



## Big Data Meets Operations Research at Forum

by Francisco del Rosario

In partnership with the Technological Institute of the Philippines (TIP), ORSP conducted the *Convergence of Big Data and OR* Technical Forum at the TIP campus on September 26, 2015. The 200 attendees came from industry and different schools, namely: Tarlac State University, University of the Philippines – Los Banos, Centro Escolar University, San Sebastian College, TIP, and Mapua Institute of Technology. Representatives from SMC and Nielsen also attended the seminar. The afternoon event was composed of three talks, all by industry professionals.

Maurice Chia, an equity strategy manager for a hedge fund in New York was the first speaker. Tasked

to talk about the applications of Big Data in Operations Research, he prefaced his talk by emphasizing the prominence of big data in the modern world and brought up the “Four V’s of Big Data”: Volume, Velocity, Veracity, and Value. He discussed some of the algorithms from graph theory that can be used to enhance data quality, emphasizing that before Big Data can be Smart Data, it should be processed in such a way that data integrity is preserved. His talk on *Big Data and Operational Research* was on mathematical formulations and derivations, aspects he thought was utilized in big data. He felt that this mathematical, technical-based approach was the

Continued on p. 2



Isaac Reyes talks about predictive analytics to a packed audience of OR industry practitioners, faculty and students.

## Workshop Participants Explore R

by Edwin Bunag

Tools for statistical analysis help decision makers reach accurate, data-driven decisions. Responding to the challenge of providing industry practitioners and educators training on the use of such a decision tool, ORSP, in cooperation with Asia Pacific College (APC) and Nielsen, organized a two-day workshop on *Advanced Data Analysis Using R Programming* on June 19 and 20, 2015 at APC Makati City. This workshop aimed to demonstrate how R programming is used to gain a fresh insight into what data is saying.

The technical workshop was facilitated by a team of experts from Nielsen composed of Raj Olympia, Kyle Tan, and Larissa Bagadion, headed by ORSP President Francis Miranda. The workshop introduced the basic concepts in computer programming using R and discussed different modeling techniques applied to real world business cases including risk management and marketing. On the first day, participants were introduced to the basic concepts such as familiarization and use of R expressions, variables, and functions. The session included a step-by-step hands-on experience on pre-processing data and using R in performing various statistical

Continued on p. 2

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most appropriate for the ORSP audience.

Isaac Reyes, a Data Scientist and CEO at DataSeer (a Data Science consulting, training and outsourcing company) was the second speaker. In his talk on *Predictive Analytics in the Era of Big Data*, He discussed the key role that predictive analysis capabilities play in a world dominated by data. He touched on the tools, technologies, and techniques that are being used by data scientists to derive insights from Big Data. He talked about how high-level management decisions could be heavily influenced by existing data. Illustrating this, he showed how a customer may have been influenced to purchase a product through awareness created through different channels. He showed how this

could translate into useful data by distributing the “credit” among the different channels. He also touched on his experience in working with students at DataSeer, and their group’s participation in “Kaggle” – frequently cited as the world-wide “Olympics of Data Science”. The group had nabbed one of the top spots in one competition (being the first Filipino group to do so) by predicting the prices of goods using advanced algorithm techniques like ‘Random Forest’. Ending the talk, he invited the students in the audience to apply to be part of DataSeer’s internship program.

The last speaker was ORSP President Francis Miranda, the Data Science Director and Innovation Board Leader at The Nielsen Company Philippines. He introduced the participants of the forum to

*Supply Chain Optimization Using Big Data from The Internet of Things” (IoT)*. Explaining that IoT are everyday objects that are internet connected such as smart refrigerators or wi-fi enabled thermostats. To illustrate, he showed a 5-minute video demonstrating how these devices would interact with humans (such as a refrigerator “informing” a family that they were out of a certain food items, or how the lights and air conditioning would automatically shut off if there was no one in the house). Miranda mentioned that it was estimated that there would be 26 billion devices on the IoT in 2020. He proceeded to discuss how retailers, manufacturers and distributors can optimize their supply chain by analyzing behavioral and consumption data of consumers from the IoT. ♦

## Workshop Participants Explore R

analyses. On the second day, participants were asked to create and develop statistical models. Facilitators patiently guided the participants and carefully trained them on how to interpret the output they were getting.

