Daniel Felipe Luque Duque

CV

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▬▬▬ Personal Information

Full name	Daniel Felipe Luque Duque
Nationality	Colombian

▬▬▬ Education

2018–Present **PhD in Applied Mathematics**, *University of Leeds*, Leeds, United Kingdom.
Human TCR repertoires, ageing, infection and tumours.

Member of the Marie Skłodowska-Curie Innovative Training Network (*ITN*) in Quantitative T-Cell Immunology and Immunotherapy (*QuanTII*)

2013–2018 **BSc in Mathematics**, *Pontificia Universidad Javeriana*, Bogotá, Colombia.
GPA 4.25/5.

▬▬▬ Undergraduate thesis

Title	Commutative Algebra and some results in Algebraic Geometry.
Supervisor	Beatriz Graña Otero
Abstract	We study Noetherian rings, affine algebraic varieties and important results on them, such as Hilbert's Nullstellensatz which gives us a correspondence between algebraic sets and ideals in a ring of polynomials. We also study the concept of Krull dimension of rings and dimension of algebraic sets, and how these two concepts are related. Finally, we construct Nagata's famous example of an infinite dimensional Noetherian ring.

▬▬▬ Publications

2022 Daniel Luque Duque, Martín López García, Jessica A. Gaevert, Grant Lythe, Paul G. Thomas, and Carmen Molina-París. Multi-variate model of T cell clonotype competition and homeostasis. *Submitted to: Scientific Reports*, 2022.

2022 Chun-Yang Lin, Joshua Wolf, David C Brice, Yilun Sun, Macauley Locke, Sean Cherry, Ashley H Castellaw, Marie Wehenkel, Jeremy Chase Crawford, Veronika I Zarnitsyna, Daniel Duque, Kim J. Allison, et al. Pre-existing humoral immunity to human common cold coronaviruses negatively impacts the protective SARS-CoV-2 antibody response. *Cell Host & Microbe*, volume 30, pages 83–96.e4. Elsevier, 2022.

2021   Jessica Ann Gaevert, Daniel Luque Duque, Grant Lythe, Carmen Molina-París, and Paul Glyndwr Thomas. Quantifying T Cell Cross-Reactivity: Influenza and Coronaviruses. *Viruses*, volume 13, page 1786. Multidisciplinary Digital Publishing Institute, 2021.

Experience

Talks and posters

20/09/2022 **12th European Conference on Mathematical and Theoretical Biology**, *ECMTB/SMB*, Heidelberg, Germany.
Stochastic modelling of TCR-epitope recognition in the context of cross-reactivity – Poster

29/06/2022 **Viral Immunity: Basic Mechanisms and Therapeutic Applications**, *Keystone Symposia*, Keystone, CO, USA.
Stochastic modelling of TCR-epitope recognition in the context of cross-reactivity – Talk & Poster

08/02/2022 **DSABNS2022**, *Basque Center for Applied Mathematics*, Bilbao, Spain (online).
Stochastic modelling of TCR-epitope recognition in the context of cross-reactivity – Talk

28/11/2021 **BSI21**, *British Society for Immunology*, Edinburgh, UK.
Multivariate competition for survival stimulus of T cell clonotypes in homeostasis – Poster

17/06/2021 **SMB21**, *Society for Mathematical Biology*, Online.
Multi-variate competition for survival stimulus of T cell clonotypes in homeostasis – Talk

04/06/2021 **5th Workshop on Virus Dynamics**, *Fred Hutchinson Cancer Research Center*, Seattle, USA (online).
Stochastic modelling of TCR-epitope recognition in the context of cross-reactivity – Poster

16/04/2021 **Mathematics seminar series**, *Pontificia Universidad Javeriana*, Bogotá, Colombia (online).
Stochastic modelling of T cell populations – Talk

Awards

29/06/2022 **Keystone Symposia Scholarship**, *Viral Immunity: Basic Mechanisms and Therapeutic Applications*, Keystone Symposia, Keystone, CO, USA.

Secondments

06/2022 **St Jude Children's Research Hospital**, Memphis, TN, USA.
Secondment in Paul Thomas' lab in the department of Immunology at St. Jude Children's Research Hospital.

09/2019– **St Jude Children's Research Hospital**, Memphis, TN, USA.
11/2019 Secondment in Paul Thomas' lab in the department of Immunology at St. Jude Children's Research Hospital.

Workshops

2021 **SISMID**, *University of Washington*, Seattle, USA.
○ Pathogen Evolution, Selection, and Immunity

2021 **SISBID**, *University of Washington*, Seattle, USA.
○ Supervised Methods for Statistical Machine Learning
○ Visualization of Biomedical Big Data

2020 **Fundamentals of Deep Learning**, *NVidia Deep Learning Institute*, UK.
Introductory workshop on deep learning and data augmentation.

2019 **QuanTII Complementary Skill Workshop**, *University of Leeds*, Leeds, UK.
Complementary Skill Workshop organised by the QuanTII ITN at the university of Leeds.

2019 **RNA-Seq workshop**, *University of Leeds*, Leeds, UK.
Workshop on RNA-Seq data analysis organised by the Leeds Omics group.

Teaching

2021 **Tutorials and marking**, *MATH2920 Computational Mathematics*, University of Leeds, Leeds, UK.

Short Courses

2016 **Genomic Medicine Short Course**, *Universidad de la Sabana*, Chia, Colombia.
Short course organised by Universidad de la Sabana and the University of Southampton.

Computing skills

Programming Python, Mathematica, C++, Git, GitHub
Computing LaTeX

Languages

Spanish **Native**
English **Fluent**
French **Fair**
German **Fair**

Interests

Algebraic Geometry
Commutative Algebra
Applied Mathematics
Mathematical Biology
Computational Biology
Genomic Medicine