Open Source Approach for Building Resilient Communities

Though mathematics and physics are often considered as pure theory and experimental research, in this symposium we shall emphasize their social nature and applications, especially the possibility of creating big communities using "free open source software". We want to show you how an Open Source Community led Approach can bring about better education and help in improving the socio-economic and Environmental Fabric of Societies. We present the following topics: （1）Definition and Quantification of Resilient Communities based on "Human Security Index", （2）Enhancing Education in Basic Science - Example of "MathLibre" Community, （3）Open Approach to Building Spatial Data Infrastructure - Example of Open Initiatives in Spatial Information Science, etc.

Attempting to Measure and Understand Well-being/Vulnerability: The Human Security Index for Nations and Communities

Dr. David Hastings (Founder and Curator, The Human Security Index)

Field: Geophysics, Remote sensing and geographical information systems, Information and Communications Technology, Characterization of socio-economic development situations, etc. 2008-present: Creator and Curator of HumanSecurityIndex.org. 1986-2013: Scientist of the U.S Federal Government.

The Human Security is a universal problem of human beings. The Human Security Index was proposed as a new index to measure and understand the well-being and the vulnerability for the sake of communities with nations of the world. The Human Security Index is now developed for 232 countries. And, the importance of the free open source software will be appealed.

Dr. David Hastings has worked in academic and public sector research and development, and spent most of the past decade with the United Nations Economic and Social Commission for Asia and the Pacific. Over the past decade he used 30+ years' experience (in the field & digital analysis lab, and on research & development teams) in indicator development to attempt a prototype HSI. That effort may have appeared to be bottom-up in its approach: "What is available which could be helpful in crafting a Human Security Index?" However, he had been working on his own, unnamed, human development index since 1987 (three years prior to publication of the first UN HDI), and on concepts of characterizing development since 1972. This experience provided design guidance behind the scenes of the outwardly bottom-up process. That, plus many discussions with UN and other colleagues, resulted in the HSI release of 2008.

Mathematics and Open Source

Tatsuyoshi Hamada (Assistant Professor, Fukuoka University, JST CREST and Visiting Research Osaka City University)

Field: Mathematics, Geometry, Mathematical Software. Membership: Mathematical Society of Japan, Japan Society for Symbolic and Algebraic Computation. 1997: Ph.D. in Mathematics, Tokyo Metropolitan University. 1997: Research Associate at Department of Applied Mathematics, Fukuoka University. 2007: Assistant Professor at Department of Applied Mathematics, Fukuoka University. 2008: Collaborative Researcher of JST CREST Team Hibi. 2012: Visiting Researcher of OCAMI.

He will talk about the mathematical software and the development of its global community in the world, focusing on the "MathLibre" project providing distributable and variable computer environment for mathematical research and educations. The "MathLibre" project is a new project started from 2012. It originates from the "KNOPPIX/Math" project which worked hard to spread the mathematical open source software for ten years.

Professor Venkatesh Raghavan has received the Sol Katz Award in 2012.

The Sol Katz Award is awarded annually by OSGeo to individuals who have demonstrated leadership in the GFOSS community and contributed significantly through their activities to advance open source ideals in the geospatial realm.

Open Initiatives in Spatial Information Science

Venkatesh Raghavan
（Professor, Osaka City University Graduate School for Creative Cities）

Field: Spatial Information Science, Geology. Membership: Japan Society of Geoinformatics, Japan-Vietnam Geoinformatics Consortium, International Association for Mathematical Geology, Remote Sensing Society of Japan, GIS Association of Japan, The Geological Society of India. Bachelor and Master degrees in Geology from University of Pune, India and Ph.D. in Geosciences at Osaka City University. 1996: Lecturer at Osaka City University. 2006: Professor at Graduate School for Creative Cities, Osaka City University.
He has received the Sol Katz Award in 2012. The Sol Katz Award is awarded to the individual who showed leadership every year in the GFOSS community from the OSGeo foundation, and advancing the ideal of an open source in the field of geographical space.

Shinji Masumoto
（Professor, Osaka City University Graduate School of Science）

Field: Geology, Geoinformatics. Membership: Japan Society of Geoinformatics, The Geological Society of Japan. Bachelor, Master and Doctor of Science degrees from Osaka City University. 1984: Researcher Associate at Faculty of Science, Osaka City University. 2006: Professor at Graduate School of Science, Osaka City University.

They will talk about the history of the software in Spatial Information Science, which was drastically changed by the free open source software "FOSS", and the relationship with communities. We also shall emphasis on their importance of society.

Professor Venkatesh Raghavan has received the Sol Katz Award in 2012.

The Sol Katz Award is awarded annually by OSGeo to individuals who have demonstrated leadership in the GFOSS community and contributed significantly through their activities to advance open source ideals in the geospatial realm.

Chair

Yoshihiro Ohnita (Professor, Osaka City University Graduate School of Science and OCAMI)

Field: Mathematics, Differential Geometry. Membership: Mathematical Society of Japan. 1980: Bachelor in Mathematics from Ibaraki University. 1985: Ph.D. in Mathematics from Tohoku University and JSPS research fellow. 1986: Research Associate at Department of Mathematics, Tokyo Metropolitan University. 1987-1989: Guest Researcher at the Max-Planck Institute for Mathematics in Bonn. 1998: Professor of Mathematics at Tokyo Metropolitan University. 2005: Professor at Department of Mathematics, Graduate School of Science, Osaka City University. 2013: Director of the Osaka City University Advanced Mathematical Institute (OCAMI).