 RAMP Early Career Investigator Award (RECIA), Royal Society

2020 Department of Physics Award for Excellence 2020, Durham University

2019 No-Bull award (Carmen Optimization Workshop), Boeing

Grants and Fellowships

2019 JSPS Short Term Pre/Postdoctoral Fellowship (£6,500).

2017- STFC CDT Scholarship

TEACHING

Durham University

Planets and Cosmology (2017,2018,2020)

Version control with Git (2020, 2021)

OUTREACH

2019 "Changing Cosmic Percetions". Durham, UK.

2018,19 "Celebrate Science". Durham, UK.

2018 "From Atoms to Galaxies". Durham, UK.

LANGUAGES

Catalan (Native)

English (Fluent)

German (Intermediate)

Japanese (Elementary)

Spanish (Native)

Updated June 2022