

#IAmABiologist

Alice Koltchev PhD Student, SWC



What does your day-to-day look like as a neuroscience PhD student?

There is a lot of data analysis, coding (I find it satisfying to debug my code!), making pretty plots. I study innate behaviour in mice, so some of my days involve performing surgeries or running experiments. Other days, I'm reading papers.

What is your current topic of research?

I'm interested in how the brain processes competing interests. For example, when you accidentally burn yourself on the oven, you may feel discouraged from using it in future. How does your brain push beyond the fear when you're hungry? This research could have many implications, including for anxiety and PTSD.

From the biological sciences, why did you choose to study neuroscience?

I really enjoyed my Psychology class in high school, fascinated by the number of unanswered questions in the field. I took a gap year before university and took psychology classes at my local university. Learning about intriguing cases like that of Phineas Gage, I was hooked.

What are your career aspirations given your expertise and background?

I would like for what I do to help people, be it directly or tangentially. What drives me on the whole is to view my career path through this altruistic lens. If there is a small population that my work is helping down the line, I'd be happy. In terms of exploring paths outside of academia like the pharmaceutical industry - if that is where my vision takes me, I'd be content. In the world of pharma, I know that turnaround can be faster, for example.

Could you give us a brief picture of your career trajectory thus far?

In high school in the US, I loved writing and journalism. But my immigrant background also motivated me to do science. After studying Maths, Chemistry, Biology, Psychology, and History, I did a Master's in Neuroscience at King's. There, I really enjoyed the process of lab work researching spinal cord injuries.



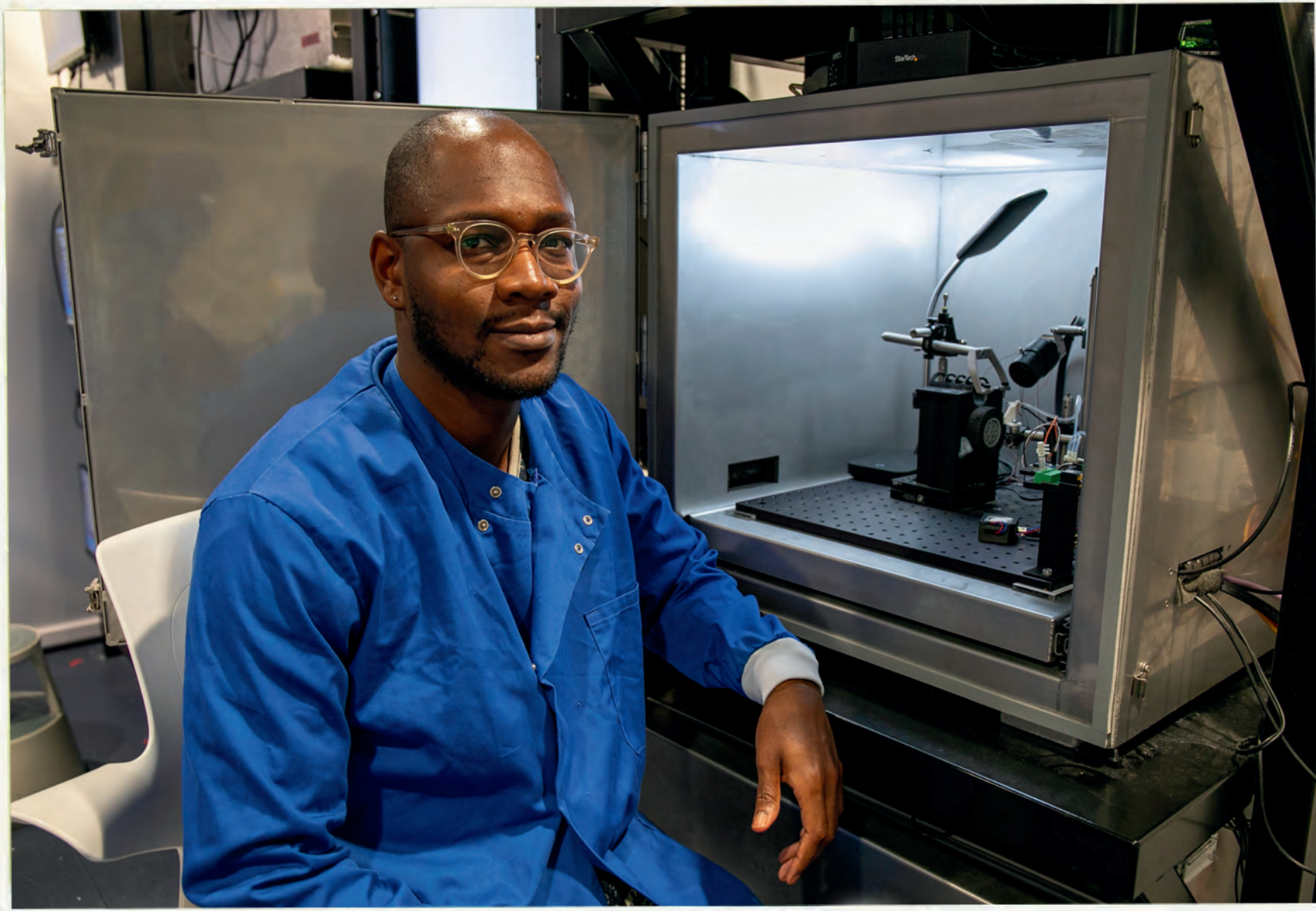
What advice do you have for students who want to become biologists?