The audience came from the academe, business and the government sectors, specifically: Adamson University, Asia Pacific College, Camiguin Polytechnic State College, De La Salle University-Dasmariñas, De La Salle University – Manila, Holy Angel University, Lyceum of the Philippines University, PHINMA, Araullo University, University of Sto. Tomas, San Miguel Corporation, Nielsen, and National Anti-Poverty Commission. ♦



Combined lectures and hands-on exercises helped facilitate learning.



Tutors patiently teach and guide the R newbies.



Participants and facilitators pose at “graduation” time, hoping to make good use of lessons learned.

# Student Congress Plays Up Role of OR in the Service Sector to Achieve National Progress

by Juanito Chan

The annual ORSP National Student Congress was held last February 28, 2015 at the Buenaventura Garcia Paredes, O.P. Building, University of Santo Tomas.

Hosted by the ORSP – UST Chapter, the event with the theme, *BLINDSPOT: Discovering the Role of Operations Research in Promoting National Progress through the Service Industry* played host to 27 case study participants, 62 quiz contestants, and around 600 delegates from the following schools: Batangas State University main and Alangilan campus, Adamson University, Asia Pacific College, Ateneo De Manila University, De La Salle University - Lipa, De La Salle University – Manila, Enderun Colleges, Holy Angel University, Lyceum of the Philippines University – Laguna, Father Saturnino Urios University, Malayan Colleges Laguna, Mapua Institute of Technology, Polytechnic University of the Philippines, Southern Luzon State University, Technological Institute of the Philippines – Quezon City, University of the Philippines – Diliman, UP – Los Banos, and University of Santo Tomas.

Esteemed speakers, Past ORSP President JC Mercado and current

ORSP President Francis Miranda emphasized the relevance of using OR models and techniques in the service industry with their knowledge, expertise and experience as OR practitioners.

Following the technical and practical break-out sessions were the final presentation of the three teams from UP Diliman and UST who made it to the final leg of the 2015 Case Study Competition. Beating 24 other participants, Jasper Ortiz, Judith Cristobal, and Mardocheo Crispino from University of the Philippines won the case on the Markdown Management at Sports Unlimited. The preliminary round of the case competition was held last February 4, 2015 at the Conference Hall of the Faculty of Engineering in UST.

Followed by the serenading and entertainment from Julia Mella of Thomasian Idol and Ateneo Etablado during lunch was the most awaited battle of the brains among 62 quiz contestants during the 2015 OR Quiz Competition. As in the past few years, UP Diliman (see picture for team members) bagged the Championship trophy with De La Salle University and Ateneo de Manila in second and

third place, respectively. The runner up was the De la Salle team of Antonio Aloysius Yamzon, Bryan Timothy Tiu, Miguel Lahoz, Ian Frederick Ilagan and Paul Siegfried Barrios. The event concluded with the announcement of case competition winners and OR quiz competition champions, raffle draw, and distribution of more freebies from sponsors. ♦



Quiz Bee Competition winners (left to right) Kristine Sarreal, James Domingo, Gabrielle Angela Santos, Danil Rupert Gaerlan and Wayne Coherco



Awarding of the ORSP Case Study Competition winners (left to right) Mardocheo Crispino, Judith Cristobal and Jasper John Ortiz.



Guest Speakers Francis Miranda speaks on Why Data is Sexiest Job in the 21st Century and JC Mercado talks on OR in the Service Industry.



ORSP Judges given their certificates of appreciation by the organizers.

# 2014 Conference Focuses on ASEAN Integration

by Elise del Rosario

In light of the ASEAN Integration, ORSP theme of the 8<sup>th</sup> National Conference held last November 7, 2014 at the Richmond Hotel, Eastwood, Quezon City was OR: Helping Gear Up for the ASEAN Integration. After the Welcome of the Conference Chair, Jaypy Tene-rife, the plenary speeches proceeded. Stuart Jamieson opened the plenary by discussing the emerging consumer class in his topic, *ASEAN 2015: New Opportunities, New Consumer Class*. He discussed the possibilities of an ASEAN that is prepared to deal with minimizing risk and optimizing growth within a single economic zone. He captured most of the audience as he discussed the needs of this aspirational, uber-connected new consumer class. He shared some insights into how to optimize partnerships, networks and relationships-which have become even more critical than in the past.

