

The Contributors

Adrian Neil Pineda is a teacher in research and engineering courses at the Philippine Science High School - Central Luzon Campus. He finished Bachelor of Science in Civil Engineering at Holy Angel University and is currently pursuing Master of Science in Civil Engineering (major in Geotechnical Engineering) at the University of the Philippines - Diliman. His research interests include alternative construction methods and materials, and structural and geotechnical analysis.

Adrienne de Guzman is an electronics engineering graduate from Technological University of the Philippines - Manila. She is currently working as an OSP Engineer in a Telecommunications contractor that installs and maintains network equipment and infrastructure on behalf of clients.

Aileen Balbido is an electronics engineering graduate from Technological University of the Philippines - Manila. She is currently working as an Associate Software Engineer of a business process outsourcing company. She works on projects involving process automation, application maintenance and Web service monitoring.

Aldous Cesar Bueno is a teacher in mathematics at the Philippine Science High School - Central Luzon Campus. He finished Master of Science in Mathematics and Bachelor of Science in Mathematics at the University of the Philippines Baguio. He is currently pursuing a doctorate degree in Mathematics at the same university. His research was presented in various academic conferences and was published in international peer-reviewed journals. His research interests

include mathematical modeling, Fibonacci sequence and its generalizations, matrix analysis, and recreational mathematics.

Andrew Angel DR. Española is a student currently taking up Bachelor of Science in Manufacturing Engineering in Management with Specialization in Mechatronics and Robotics Engineering at the De La Salle University, Manila, and a St. La Salle full scholar. His research interests are focused on automation and robotics, integrating artificial intelligence to smart manufacturing. In 2019, his research paper was recognized as the Top 10 Best Research Paper in the 2019 Research Advocacy for Community Empowerment, a national level competition. Additionally, in that year also, his research paper was published in the Ascendens Asia Journal of Multidisciplinary Research Abstracts. Moreover, he decided to continue his passion for engineering and research at De La Salle University because he firmly believes that the Department of Manufacturing Engineering and Management at DLSU is equipped with the latest technologies and focuses on the application of artificial intelligence in various fields, which will be a great tool in his research interests.

Brenda Pelagio is a teacher in research and chemistry courses at the Philippine Science High School - Central Luzon Campus. She graduated at the University of the Philippines Los Banos with degrees in BS Chemistry and MS Biochemistry. Her research interests include proteins, lipids, and natural products.

Celestine Antoinette C. Blacer is an alumna of Malabon National High School with the curriculum Engineering and Science Education Program which led her to take the Bachelor of Science in Electronics Engineering program in the Technological University of the Philippines - Manila. She was elected as one of the officers of the University Student Government on the Academic Year 2016-2017 and passed the Electronics Technician Board Exam on April 2019. She graduated in the year of 2020.

Cherry G. Pascion is an Associate Professor at Technological University of the Philippines. She earned her master's in engineering program major in ECE at Technological University of the Philippines. She finished her Bachelor of Science in Electronics and Communications Engineering at Lyceum of the Philippines. She specializes in wireless communications, automations, and systems integration.

Chris Danielle B. Sanchez finished his Bachelor of Science in Electronics Engineering at Technological University of the Philippines – Manila in 2020. He is a licensed Electronics Technician

Daisy Jane P. Ramos finished her Bachelor of Science in Electronics Engineering at Technological University of the Philippines – Manila in 2021. She is a licensed Electronics Technician

Darien Chelsey Galura is an electronics engineering graduate from Technological University of the Philippines Manila. Attended her internship as a Quality Assurance Engineer in Analog Devices Inc. and currently employed as an Application Developer in Accenture, Inc.

Dave Carlo de Guzman is an alumnus of Malabag National High School in Silang, Cavite and took Electronics and Communication Engineering Technology at Technological University of the Philippines in Manila from 2014 to 2017 and is currently taking up B.S. Electronics Engineering in the same university.