Try to persevere. With time, you eventually find your niche. Ultimately, getting experience in a lab environment is important for becoming a biologist. However, don't focus only on science - I've learned that no matter what you end up doing, it's important to learn how to present yourself as a human being. I've found inspiration in literature and global history, for example.



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Dammy Onih PhD Student, SWC



What does your day-to-day look like as a neuroscience PhD student?

A lot of my time these days revolves around data collection from long-term experiments. There is a lot of problem-solving and planning for future experiments, recording from neurons in mice for the first time. With data analysis, I can determine whether the data answered our question or not.

What is your current topic of research?

I want to understand how organisms learn the rules of the world from experience. When someone says “YMC”, you’re bound to follow up with “A”. We’re never given a test on it in school, but how do we know? How does the brain extract what is common and constant from many similar events?

From the biological sciences, why did you choose to study neuroscience?

It was fascinating how inaccessible the brain is, yet so many complex processes go on inside. The brain is different from the muscular system, for example, where cells do not serve as diverse a function. This challenge of understanding how memory, consciousness, and dreams arise motivated me.

What are your career aspirations given your expertise and background?

I enjoy problem-solving and the challenges they bring. These days, I design experiments and build the setup to answer a scientific question. To this end, I use software and hardware, and perform data analysis. I’d like to do this kind of problem-solving on a regular basis in the future. In science, the decision to publish could be out of one’s control due to results of the experiment. I’d like to explore working in an environment where the scope of a project is shorter.

Could you give us a brief picture of your career trajectory thus far?

I went to a grammar school in Dartford, taking GCSEs in Biology, Chemistry, Physics, Maths, and Philosophy. I then was in the IB programme, studying Biology, Chemistry, Maths, Philosophy, French, and English (my favourite). I then came to UCL for a Master’s in Neuroscience before joining SWC.



What advice do you have for students who want to become biologists?

It’s fine to not know exactly what you want to do or study. A lot of people, even at my stage in life, are figuring it out. Don’t get fixated on a specific topic. Consume lots of knowledge about the world and establish that you like learning. Hone your skill of absorbing information through diverse media. Most people are drawn to what they’re good at. Embrace what is stimulating to you and try your best according to an internal standard.



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Loukia Katsouri Senior Research Fellow, SWC



What does your day-to-day look like as a neuroscience postdoc?

I usually have morning meetings at 9.30 and start my behavioural experiments at 11. I'm interested in spatial memory, so I study how mice explore their environment based on spatial cues. I'd say I spend 20% of my time on data analysis, 60% in the lab, 20% in meetings or seminars.

What is your current topic of research?

I'm interested in studying different genetic mouse models that represent human conditions. In Alzheimer's, amyloid beta peptide and the tau protein characterise the condition. I'm looking at how the presence of such proteins in the brain and more specifically in the hippocampus influences spatial navigation.

From the biological sciences, why did you choose to study neuroscience?

During my undergraduate and PhD days in Athens, I had opportunities to be exposed to many disciplines such as Immunology, Cancer, Proteomics. Collaboration in the institute was highly encouraged. I was fascinated with neuroimmunology, and I wanted to understand why neurons start to die when for example microglia, the brain's innate immune cells, go awry.

What are your career aspirations given your expertise and background?

I am currently a senior postdoc in John O'Keefe's lab - ultimately, I want to lead a team. Be it in academia or industry, I know I love designing experiments - sometimes more so than running them. I have lots of experience in setting up *in vivo* experiments and hope to contribute my expertise in the future answering important scientific questions. So I see myself running a small team in 5 years' time.

Could you give us a brief picture of your career trajectory thus far?

I grew up in Cyprus and took courses in Maths, Physics, Chemistry, and Biology in high school. I then studied Biology at the University of Athens in Greece. Excited about the technology of transgenics, I continued with a PhD in neurodegeneration. I then moved to the UK and have been in the O'Keefe Lab at SWC for 6 years.



What advice do you have for students who want to become biologists?

Expose your knowledge to many subjects and don't narrow down your choices too early. I come from a small island in the Mediterranean. Don't let anyone tell you you can't make it because of your skin colour, gender, or any other reason. Don't be afraid to talk to scientists! Be open to challenges. Know that science can be made up of 80% failed experiments and it's not always a "eureka" moment.

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Tom Hagley PhD Student, SWC



What does your day-to-day look like as a neuroscience PhD student?