Enrico Basilio, the second plenary speaker, on the other hand, discussed *Enhancing ASEAN Connectivity: The ASEAN RO-RO Initiative*. He premised his talk on the fact that the 2007 ASEAN Economic Community Blueprint calls for the transformation of ASEAN into a single market and production base. From this, he developed “intra-regional connectivity within

ASEAN and its sub-regional group-ing would benefit all ASEAN Mem-ber States through enhanced trade, investment, tourism and develop-ment” and related this to the es-tablishment of a regional roll-on/roll-off (RO-RO) shipping network in his ASEAN agenda. He asserted that once implemented, this will shorten transfer distances and open more economic opportuni-ties for more people.

After the hearty lunch buffet, 15 research papers were presented in two parallel sessions, with Iris Martinez and Malu de Guzman U as session chairs. The sessions were classified into: *Supply Chain, Logistics, and Operations Management*, and *Worker Behavior and Responsiveness to Customer Demand and Risk*.

During the breakout sessions, participants again gathered in the Ballroom for the Plenary Tutorials entitled *Systems Thinking and Sytem Dynamics* by Dennis Beng Hui and *Improving Your Consulting Skills* by Maria Vida G. Caparas.

At the Business Meeting, ORSP President Francis Miranda gave a summary of the activities under-taken by the ORSP for 2014. Geof-frey Galisim from ABS-CBN, Rachel Aurelio from Ateneo Graduate School, Sandi del Vega of Manila

North Harbour Port, Inc and Is-mael Pangilinan from the Univer-sity of Santo Tomas Graduate School were inducted as new members.

The fellowship which immediately followed the induction featured a game hosted by ORSP regular game master Bing del Rosario. It called for all the attendees to di-vide themselves into teams and identify and match global corpo-rate logos. With the greatest con-centration they could muster, eve-ryone tried to win the prizes at stake. This left everyone ready to partake of the food and cocktails served promptly after. It was again another conference to remember.♦



Audience listening intently to the interesting and relevant plenary sessions.



New members take their oath.



Bing del Rosario conducts game during the fellowship.



M. Caparas lectures on consulting skills.



Plenary speakers Enrico Basilio, left, and Stuart Jamieson, right, talk about two very different and important aspects of the ASEAN integration.

# Environment Takes Center Stage at APORS 2015

Excerpts from IFORS News, Sept 2015 issue, article by Lai-Soon LEE, Management Science/OR Society of Malaysia

The 10th Triennial Conference of the Association of Asia-Pacific Operational Research Societies (APORS2015) took place last August 2 to 6 at the Imperial Hotel in the city of Kuching, Sarawak in Malaysia with the theme *OR and the Environment*.

Gracing the conference were IFORS President Nelson Maculan, NORAM Vice President Michel Gendreau, Past IFORS President **Elise del Rosario**, and Past APORS Vice President Tatsuo Oyama.

The conference consisted of 76 technical talks spanning the many disciplines of OR with an application towards the concerns of the environment. Delivering the keynote address on *OR and Corporate Environment Management* was IFORS Tutorial Lecturer Peter Lemathe from the RWTH Aachen University, Germany. There were 4 plenary talks, bringing together a unique combination of academic and industrial expertise of leading



E. del Rosario, F. Miranda and G. Chua pose with the Sarawak mascot, the orangutan.

researchers in OR. The first was presented by Stefan Pickl from Universität der Bundeswehr München, Germany on *Intelligent Energy Networks and Security Structures (INESS) - Strategic Management, Process Optimization and Visualization of Critical Events within International Resource Conflicts*. Eric Sandosham of the Red & White Consulting Partners LLP, Singapore gave a variety of applications in his discussion on *Defining the OR Opportunity in Consumer Banking*. The third plenary

talk by Murali Sambasivan from Taylor's University, Malaysia talked about *OR and Sustainable Supply Chain Management*, followed by Graham Kendall from the University of Nottingham Malaysia Campus, who discussed *Good Laboratory Practice for Operations Research*. The wide range of topics covered in the plenary sessions was reflected in the papers presented by most of the 100 delegates from 21 countries. One of the presenters was ORSP President **Francis Miranda** who presented his paper on *The Internet of Things*. Another past ORSP member **Geoff Chua** who is now based in Singapore presented his work on *Unsold Versus Unbought Commitment: Inventory Control and Procurement Contracts*.

The excursion to the Sarawak Cultural Village on the afternoon of the second day culminated with the conference dinner. On the last day, participants planted 150 trees, a contribution to the city's effort to preserve its environment and heritage.

