



OR and Analytics Intertwined: Technical Forum Shows Why and How

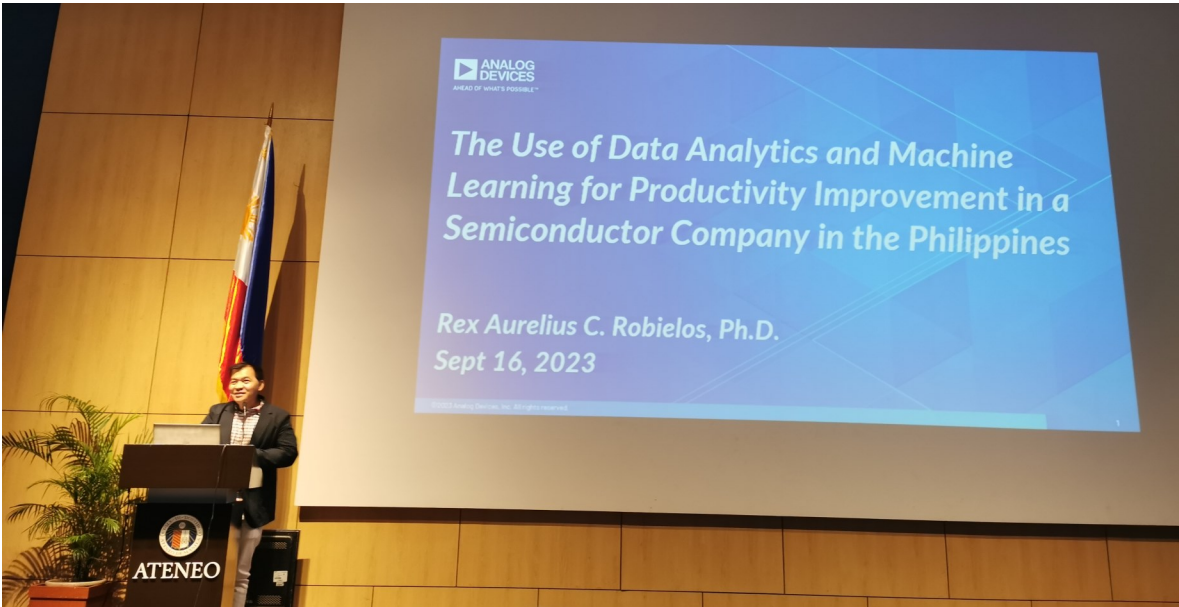
The highly successful ORSP technical forum ***Data Science and Analytics- Operations Research Tools in Action*** was held on September 16, 2023 at the Leong Hall Auditorium, Ateneo de Manila University, marking the first time in 3 years that the event was held face to face at its usual venue.

Despite the rains, 248 OR practitioners, faculty and students from Ateneo, Asia Pacific College, Adamson University, Batangas State University, Department of Health, Holy Angel University, Mapua, University of Santo Tomas, University of the Philippines – Diliman, Technological Institute of the Philippines, Taguig City University, and as far as Hong Kong University of Science and Technology trooped to the venue. They were all treated to two talks that gave insights to students eager to explore careers in data science and to seasoned professionals seeking to stay at the forefront of the dynamic field.



Bain & Company's Advanced Analytics Group in Manila Director **Alex Hipolito** delved into the OR tools of optimization and heuristics, while pointing out how Mixed Integer Programming (MIP) has been used to address many problems across various industries with outstanding results. He later cited Optimization's critical role in Machine Learning (ML)/Deep Learning (DL) algorithms and how Optimization, particularly MIP, can be used to address data science use-cases directly. He cited some approaches to leverage ML/DL techniques in solving Optimization problems, essentially demonstrating the opportunities for harnessing the synergistic potential of the OR and Data Science toolkits.

