
Making Digital Pathology easy with QuPath

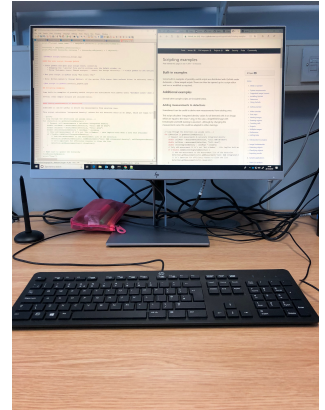
My name is Hannah Muti, I am 24 years old and 5th year medical student at RWTH Aachen in Germany. I am part of Dr. Jakob Kather's Digital Pathology Research group in Aachen and grateful recipient of the BDIAP elective bursary.

In October 2019 I traded Aachen's well known hospital floors for a desk and a computer in Edinburgh and I will now explain what I learned and why this was a very good deal.

With QuPath, the open source Digital Pathology software, you can perform tissue analysis and classification, TMA analysis, process your outcomes and visualize statistics. You can create and store your projects, and most importantly: it's *free* for everyone to use.

I personally have used QuPath a lot for my doctoral thesis about Digital Pathology in Gastric Cancer, which is why I was especially excited about the opportunity to spend one month working with Dr. Peter Bankhead, the developer of QuPath, and Melvin Gelbard at his current lab in Edinburgh.

I met Peter Bankhead, who originally developed QuPath at Belfast University and is now part of the IGMM¹, during an exciting era: QuPath's first version was about to be replaced by an update, which contains lots of new features.



QuPath's new tools, e.g. a tissue classifier, needed testing and documentation. So, I have been equipped with a computer and a graphics tablet to try out the new features on real-life digital pathology projects and to write down how to use them properly.

I developed basic website building skills to set up a structured documentation for QuPath's most important features and functions: we proudly present www.qupath.readthedocs.io !

From example workflows to compatibility with other software, you will find all the information you need to perform sophisticated tissue analysis.

Lack of documentation or tech support should not be a hurdle for scientists.

From a developer's point of view, I learned how software development works, what type of problems computer scientists encounter and that the type of problems they have are often totally different from the type of problems that medical users are confronted with.

Exchange of knowledge and mutual support are crucial.

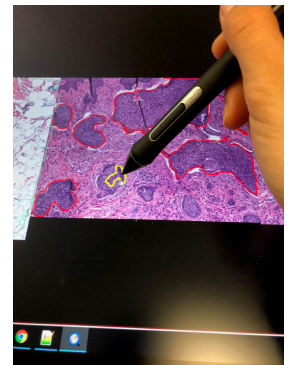
The support inside the QuPath research community and the interdisciplinary work have been a true inspiration. I came across a variety of interesting papers and research projects that used QuPath for their work. Dr. Bankhead's expertise and his taking care of his users adds to my amazement. To any question, he responds thoroughly and precisely. He is keen on making his software user-friendly and understandable. Among users, he encourages a friendly, cooperative environment.

We reap what we sow.

I am very thankful for witnessing how Peter Bankhead and his team make freely accessible, easy to use, future-oriented Digital Pathology possible for everyone.

This is how science should be done. Thank you for this opportunity, BDIAP!

Hannah Muti



¹ Institute for Genetics and Molecular Medicine in Western General Hospital in Edinburgh