GRADUATION – TUESDAY 3 DECEMBER 2013

Chancellor, by authority of the Senate, I present to you this person on whom the Senate desires you to confer the honorary degree of Doctor of Science:

Simon Peyton Jones

Simon Peyton Jones is one of the stars and intellectual leaders of UK computer science research. He is a principal researcher at Microsoft Research in Cambridge, where he has worked since 1998. His main research interest is in functional programming languages, their implementation, and their application. For the uninitiated, functional programming is a style of programming in which programs can be regarded as mathematical functions, with properties that make it easy to reason about programs' behaviour and correctness. Simon is particularly interested in lazy functional programming, which sounds much more slothful than it really is. Laziness in this context refers to the evaluation of function arguments only when they are actually needed.

Simon has led a succession of research projects focused around the design and implementation of production-quality functional-language systems for both uniprocessors and parallel machines. He was a key contributor to the design of the now-standard functional language Haskell, and was the lead designer of the widely-used Glasgow Haskell Compiler (known as GHC). He has written two textbooks about the implementation of functional languages. He is also a co-creator of the C-- programming language, designed for intermediate program representation between the language-specific front-end of a compiler and a general-purpose back-end code generator and optimiser. C-- is used in GHC. Simon has received several international awards in recognition of his research: for example in 2004 he was inducted as a Fellow of the Association for Computing Machinery (the premier international computing science body); in 2011 he received membership in the Academy of Europe; and in the same year he was awarded the SIGPLAN Programming Languages Software Award, a prestigious international award, for his joint work on GHC.

Chancellor, for those of us who like numbers, and that is many of us here today, Simon has an extremely strong publication record, with over 13,000 citations. His h-index is 56, which in Computer Science is just phenomenal. He has co-authored papers with 133 other academics across the world (again, phenomenal in this field). He has written two very well-known text books:

The Implementation of Functional Programming Languages in 1987, and
Implementing Functional Languages with David Lester, in 1992.

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Unusually, Simon does not have a PhD. Following his undergraduate degree at Trinity College Cambridge in 1980, he worked for two years in industry, then he was appointed to a lectureship at UCL, where he stayed for seven years and thence to a Professorship at Glasgow. He stayed with us for 9 happy years until he moved to Microsoft. Many staff and students recall his endless enthusiasm for and commitment to both research and teaching, in particular to the first year engineering class, his pole position in the student questionnaires, his lively jumpers and above all, who can forget his bare feet, even in the depths of winter? But Simon has been more than a research leader and an excellent teacher.

Chancellor, a few years ago Simon decided he would "do something" about the perilous state of computing science education in schools in the UK. He authored a major report: Computing at School: the state of the nation, in 2009, and subsequently he was a major player in the formation of CAS: Computing at School, an organisation that aims to promote the teaching of computer science at school. CAS is a highly effective alliance of teachers, academics, and industry, developing the discipline and opportunities, making recommendations for school curricula, teacher support and continuing professional development. Simon is the founding chair of the Board. Under his leadership, CAS has grown into a significant body with over 4000 members, substantial sponsorship and £2 million DfE funding for over 70 master teachers in Computing Science in England. Most of the recent changes in English School education are a result of Simon's personal dedication and persistence; over the last few years he has met with just about every civil servant in Whitehall with

even a hint of responsibility for computing education. His energy, enthusiasm, clarity of argument, and pure intellectual force has won over a huge community of supporters. He was also a member of the Royal Society Working Party on Computing at School, where he personally authored large sections of the final report.

Simon is currently an Honorary Professor in the School, a commitment he takes very seriously. He visits the school several times each year, and is always asking what he can do for us. But most importantly, he has a standing offer to read and critique anyone's research proposals, something that we value highly. Simon will usually give feedback, by telephone, within 24 hours of submitting a proposal to him. I cannot overstate the importance of his reviews, which are always on the money. His critiques are extremely robust and insightful. Many of us, including myself, have been successful with a grant application only because Simon provided crucial feedback about how to address potential weaknesses. We even have a verb – to be "simoned", which was defined by a member of the school thus:

simon (v): the process of having one's research grant ripped apart into little pieces, and being advised to throw half the pieces away, rewrite the rest, and then rearrange them in a different order. It has the side effect of feeling encouraged, supported, greatly inspired and confident that you can produce a much, much better version, one

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that might even have a small chance of success. It results in a great deal more work, but it is work that you feel positive and excited about, and you can't wait to get your teeth into.

In summary, Simon Peyton Jones is an outstanding international research leader in Computing Science, an advocate of Computing Science in schools and in government, and a true friend of Computing Science at Glasgow University.

Chancellor, it is with great pleasure that I now request you to confer the honorary degree of Doctor of Science on Simon Peyton Jones.

Professor Muffy Calder
Professor of Formal Methods

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