The prospect of using Generative AI to increase transparency and understanding of complex Optimization applications is an inspiration for OR workers in increasing the adoption of OR Techniques into mainstream applications. The speaker gave a demo of such an application which used Natural Language prompts to create on-the-fly visualizations and optimization scenario models for a Network Optimization application. The demo leveraged some tips he shared on knowledge-augmented prompts that can help avoid "hallucinations" by Generative AI.



Rex Robielos who manages Operations Research Engineering at Analog Devices General Trias presented a compelling case study illustrating the application of Data Analytics in a Semiconductor Company in the Philippines. Presented with an industry relying on more than a thousand equip-

ment valued at a million dollars each, the audience was given a feel for the importance of making full use of the equipment. This case study serves as a powerful reminder of how data-driven dashboards and machine learning can dramatically improve productivity, even in highly specialized sectors. The speaker showed how ML was applied in one of the key processes in test manufacturing to maximize the number of lots that can skip the sampling process while still minimizing the defects. The pursuit of excellence in product quality, as emphasized by the presenter, underscores the importance of continuous learning and adaptation for professionals in the field.



R. Robielos and A. Hipolito receive their token of appreciation from M. de Guzman U (L) and E. del Rosario (R).

The enthusiasm ignited by the speakers among the audience got carried into the games led by Dominic Vincent Tan of Management Engineering Association. At the start of the program, participants were warmly welcomed by Mr. Adriel Jeremy Gaw, Quantitative Methods and Information Technology faculty. Malu de Guzman U provided the introductions and moderated the open forum, with Elise del Rosario doing the summary and concluding remarks.



Participants take a break by participating in the games prepared by MEA.

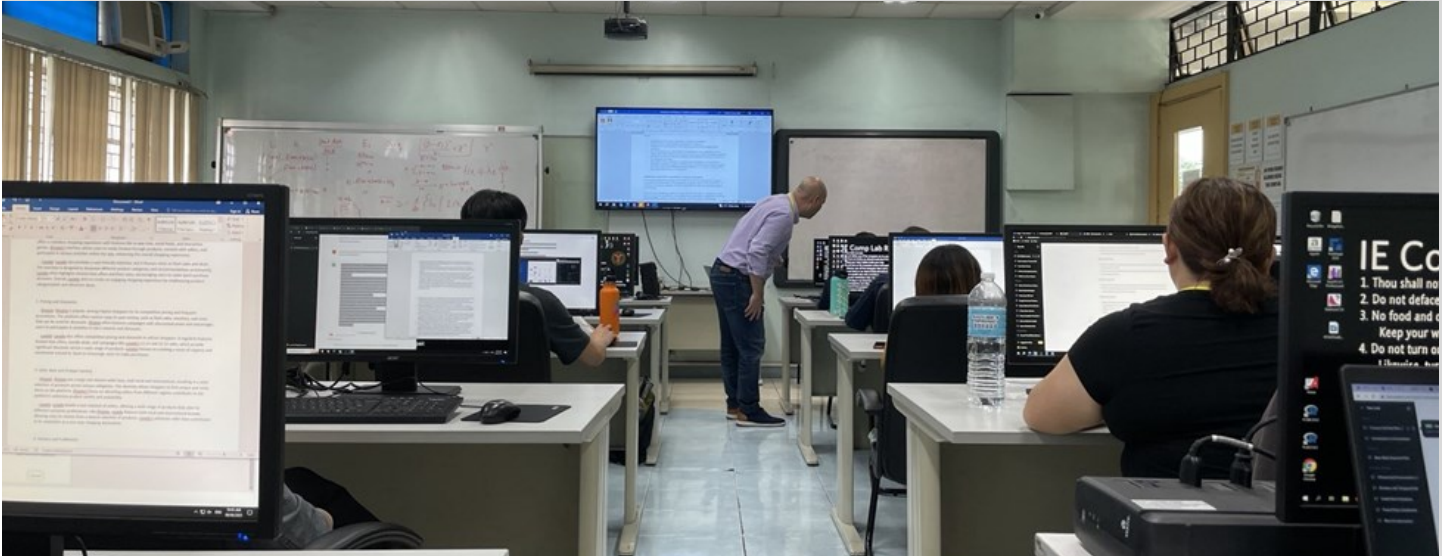
While only some went home with game and raffle prizes, everyone gained inspiration or at least curiosity, to continuously explore this ever-evolving field. After all, students and professionals have long driven the advancements witnessed in OR ♦



OR professionals and students alike waiting for the forum to begin.

