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## ATLAS Open Data: Data visualisation and educational physics analysis to re-discover the Higgs

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Modern particle physics analysis is carried out using sophisticated programming and coding. How, therefore, can we genuinely introduce students to experimental particle physics analysis without an initial exposure to the coding behind? The answer from ATLAS Open Data is to build tools for interactive data visualisation. Web-based resources such as the “Histogram Analyser”, “ATLAS detector visualisation”, “Interactive physics paper” and “Analysis Browser” are easy to use, but still very powerful. Students already intrigued by the physics can then build up to a coding analysis by running Jupyter notebooks out-of-the-box. Such notebooks invite them to read some short pieces of code, but without asking them to write any, just yet. With the use of these tools and documentation, students can be guided to find the Higgs boson with only their mouse!

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