



# John Daniel Kirwan

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**Address:** San Cristóbal de la Laguna, Spain (Work)

## WORK EXPERIENCE

04/07/2022 – CURRENT San Cristóbal de la Laguna, Spain  
**BIOINFORMATICS SCIENTIST** ARQUIMEA RESEARCH CENTRE

My current role focuses on pharmaceutical bioinformatics

- Structural biology, using AlphaFold and related tools
- Proteomics and other -omics approaches
- Deep learning modeling, including Pytorch and Tensorflow
- Biostatistics and probabilistic modelling, using PyMC and Stan

30/09/2019 – 22/06/2022 Naples, Italy  
**POSTDOCTORAL RESEARCHER** STAZIONE ZOOLOGICA ANTON DOHRN

Researched the photic behaviour of sea urchins as part of an international HFSP collaboration. Designed and carried out behavioural experiments and performed statistical analysis.

31/05/2019 – 30/07/2019 Lund, Sweden  
**PROJECT MANAGER** LUND UNIVERSITY

Carried out vision science behavioural experiments and analysis using R, Matlab and Python.

14/05/2013 – 06/06/2018 Lund, Sweden  
**DOCTORAL RESEARCHER** LUND UNIVERSITY

My PhD research concerned simple visual systems in diverse animals and how well these systems can be used to see. I investigated the visual systems of understudied species using novel methods and introduced more sophisticated means of analysis than have conventionally been applied.

19/04/2013 – 06/05/2013 Solukhumbu, Nepal  
**EXPEDITION ASSISTANT LEADER** LOWEST TO HIGHEST FOR CANCER EXPEDITION

I was the assistant leader and first aid officer for a Jordanian charity expedition to Mount Everest base camp. The successful 11-day expedition included 18 participants.

## EDUCATION AND TRAINING

14/05/2013 – 06/06/2018 Lund, Sweden  
**PH.D.** Lund University

**Thesis** Spatial Vision in Diverse Invertebrates

**Link** [https://portal.research.lu.se/portal/en/publications/spatial-vision-in-diverse-invertebrates\(dc76fe19-18de-49e6-955a-47d1a084760c\).html](https://portal.research.lu.se/portal/en/publications/spatial-vision-in-diverse-invertebrates(dc76fe19-18de-49e6-955a-47d1a084760c).html)

05/09/2008 – 22/09/2010 Dublin, Ireland  
**M.SC. BY RESEARCH** University College Dublin

**Thesis** The Molecular Evolution of Hearing in Mammals

14/09/2004 – 12/06/2008 Dublin, Ireland  
**B.SC. HONS. (ZOOLOGY)** University College Dublin

**Final grade** 1st Class Honours (GPA 4.0). First in graduating class. | **Thesis** The Molecular Evolution of Hearing in Bats

## DIGITAL SKILLS

Python | Git | R | Matlab | Stan

## ● TRAINING COURSES

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18/05/2024

### Getting Started with Tensorflow 2

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Imperial College London

Link <https://www.coursera.org/account/accomplishments/verify/WGHN9M3Y2Q7S>

10/03/2023

### Applied Software Engineering Fundamentals Specialization

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IBM

Link <https://www.coursera.org/account/accomplishments/specialization/certificate/XJFRDC77UEFY>

19/01/2020 – 30/05/2020

### Pharmaceutical Bioinformatics and Applied Pharmaceutical Bioinformatics

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Uppsala University hosted distance courses (7.5 and 5 ECTS). Väl godkänt / Passed with distinction (highest grade).

Link <http://www.pharmbio.org>

14/05/2019

### Writing in the Sciences

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Stanford Online - Passed with Distinction

## ● HONOURS AND AWARDS

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09/02/2009

### Zoology medal – University College Dublin

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Awarded for achieving highest marks in graduating BSc class

## ● TEACHING AND SUPERVISION

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14/11/2013 – 06/02/2018

### Lund University - Sensory Biology

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I was a teaching aid for experimental labs during the Sensory Biology (Synbiologi) advanced course at Lund University, Department of Biology. I chiefly led an electroretinography lab concerning insect vision, where I also graded reports and contributed to improvements in the lab structure.

30/09/2013 – 14/10/2017

### Lund University - Neurobiology

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I was a teaching aid for a lab in the Neurobiology course. I led a lab which dealt with compound action potentials in humans and was responsible for substantial updates to the teaching materials and equipment.

#### Supervision

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- During my PhD and subsequently, I co-supervised four Bachelor projects and internships covering animal behaviour and eye morphology.
- In 2019-2020, co-supervised a MSc student project at Lund University, concerning the visual system of chitons. Continued to provide guidance with statistical analysis until the completion of the project in October 2020.
- In 2020-2021, assisted a PhD student with experimental design and statistical analysis for a project concerning the effect of light regimes and other factors on larval morphology.

## ● CONFERENCES AND SEMINARS

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27/07/2023 – 03/08/2023 Bäckaskog, Sweden

### International Conference on Invertebrate Vision V

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Presented poster 'Resolving vision in the sea urchin *Paracentrotus lividus* in response to a graded visual stimulus'

21/09/2021 – 22/09/2021 Online

### Living Light 2021

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Presented talk 'Sight & Spine: The sea urchin *Paracentrotus lividus* can see'.

Link <https://youtu.be/O-GEJZnqXE?t=873>

11/04/2018 – 11/04/2018 Lund, Sweden

**Bayes@Lund 2018**

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Presented talk 'Analyzing orientation behavior in animals using Stan'.

Link [https://youtu.be/L0Rd\\_BkME10](https://youtu.be/L0Rd_BkME10)

## **PUBLICATIONS**

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2023

[A model of decentralized vision in the sea urchin \*Diadema africanum\*](#)

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Li, T, Kirwan, JD, Arnone, MI, Nilsson, D-E, & La Camera, G. *Iscience* 26 (4)

2020

[Extraocular Vision in a Brittle Star Is Mediated by Chromatophore Movement in Response to Light](#)

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Sumner-Rooney, L, Kirwan, JD, Lowe, E & Ullrich-Lüter, E. *Curr Biol* 30: 319-327

2019

[A millipede compound eye mediating low-resolution vision](#)

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Kirwan, JD & Nilsson, D-E. *Vision Research* 165: 36-44

2018

[The sea urchin \*Diadema africanum\* uses low resolution vision to find shelter and deter enemies](#)

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Kirwan, JD, Bok, MJ, Smolka, J, Foster, JJ, Hernández, JC & Nilsson, D-E. *JEB* 221

2018

[Low-resolution vision in a velvet worm \(\*Onychophora\*\)](#)

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Kirwan, JD, Graf, J, Smolka, J, Mayer, G, Henze, MJ & Nilsson, D-E. *JEB* 221

2013

[A phylomedicine approach to understanding the evolution of auditory sensory perception and disease](#)

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Kirwan, JD, Bekaert, M, Commins, J, Davies, KJT, Rossiter, SJ & Teeling, EC. *Evol Appl* 6: 412-422

2011

[Parallel signatures of sequence evolution among hearing genes in echolocating mammals](#)

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Davies, KJT, Cotton, JA, Kirwan, JD, Teeling, EC, & Rossiter, SJ. *Heredity* 108: 480-489

## **LANGUAGE SKILLS**

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Mother tongue(s): **ENGLISH**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
<b>SWEDISH</b>	B2	B2	B2	B2	B2
<b>SPANISH</b>	B1	B1	B1	B1	B1

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Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

## **DRIVING LICENCE**

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Driving Licence: B