Edmon O. Fernandez was the Head of the Department of Electronics Engineering, Technological University of the Philippines (TUP) in Manila from 2019 to 2021. He is currently an Associate Professor at TUP and is also one of the members of the Technical Committee on Electromagnetic Compatibility (TC 74) of the Bureau of Product Standards of the Philippines' Department of Trade and Industry. He graduated his Master of Science in Electrical Engineering in TUP - Manila. Presently, he is taking up his PhD in Electronics Engineering at the Mapua University. His research interest is in signal processing and control system.

Erbyn Jonas S. Matibag is a Grade 12 student from Philippine Science High School - Central Luzon Campus. He majored in Physics and took Biology and Engineering for his electives. His research interests lie in the fields of mathematics and engineering.

George B. Aliman finished his Bachelor of Science in Electronics Engineering at Technological University of the Philippines – Manila in 2020. He is a licensed Electronics Technician. He is also a DOST Scholar of S.Y. 2015-2019.

Gilfred Allen M. Madrigal is currently a Faculty Member of the Department of Electronics Engineering at Technological University of the Philippines (TUP). He is currently taking his Master of Engineering at TUP Manila. He is currently one of the members of the Technical Committee on Cleanrooms (TC 83) of the Bureau of Product Standards of the Philippines' Department of Trade and Industry.

Glenn C. Virrey is an alumnus and a Faculty Member of the Electronics Engineering Department at the Technological University of the Philippines – Manila. He earned his master's degree major in Microelectronics at Mapua University and has his early career years in the corporate industry as an apprentice failure analysis engineer and

supplier quality engineer. His areas of interests include semiconductor manufacturing and design, agricultural technology, biomedical engineering, data science, and sensor systems.

Ira C. Valenzuela is an Associate Professor of the Department of Manufacturing Engineering and Management, Gokongwei College of Engineering, De La Salle University. She earned her PhD Electronics and Communications Engineering at De La Salle University. She has a Master of Science in Electronics and Communications Engineering at Mapua Institute of Technology. She is the current Managing Editor of the Journal of Computational Innovations and Engineering Applications. Her previous work was focused on smart farms wherein she developed an AI-controlled environmental system for high value crops such as cherry tomato and lettuce. The research project was funded by USAID-STRIDE and was completed on the target timeline. Most of her works include artificial intelligence, evolutionary computing, artificial neural networks, fuzzy logic, vision system, wireless sensor network and systems automation.

Jason Paul Villanueva is an electronics engineering graduate from Technological University of the Philippines Manila. He attended multiple internships that concentrated on full-stack web development and data science. He is currently working as data analyst of a business process outsourcing company that specializes in application of different machine learning and data science techniques in business processes. He works on projects involving forecasting staff, sentiment analysis and performance monitoring.

Jay Fel C. Quijano is an alumnus and a Faculty Member of the Electronics Engineering Department at the Technological University of the Philippines – Manila. He is currently taking his graduate studies major in Microelectronics at the Mapúa University and has his early career years in the corporate industry focusing on broadcasting and network engineering

Jensine Charmille A. Olazo finished her Bachelor of Science in Electronics Engineering at Technological University of the Philippines – Manila in 2020. She is a DOST Scholar of S.Y. 2015-2019.

Joanna Grace V. David is a grantee of the St. La Salle Financial Assistance Scholarship and is currently taking up a Bachelor of Science in Manufacturing Engineering in Management with Specialization in Mechatronics and Robotics Engineering at the De La Salle University, Manila. She believes that this unique multidisciplinary course will equip her to become a well-rounded engineer as she contributes to the MEM Department with her experience and passion for research and robotics. She was a full academic scholar from junior to senior high school at Valenzuela City School of Mathematics and Science. She was also recognized with the Outstanding Award for Innovation (2018) when she graduated high school. It is in the field of technology that she finds challenge and determination to find ways to advance to human development. She was a gold medal receiver in the 5th World Invention Creativity Contest, a global research competition (Seoul, South Korea, 2016). There, she proved that Filipino youths could pave the way to drive innovation.