Workshop Tackles Harnessing the Power of Generative AI for OR

The ORSP technical workshop entitled *ChatGPT and Python: A Productivity and Machine Learning/ Operations Research Powerhouse* was held on June 9, 2023, at the IE Optimization Laboratory, Melchor Hall, UP Diliman. The lab was filled to capacity, with 32 attendees representing professionals from the public (Social Security System, National Housing Authority) and private (San Miguel Corp, Bain & Co., GfK) sectors, as well as the academe (AIM, Holy Angel University, ADMU, and UP). It was a one-day workshop filled with hands-on exercises that enabled participants to accomplish diverse tasks with ChatGPT as well as use it with Python to be able to harness its capabilities in machine learning and optimization.



Workshop leader was **Francis Miranda**, the Global Senior Head of Web Scraping Solutions, and Asia Pacific Quality and Data Science Director at GfK. He is the International Federation of Operational Research Societies (IFORS) Vice-President representing Asia Pacific and has been president of both of the Association of Asia Pacific Operational Research Societies (APORS), and ORSP. He was assisted by **Alexander (Alex) Hipolito**, a Director within Bain & Company's Advanced Analytics Group in Manila, specializing in the use of optimization and machine learning / data science techniques for supply chain and service operations applications.

Starting from simple to more complicated tasks, F. Miranda guided participants through such exercises as summarizing a book, simulating an HR interview for a business analyst position, getting information about a company's competitors, and providing a strategic plan against such competitors. It was interesting to hear different participants share about the different company examples used and the resulting strategic plans generated by ChatGPT. Other activities involved summarizing a YouTube video; generating a VBA code to create a presentation and making PowerPoint slides; consolidating two or more Excel files into one and making a PowerPoint presentation using the charts. Participants also created PowerPoint presentations on a given topic. All these exercises demonstrated the potential of the tool to boost productivity in the workplace.

The afternoon session focused on the use of ChatGPT in data science and optimization, such as in classification, regression, clustering given large amounts of data. For these tasks, ChatGPT is directed to create code in Python to perform tasks in cleaning up or processing the given data, splitting the data into training and testing data sets, and ultimately performing analyses such as creating a regression model for prediction, or creating a classification model, or a clustering model.

Concluding the Workshop was a demonstration of how these tools are used for three traditional Operations Research models, namely: transportation, facilities location, and staff scheduling. Participants tried out using ChatGPT to generate Python code to solve such models and end with an optimal solution!



Capping the Workshop was A. Hipolito's presentation on the use of ChatGPT as a coding assistant for optimization modeling. He first discussed how GenAI coding assistants are feature-packed, boosting developer productivity and quality in the areas of code generation, testing and quality improvement, filtering, documentation, and integration. He then demonstrated how one may build a Facility Location app using ChatGPT, suggesting different prompts that guide ChatGPT for coding, putting additional constraints, extending the model with different modifications, then ending with a visualization of the facility locations and flows in the plan...again demonstrating that ChatGPT is a powerful tool for Operations Research modeling. He ended with a critique of ChatGPT as a coding assistant, discussing what areas of optimization it is good for, as well as where it is weak. Despite the demonstrated power of the tool, both speakers warned everyone that the tool could "invent" facts and to watch out for these.

Thankful to the Workshop host UP Diliman Department of Industrial Engineering and Operations Research, the organizers were elated with the feedback that the day's discussions, demos, and exercises were very helpful for them. ♦



Participants all smiles after receiving their certificates of Workshop Completion.