It's quite varied. I'm currently wrapping up my third rotation at the moment and completed two different projects before this. There, I learned to use new technology like the Bonsai visual programming language. I also tracked behaviour in mice, including during their sleep, to extract data. I did a lot of coding. In my second rotation, I did hands-on wet lab and mouse work, as well as data analysis and modelling. I enjoy that there are lots of discussions at SWC, like symposiums, courses, and workshops, from which new ideas for experiments are sparked. This is important for not running pointless experiments, especially when it comes to using animal models.

From the biological sciences, why did you choose to study neuroscience?

My Biology teacher in college was very inspiring, and she happened to have a PhD in neuroscience. She was the 'mum' of the year - very supportive of her students. Looking back, I liked that in college, the classes are smaller and there are more opportunities to interact with teachers one-to-one than in university.

What are your career aspirations given your expertise and background?

I'm less motivated by asking big scientific questions and more motivated by wanting to keep learning. I like being a PhD student because I can learn many different skills that could be useful down the line - all while applying what I've learned to the areas of neuroscience that interest me. I look forward to keep learning skills that could translate in unexpected way in the future.

Could you give us a brief picture of your career trajectory thus far?

My A levels were in Biology, Maths, Chemistry, and AS Physics. I then completed a Master's in Neuroscience here at UCL. I did a second Master's in Computer Science before joining the PhD programme here. You don't need to have specialised in Biology in high school to become a biologist. Biology will be taught in university.



What advice do you have for students who want to become biologists?

My general advice is that there is no need to focus too early. It would be helpful to get a good background in the sciences in general and hone your quantitative skills (like Maths) for Biology or Neuroscience. It's totally fine not to know what you want to do going forward. Keep your options open. I used to feel like a failure not knowing what I wanted to do. But you can figure it out as you go along!





#IAmABiologist studying the **brain circuitry** involved in responses to a predator and how this response and circuitry are **shaped and modulated** by past experiences, current feelings, and knowledge of the environment.

Nicole Vissers
PhD Student, Hofer Lab

Biology
Week 2022

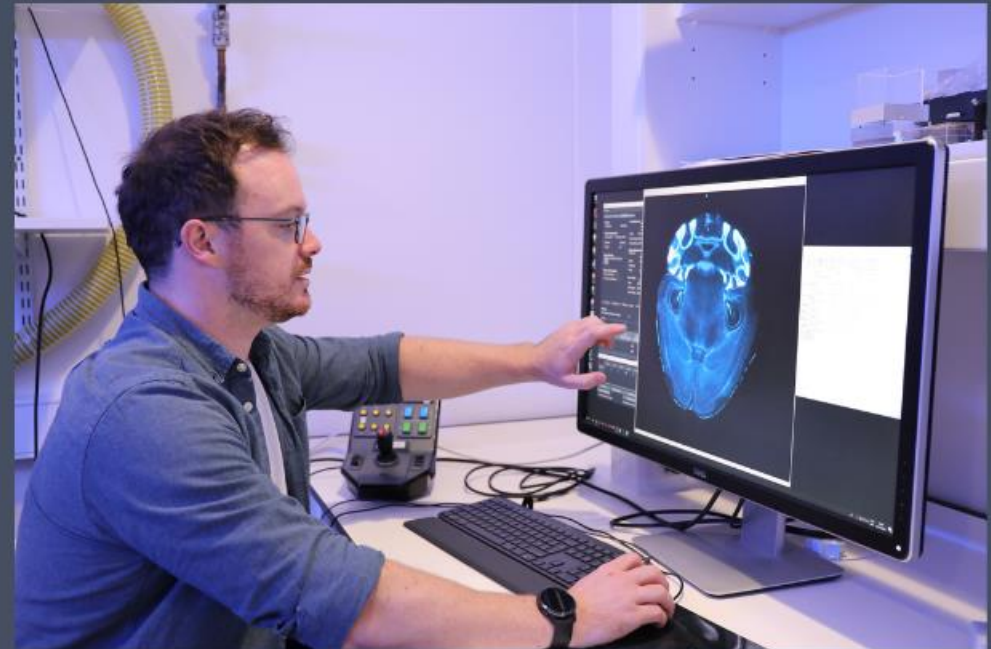
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Sainsbury Wellcome Centre

#IAmABiologist
developing new ways of
looking at the brain and
seeing things that haven't
been seen before. I
mainly do this by **making
brains transparent**, might
be science, might be
magic, I still can't tell.

Peter Gordon
Microscopy Specialist

Biology
Week 2022


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#IAmABiologist assisting research scientists by processing and preparing tissue specimens and cells for microscopic examination and analysis. The process of **basic science** leads to healthcare support.



Jessica Broni-Tabi
Histology Research Scientist



#IAmABiologist
studying **Fiddler crab**
nervous systems to
understand how
organisms perform
spatial computations,
such as distance
estimations between
objects and path
integration.

**Benjamin Grainger and
Sanna Titus**

PhD Student and Research Assistant

**UK
Biology
Week 2022**



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#IAmABiologist
evaluating spatial
navigation across the
phylogenetic tree,
which includes
tracking **jewel wasp**
trajectories.

**Lewis Rowden and
Sanna Titus**

PhD Student and Research Assistant
at SWC and ZSL London Zoo

Biology
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