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*Statistics in Number Theory???*

Bradley Efron – the widely respected professor of statistics at Stanford – is famously quoted as having once said: “Those who ignore statistics are condemned to reinvent it.” But does this caution also apply to analytic number theorists? There was a time – dating back to the 1920s and 1930s, and prior to Kolmogorov’s 1933 seminal work – when probability theory itself had a bad rap. And the story of how that prejudice led Hardy, Turan, and others to miss out on some spectacular results in number theory is well documented by Efron’s colleague, Perci Diaconis, in his nice paper titled “G.H. Hardy and probability???", 2002, Bulletin of the London Math. Society. (The “???” in the title of our talk owes its origins to that paper.) Although some basic probability theory will be used, knowledge of statistics theory will not be required to follow this number-theoretically oriented talk. However, both the Fourier transform as well as the Riemann zeta function will each make star appearances in it. This talk is based on joint work with Greg Martin.