Rising from the Pandemic

ORSP Student Federation Shows Réforme - The Way Forward



The ORSP Student Federation Congress, held on May 6, 2023, at Adamson University's Co Po Ty Hall, was a resounding success, marked by engaging discussions, insightful speakers, and a thrilling quiz bee competition. Under the theme "Réforme: The Way Forward," the event brought together hundreds of students from various universities to delve into the world of Operations Research.

The congress saw an impressive turnout of both on-site and online participants, representing institutions such as Adamson University, Quezon City University, Technological Institute of the Philippines - Quezon City, University of the Philippines - Diliman, and PATTS College of Aeronautics. With a fresh Covid alert level, not all those who wanted to come were accommodated in the venue. This was quickly turned from a face to face to a hybrid event, with virtual attendees warmly greeted and included seamlessly through screen monitors. Expert hosts Joshua Bayker and Leo Villamor led participants through the day's event, marked by knowledge-sharing and collaboration.

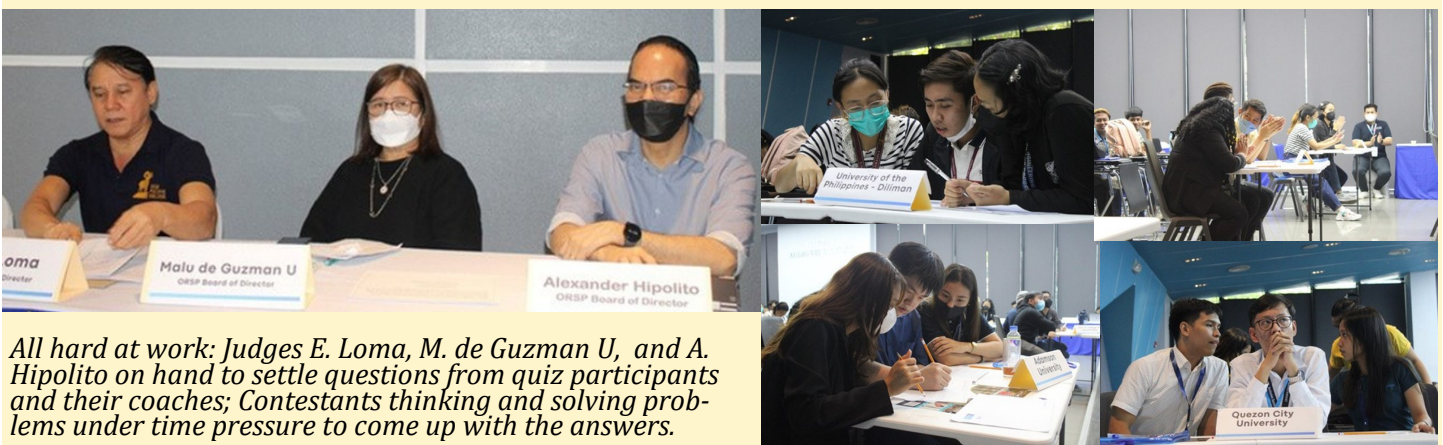


Speakers R. Rabang, R. Tarun and P. Uy show how OR remains relevant in the Petroleum, Warehouse Operations and Logistics Industries.

The event featured a lineup of distinguished speakers, each shedding light on different aspects of Operations Research. *Ricardo Rabang* illuminated the audience with his talk on "Sustainable Petroleum Industry through Operations Research." He emphasized the critical role of optimization in the petroleum industry, discussing how techniques like linear programming play a pivotal role in decision-making. He also touched on Fourth Industrial Revolution (4IR) techniques and presented examples of technologies using Operations Research in the petroleum industry, one of which was Digital Oilfield and Big Data analysis. *Ronald Tarun* followed with a discussion on "Trends in Warehouse Automation", where he introduced the application of

Artificial Intelligence in warehouse operations. The audience actively participated in an AI-generated platform called Slido, gaining firsthand experience of AI's role in interaction. The speaker showcased the technology's real-world application and underscored its significance in modern warehouses. *Patric Ellis Uy* rounded off the series with "Logistics: Evolving with Supply Chain Challenges," which emphasized the importance of speed, innovation, and digitalization in logistics. He discussed how LF Logistics converts data into valuable analytics and stressed the importance of collaboration with the industry for growth and skills development.