The APORS Council Meeting was also held, where preparations for the APORS 2018 in Nepal was discussed. Ilias Mamat was elected IFORS Vice President for APORS for the term 2016-2018. ♦



Warming up for the APORS Council meeting: (standing, l to r): Lai Soon Lee-Malaysia, Govinda Tamang-Nepal, Degang Liu-China, Aldy Gunawan-Singapore, Chang Won Lee-Korea, Francis Miranda-Philippines, (seated, l to r): Sunity Shrestha Hada-Nepal, Elise del Rosario-IFORS, Ilias Mamat-APORS, Nelson Maculan-IFORS, Tatsuo Oyama - Japan

# Glasgow: A Perfect Setting for Workshop on Uplifting Living Conditions

Taken from IFORS News, Sept 2015 issue, article by Andres Felipe Osorio Muriel, University of Southampton

The Euro Working Group in OR for Development (EWG-ORD) and IFORS organized a workshop entitled "OR for development: Uplifting living conditions" on July 8 and 9 as part of the 27<sup>th</sup> European Conference on Operational Research (EURO 2015). The workshop was held at the Graham Hills Building of the University of Strathclyde in the beautiful city of Glasgow, Scotland. But Glasgow was not always beautiful - the 1970s and early 1980s were dark periods in the history of Glasgow, as urban decay set in, caused by mass unemployment. The city has since then enjoyed an economic and cultural renaissance. The city was therefore a perfect setting for discussing the role that OR can play in uplifting living conditions all over the world. The papers and talks presented showed how OR has helped and could potentially help in urban development, health, peacekeeping policies, and in manufacturing in developing countries.

The conference gathered delegates from 12 countries, including Chile, Ukraine, Colombia, US, India, Philippines, UK, Turkey, Russia, Nigeria, Brazil and Tunisia. The schedule of the workshop offered an interesting combination of technical workshops and presentations of research and applied works carried out in developing countries. The format of the conference allowed to the presenters to have reactors assigned previously which generated a deeper analysis and discussions of the papers presented. The event started with a very friendly dinner at Carluccio's restaurant on the night of July 7. The dinner was the perfect occa-



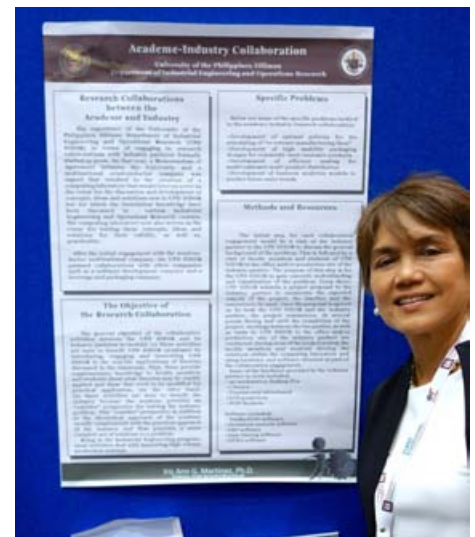
Honora Smith of Southampton University gives E. del Rosario certificate of appreciation

sion for most of the delegates and to get to know one another and share research and work experiences. This helped everyone prepare for the next day's sessions. The first day began with the registration and opening remarks from the chair of the event, **Elise del Rosario**. Following the introductory part, the keynote speech entitled *Operational Research and Development; 'Real World' Insights from Health O.R* was presented by Geoff Royston. During the same day, there were presentations and a workshop entitled *Multicriteria Mapping Tools*, which was carried out by researchers from the University of Sussex.

The schedule of the second day was also a combination of presentations, plenaries and a workshop. Sue Merchant shared her OR experiences with the police force in her talk on *A Life in Crime* and Honora Smith on *Healthcare Devel-*

*opment: A Case Study of Location of HIV/AIDS Laboratories in South Africa*. The hands-on workshop run by Simul8 was aimed at introducing Discrete Event Simulation through the use of the Simul8 software.

The workshop was an excellent opportunity to meet participants with similar interests and discuss how to approach issues in countries with similar problems. The effort must continue in order to promote operational research methodologies around the world, including of course developing countries where conditions and resources make the environment very challenging. This event helped delegates realize the power of OR methodologies to uplift living conditions! ♦



Iris Martinez joined the poster session on academe-practice linkage that E. del Rosario put up in the Technology and Innovation Centre, University of Strathclyde.

