Elizabeth Dickinson

What's your name and can you tell us a little about yourself and your field of study?

My name is Elizabeth Dickinson, I am a Post-Doctoral Knowledge Tranfer Partnership Associate between the Department of Mathematics, University of York and Croda Europe Ltd. I work under the supervision of Professor Julie Wilson. I am interested in multivariate statistics primarily applied to data from analytical chemistry techniques (chemometrics) and machine learning, and have recently become interested in the development of dashboards or apps, using R and Shiny.

Can you give us an overview of the project?

This project involves the development of methods to objectively and quantitatively compare the similarity of Croda's speciality chemical ingredients manufactured in different locations, assessed through detailed compositional analysis.

Once you started working with the data did you encounter any specific problems or challenges? How might an RSE have been a useful addition to the project?

Whilst data analysis throughout the project was fine, these final stages of developing a dashboard for Croda to view 'sameness' of its products (or measure 'sameness' of new products) has been problematic. Although I am proficient in creating a basic dashboard, numerous bugs have occurred in the dashboard which would have taken weeks, or perhaps months, for me to learn to fix these problems. By having dedicated time from an RSE to work together built into this stage of the project would have certainly significantly reduced the time spent on trying to fix bugs alone, and expert knowledge to call on to quickly fix common Shiny dashboard problems that are operating system specific, that I was unaware of until very late in our project timeline!

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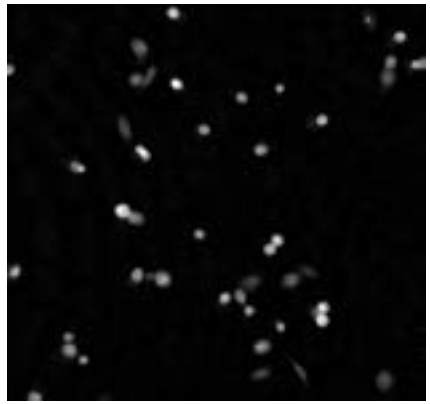
COMPUTATIONALLY INTENSIVE RESEARCH

What was the benefit of working with an RSE? Were there specific tools, software or outcomes you found that an RSE could provide?



Stuart Lacy's expert knowledge in R and Shiny was invaluable to our final project stage. His ability to fix all bugs in my 'sameness' dashboard was crucial to delivering the project outputs on time. He also optimised my version of the dashboard, improving its deployment and speed at which data was processed and displayed. Most helpful though, was his annotation of any code he edited, so that I was able to follow the changes he made, and it was clear why he made them. This will undoubtedly help me with dashboards in future projects.

Stuart also modified another Shiny dashboard I had produced to process spectroscopic data from Croda – he had the expert knowledge to make it compatible with other operating systems. Whilst the dashboard worked perfectly on both my MacBook Pro and university Linux machines, the dashboard was not working with Croda's Windows based operating systems, and Stuart was able to identify the problem immediately.

What tools and software did you use for your analysis? Is the software, code and data that you used available for others to reproduce your work?

We used the open source R and Shiny, but we are not able to share the dashboard as it contains commercially sensitive data for Croda.

Having worked with an RSE, will it change your approach in the future?

It will change my approach, as I think that if some sort of app or dashboard and is a required output of any other project, then I think that including time with an RSE at the project planning stage would be beneficial to optimise research time.