The highlight of the event was the highly competitive quiz bee. It was organized by the mother chapter, the Operations Research Society of the Philippines with Board Members Malu de Guzman U, Edwin Loma, Alexander Hipolito, and Rex Robielos conducting the quiz. It consisted of three rounds: Easy, Moderate, and Difficult, progressively challenging the participants' comprehension and quick-thinking abilities. Teams from Adamson University, Quezon City University, Technological Institute of the Philippines, PATTS College of Aeronautics, and UP Diliman vied for the top spot.



All hard at work: Judges E. Loma, M. de Guzman U, and A. Hipolito on hand to settle questions from quiz participants and their coaches; Contestants thinking and solving problems under time pressure to come up with the answers.



After the pandemic break, champion team UP Diliman remains undefeated.

In the end, UP Diliman emerged victorious, demonstrating their exceptional knowledge and skills in Operations Research and mathematical modeling. Guided by Jason Joseph B. Fernandez, the team composed of Mark Jay O. Sedan, Cylene J. Sabio, Nazka L. Leosala, Jann Eric Joshua C. Raralio, and Steven Jom C. Milay displayed outstanding teamwork and expertise. The team was awarded the championship trophy, keeping a tradition where they have won the annual championship trophy for 11 times with Ateneo and De La Salle in the top three spots.



This year, Adamson University secured the first runner-up position, led by adviser Karen S. Tafalla, while Quezon City University clinched the second runner-up spot under the guidance of Nina C. Apusaga. For their remarkable achievement, UP Diliman received a cash prize of 8,000 PHP, with the first and second runners up receiving 6,000 and 4,000, respectively.



First and 2nd runner ups, Adamson University (top) and QC University (bottom) pose proudly with their certificates and cash prizes.

Activities held in parallel with the Quiz Bee were onsite workshops on Amatrol Interactive Learning, 3D printing as well as Certification for Industrial Engineering awareness.

As the event came to a close, the organizers expressed their heartfelt thanks to sponsors, speakers, judges, and all participants, both on-site and online. Their collective effort and commitment to learning



and collaboration made *Réforme: The Way Forward* a resounding success.◆



Organizers heave a sigh of relief at the end of the day long activity.

An invitation for Student Organizations to Apply for/Renew Membership as an ORSP Student Chapter

Requirements:

- ⇒ **Accreditation letter**
- ⇒ **Endorsement letter from the Dean/Chairman of the university/college or certificate of organization recognition issued by the college/university office of student activities**
- ⇒ **List of Officers and members signed by the adviser (should be an active Member)**
- ⇒ **Constitution and By Laws**
- ⇒ **Membership fee (2,000)**

Please forward all your requirements to Jenny Alzate, ORSP Secretary at secretariat@orsp.org.ph or call +63927 877 5219.

ORSP Gears Up for First F2F Post Pandemic Conference on November 17, 2023 at De La Salle University - Manila

INVITATION

With the theme *Data-Driven OR and Analytics for National Resilience and Sustainability*, the conference seeks to bring together OR researchers, academicians and practitioners, whose collective work has sustained continuing OR contribution to decision-making.

The 2023 National Conference aims to provide a forum where:

- Practitioners will share their experiences on the problems, methodologies and outcomes of applying OR to solve real-world problems in the Philippines;
- Decision-makers will share new applications of OR in non-traditional areas especially those pertaining to sustainability and resilience;
- Researchers will present their findings dealing with the theoretical, computational, and application aspects of OR;
- OR workers will discuss pertinent academic-, theoretical- and application- oriented issues;
- Decision-makers could gain insights from experiences of others who have benefited from the use of OR and analytics in the public and private sectors; and
- Everyone will be given the opportunity to exchange ideas on how OR and Analytics can help deal with issues that will contribute to Philippine economic growth and sustainability issues.

