

# NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

## C S S E M I N A R

**Title:**        **Julia - A fresh approach to numerical computing and data science**

**Speaker:**    Professor Alan Edelman  
                  Professor of Applied Mathematics  
                  Computer Science and AI Laboratories  
                  Applied Computing Group Leader  
                  Massachusetts Institute of Technology

**Date/Time:**  19 January 2016, Tuesday, 02:00 PM to 03:30 PM

**Venue:**        Video Conference Room, COM1-02-13

**Chaired by:** Dr Teo Yong Meng, Associate Professor, School of Computing  
                  (teoym@comp.nus.edu.sg)

### Abstract:

Julia is a high-level, high-performance dynamic programming language for numerical computing. It provides a sophisticated compiler, distributed parallel execution, numerical accuracy, and an extensive mathematical function library. Julia's Base library, largely written in Julia itself, also integrates mature, best-of-breed open source C and Fortran libraries for linear algebra, random number generation, signal processing, and string processing. In addition, the Julia developer community is contributing a number of external packages through Julia's built-in package manager at a rapid pace.

Julia is in use by tens of thousands of users worldwide, and is taught at dozens of universities, including MIT and Stanford. This talk will introduce the fundamental ideas in Julia, provide a gentle introduction to the language from a user's perspective, and also touch upon the future direction. We expect that members of the audience will be able to use Julia for teaching and research afterwards.

Julia Paper: <http://arxiv.org/abs/1411.1607>

### Biodata:

Professor Edelman has been working in the area of high performance computing systems, networks, software, and algorithms for 30 years. He also works on the theory and applications of Random Matrix Theory. He introduced the graduate course at MIT in high performance computing in 1994 and has trained a generation of students (from computer

science, engineering, and the natural sciences) who have now gone on to work at national labs, universities, and industry. He has won many prizes for his work including the prestigious Gordon Bell Prize, a Householder Prize, and a Babbage Prize. He is widely recognized for his broad expertise in hardware, software, networks, algorithms, and applications. With Julia he sees a new fresh approach to high performance technical computing. Prof. Edelman's homepage: <http://math.mit.edu/~edelman/>