# President's Corner

by Francis Miranda



The theme of the 8<sup>th</sup> ORSP National Conference held last November 7, 2014 was **Operations Research: Helping Gear Up for the ASEAN Integration**. It was very timely because of the ASEAN Economic Community's (AEC) goal of regional economic integration by 2015. The APEC Summit which will be hosted by Philippines this November 2015 will further complement the goal of facilitating cooperation in ASEAN.

ORSP invited 2 plenary speakers to talk about some of the opportunities for the ASEAN integration. The first plenary speaker was Stuart Jamieson, Managing Director of The Nielsen Company Philippines, who talked on how to seize opportunities from the emerging middle class in South East Asia (SEA). The second plenary speaker was Dr. Enrico L. Basilio, Chief of Party of the USAID Advancing Philippine Competitiveness (COMPETE) Project, who talked about the "roll-on/roll-off" (RO/RO) shipping network initiative to transform the region into a more inter-connected market and production base.

The first activity for 2015 was the annual Student Congress held at the University of Santo Tomas' Alumni Building last February 28. The theme of the Student Congress was **Blindspot: Discovering the Role of Operations Research in Promoting National Progress through the Service Industry**. The Congress kicked-off with presentations from me and JC Mercado, former President of ORSP, on "OR in the Service Industry".

The 2015 ORSP Technical Workshop called **Advanced Data Analysis Using R** that was conducted in collaboration with the Data Science Department of The Nielsen Company was held at the Asia Pacific College last June 19 and 20. The workshop taught different modeling techniques using R, a leading open-source analytics software, and how it can address real-world business problems. More than 40 people from industry, academe and the government attended the workshop.

The 2015 Technical Forum with the theme **Convergence of Big Data and OR** was held at the Technological Institute of the Philippines-QC last September 26. 3 speakers shared their insights on how OR can be used to add value to the increasing volume of data from social media, the Web, transactional data from businesses and the emerging Internet of Things (IoT). The three speakers were Maurice Chia, an Equity Strategy Manager for a New York-based hedge fund, Isaac Reyes, CEO of DataSeer, and myself representing The Nielsen Company.

To cap the year, ORSP has chosen the theme of **Analytics: Fueling the Engines of Growth** for its Annual Conference on November 27

at the Richmond Hotel, Eastwood City. This will build on the previous activities of ORSP in 2015 which have centered on analytics tools and models. Attendees can expect to learn how analytics can be used in bolstering business and economic growth.

2016 promises to be another activity-packed year for ORSP. Watch out for announcements at the ORSP website, <http://orsp.org.ph>.



The annual conference is an opportunity for members to link up, share with and learn from each other.



ORSP continued to fully support future OR workers through its continuing assistance in student congresses.



ORSP's commitment to provide continuing education of its members through Technical Forums and Workshops.

# Welcome New Members!

This newsletter issue welcomes new members who have joined the ORSP Team.

From the *Academe*, we have **Maricar Dutarot**, Sales Analytics of Magnifico Jeans, Inc.; **Eric Embang**, CEA-Dean of University of the Assumption; **Ernesto Icogo**, Fraunhofer ISE of Albert-Ludwigs-Universitat-Freiburg; **Maricris Erpelo**, Faculty of Saint Louis University-Baguio City; **Romer Castillo**, Assistant Professor II of Batangas State University; **Michael Godoy**, Assistant Professor III of Batangas State University; **Ma. Belinda Mandigma**, Professor of University of Santo Tomas; **Geraldine Nerona**, Faculty of Saint Louis University; **Gen-erose Ognayon**, Professor of Ifugao State University; **Jan Dexter Pugrad**, Instructor of Mariano Marcos State University; **Maria Corazon Rubido**, Chairperson of PATTS College of Aeronautics; **Michael Sanchez**, Senior Lecturer of UP Extension Program in Panganga; **Victoria Ritardo**, Professor of Camiguin Polytechnic State College and **Edwin Valeroso**, Faculty of De La Salle University- Dasmariñas.

Renewing his membership is *Balik-ORSP* member **Lindley Bacudio**, Faculty of De La Salle University – Science and Technology Complex, Biñan, Laguna. ♦



Maricar Dutarot



Eric Embang



Ernesto Icogo



Maricris Erpelo



Romer Castillo



Michael Godoy



Ma. Belinda Mandigma



Geraldine Nerona



Jan Dexter Pugrad



Ma. Corazon Rubido



Michael Sanchez



Victoria Ritardo



Edwin Valeroso



Lindley Bacudio

ORSP wishes one and all a very Merry Christmas and a Happy New Year!