KEYNOTE AND INVITED SPEAKERS

Prominent OR practitioners, academicians, and businessmen have been invited by the organizers to deliver keynote speeches. Speakers and delegates from all over the country will share their work in the parallel sessions.

CONFERENCE TOPICS

Submissions of papers aligned with the Conference Theme in the following areas are welcome: *Banking and Finance, Mathematical Programming, Corporate Strategies, Modeling, Decision Support Systems, Management Information Systems, Distribution Management, Marketing, Energy, Production Planning, Engineering Production Control, Expert Systems, Project Management, Financial Investment, Queuing, Forecasting System Dynamics, Health and Welfare Services, Transportation, Inventory Control, Innovation/Knowledge Economy, Supply Chain Management, Customer Relationship Management, Complexity Theory, Soft Methodologies*. Papers reporting original and unpublished research results and experience are solicited. Guidelines for abstract submission follow.

ABSTRACT SUBMISSION

The abstract should be typed in English, should not include mathematical notations, and must contain the following:

- Paper/proposal title;
- Abstract of not more than 200 words;
- Author(s) name(s), organization, full mailing address, email address, with an indication of author(s) presenting the paper; and
- Topic (at most three, chosen from the Conference Topics List) under which paper falls and additional topics if not included in the list.
- Abstract and paper submission is now open, through orspconf2023@gmail.com

PROGRAM

7:30	Registration	11:55	Lunch
8:30	Keynote Speech	13:10	Parallel Sessions
9:25	Plenary 1	14:16	Parallel Sessions
10:20	Break	15:22	Break
10:40	Plenary 2	15:42	Parallel Sessions
11:35	Induction of New Members & Student Chapters	16:48	Closing Ceremonies

IMPORTANT DATES – EXTENDED

Deadline for abstract submission: October 15, 2023
Deadline for early registration* and author registration for inclusion in the online abstract book: October 25, 2023

REGISTRATION FEES*

	PESO		USD
	Early	Reg	Foreign
Members	2,000	2,500	
Non-Members	2,500	3,000	100
Students	800	1,000	50
Online- Members	500	500	50
Online- Students	200	200	20

* Registration fees are inclusive of AM/PM snacks and Lunch.

Registration/ Payment Methods:

- Payment may be deposited directly to BDO Account No. 00151 0028 666 under the name of Operations Research Society of the Philippines, Inc. (Please do not abbreviate). Please send proof of payment with your registration form.
- For ORSP members, membership fees must be paid for the year.
- Payments may also be made thru GCASH 0917 863 4196.
- For other inquiries, contact Jenny Alzate, viber/mobile +63 927 877 5219; e-mail secretariat@orsp.org.ph
- Certificates of attendance shall be given upon request.

South America's Chile Hosts the IFORS 2023 Triennial Conference



Almost a thousand participants from 55 countries gathered to learn from each other and build networks.

The 23rd Conference of the International Federation of Operational Research Societies was held July 10-14, 2023 in Santiago, Chile, with two former ORSP Presidents Elise del Rosario and Francis Miranda representing the Philippines. The sessions were held both at the Pontifical Catholic University of Chile and University of Chile. *Advanced Analytics for a Better World* was the recurring theme in the four plenary talks, six keynote sessions and six tutorials. Paper presentations numbered 726 and the 950 participants came from 55 countries. The breadth of the topics can be gleaned from the plenary talks given by: Juan Carlos Muñoz on *A Vision for Addressing Urban Transport Sustainability Based on Lessons from Santiago's Transport System*; Margaret Brandeau on *Advancing Analytics for Better Health and a Better World*; Paolo Toth on *Metaheuristic Algorithms for Location-Routing Problems*, and Andres Weintraub on *How OR has Impacted Decisions in Natural Resources*.



EWG-ORD Workshop capped by a lecture given by E. del Rosario.

