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Published by Portland Press Limited six times a year  
 (February, April, June, August, October and December).  
 The Biochemist © 2021 Biochemical Society  
 ISSN 0954-982X (Print); ISSN 1740-1194 (Online)

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 Registered charity no. 253894

**Science Editor:** Heather Doran (University of Dundee, UK)**Editorial Board:** David Pye, Shane Hegarty,  
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 and Doug Marshall.

*The Editors are pleased to consider items submitted for publication. Opinions expressed in signed articles are not necessarily those of the Society. The information in this issue was correct at the time of going to print.*

US agent: Air Business Ltd, c/o Worldnet Shipping Inc.,  
 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11431, USA

Periodicals postage paid at Jamaica, NY 11431, USA.  
 Postmaster: address corrections to The Biochemist,  
 Air Business Ltd, c/o Worldnet Shipping Inc., 156-15,  
 146th Avenue, 2nd Floor, Jamaica, NY 11431, USA

## Bringing data to life

**by Heather Doran, Science Editor**

How we interpret data is affected by the way it is presented. Data visualization is an extremely important part of science and discovery. The digital tools that are now available for data visualization are wide-reaching and go well beyond the humble (but still very important) graph.

This issue presents some practical examples of how data can be visualized to support discovery and communication including the use of Python and R.

There is a fantastic opportunity with data visualization to engage those outside research. Indeed, the presentation of data visually has been an incredibly important tool for communication throughout the COVID-19 pandemic. I was really excited to see an article in this issue that discusses not only the presentation of information visually but encourages interaction with biological data through visualization. Surely this presents an opportunity for more discovery as it allows more people to bring knowledge to these systems?

Data visualization also presents the opportunity to combine data and allows scientists to bring it to life in 3D, as it exists within biology. My PhD was focused on an orphan GPCR, which at the time had no determined structure; being able to see these biological structures at molecular levels can provide extremely important information about how they function. I know how much I considered this and tried to visualize systems from static information and convert them to moving systems in my head when I was thinking about my research!

Another challenge for science is the sheer amount of data that can now be produced. It is impossible for all of this data to be analysed only by humans and we might not be best placed to do that. The introduction of machine learning and the presentation of this information in a visual format can support the research. There is of course an important caveat to this: the ability to convert data into a visualization is a skill that requires knowledge of how the conversion is done – what is presented visually needs to be accurate —otherwise what is identified from the visualization might not be true.

It is an incredibly exciting time for data visualization and I hope you enjoy and learn from the articles in this issue to apply them to your own area of work.

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