Among the sessions was the Workshop of the Association of European Operational Research Societies OR for Development and Developing Countries Working Group where E. del Rosario presented a paper on the *History of IFORS Involvement in the OR for Development*. IFORS Hall of Famer Frederick Hillier was one of the participants, and he shared his ideas on how teaching of OR in developing countries.

As IFORS committee head of the Developing Countries Committee, F. Miranda was overall in charge of the *IFORS Prize for OR in Development*, a triennial competition that seeks to recognize work that describe a practical OR application in a developing country, conducted to assist a specific organization in its decision-making process, with original features in methodology or implementation. This year's winner was from Taiwan. E. del Rosario served as one of the nine judges of the competition.

The Conference program included the Awarding of the IFORS Hall of Fame and IFORS Fellows. This year, IFORS Hall of Fame awardees were: Ailsa Lang, Nelson Maculan, Paolo Toth, Clovis Gonzaga, Tom Magnanti, and Frederick Hillier.



Among the IFORS Fellows awarded was ORSP Founder Elise del Rosario. IFORS Fellows is awarded to a living person who has been productively engaged with an OR community as a member of his/her OR society for a significant number of years, and in so doing, has helped attain the objectives of IFORS. Such an individual may have played a role in the formation of new OR societies, edited OR journals, participated actively in OR conferences and other IFORS initiatives.



E. del Rosario received the IFORS Fellow award from Past IFORS President M. Grazia Esperanza (Italy).



APORS VP for IFORS F. Miranda presents his annual report to the Board of Representatives General Assembly.



Judges and audience listen to the paper presentation of one of the contestants for the IFORS Prize. At the front is IFORS Prize Chair Mario Guajardo. At the first row are the judges, including E. del Rosario.



E. del Rosario (R) and F. Miranda (middle) enjoying the President dinner with the presumptive IFORS President for the coming term, Hector Cancela (L) from Uruguay.

The five-day conference included an excursion to various spots in Chile. The well-thought out technical and social program were successful in creating and keeping OR networks, highlighting the lasting impact of IFORS on international OR over the years. ◆

Welcome New Members!

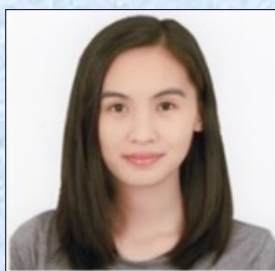
This newsletter issue welcomes new members who have joined the ORSP Family.

From the *Academe* are: **R.M. Jhiell Lhey Q. Aguado**, Instructor at Batangas State University; **Anna May Angeles**, Instructor at Tarlac State University, **Gabriel John L. De Leon**, Assistant Professor at UP Los Baños, **Rommel C. Dela Cruz**, Instructor at Polytechnic University of the Philippines-Manila, **Kathleen N. Macapagal**, Assistant Professor at Polytechnic University of the Philippines-Manila, and **Marlon A. Mojica**, College Research Coordinator at Cavite State University.

Institutional Members joining ORSP for this period are **Foundation University School of Engineering & Technology** in Negros Oriental which designated **Dr. Marlon A. Tanilon** and **Prof. Clint Absin** as its ORSP representatives; **University of Batangas – Lipa** represented by **Dean Joan Villanueva** and **Engr. Annabelle Magsino**; and finally, the **Visayas State University** in Leyte which designated **Engr. Darry Mhei L. Morales** and **Fritzie F. Lucero** as representatives.



R.M. Jhiell Lhey Q. Aguado



Anna May Angeles



Gabriel John L. De Leon



Rommel C. Dela Cruz



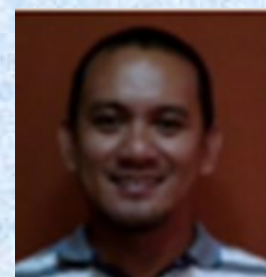
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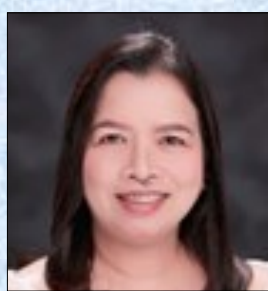
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