John Bryan A. Fronda graduated as the class valedictorian during high school at Gazellian College Foundation Inc. He graduated with a bachelor's degree in Electronics Engineering at Technological University of the Philippines – Manila in the year of 2020 and has been a DOST scholar from 2014 to 2017. He passed the Electronics Technician Board Exam on October 2018

John Peter M. Ramos is currently a faculty member of the Department of Electronics Engineering at Technological University of the Philippines (TUP-Manila), where he also attended his bachelor's degree. He is currently pursuing his master's degree in Electronics Engineering at the School of

Electrical, Electronics and Computer Engineering of Mapua University – Intramuros, Manila. His areas of interests are automation & power electronics. He specializes in hardware design and systems interfacing on his research studies.

Jose Miguel D. Aliswag attended his secondary education in Newville Heights Academy. He graduated with a bachelor's degree in Electronics Engineering program at Technological University of the Philippines – Manila in the year of 2020. He passed the Electronics Technician Board Exam on October 2018

Karizz Anne Morante is a Science and Research teacher in Philippine Science High School - Central Luzon Campus (PSHS-CLC). Karizz finished her Master of Science in Science Education at the Ateneo de Manila University. She has also presented in national and international academic conferences. Her research interests include Disaster Readiness and Risk Reduction and Earth Science education.

Lamberlain V. Muli is a Grade 12 student from Philippine Science High School - Central Luzon Campus. He majored in Chemistry and took Physics courses for his electives. He has participated in various chemistry and mathematical modeling competitions.

Lean Karlo S. Tolentino received the B.S. degree in electronics and communications engineering from the Technological University of the Philippines (TUP), Manila, Philippines, in 2010, and the M.S. degree in electronics engineering major in microelectronics from Mapúa University, Manila, in 2015. He is currently working toward the Ph.D. degree in electrical engineering at the National Sun Yat-sen University, Kaohsiung, Taiwan. From 2010 to 2013, he worked as an IC Layout Engineer with the Mask Design Division, ROHM LSI Design Philippines, Inc., Pasig, Philippines. Since 2015, he has been a Faculty Member with TUP. From 2017 to 2019, he was the Head (Chair) of the Department of

Electronics Engineering, TUP. He was designated as the Director of the TUP's Office, University Extension Services (UES), Manila, from 2019 to 2020. His research interests include artificial intelligence, IC design, and power electronics. Mr. Tolentino has been serving as one of the members of the Technical Committee on Audio, Video, and Multimedia Equipment (TC 59) and the Technical Committee on Electromagnetic Compatibility (TC 74) of the Bureau of Philippine Standards under the Department of Trade and Industry of the Philippine Government since 2017. He is currently the Corporate Secretary of Institute of Electronics Engineers of the Philippines (IECEP) – Manila Chapter since 2022.

Maria Victoria C. Padilla is currently a Faculty Member of the Department of Electronics Engineering at Technological University of the Philippines. She graduated MS in Electronics Engineering major in Microelectronics at the Mapua University. She is currently one of the members of the Technical Committee on Cleanrooms (TC 83) of the Bureau of Product Standards of the Philippines' Department of Trade and Industry. Her areas of interest include biomedical engineering and sensor systems

Nilo M. Arago is an Associate Professor 2 at Technological University of the Philippines Manila. He graduated with his Master of Engineering in 2011 and Bachelor of Science in Electronics and Communications Engineering in 2001. His expertise is more on sensor engineering and technology applications.

Randy Joseph Fernandez is a teacher in research and technology courses at the Philippine Science High School - Central Luzon Campus. He finished BS Electronics and Communications Engineering and Master of Engineering in Electrical Engineering at UP Diliman. His research interests include electronics instrumentation and information systems.

Regina C. Valeriano attended her primary and secondary education in Malabon Elementary School and Malabon National High School. She finished her 3-year diploma course Electronics and Communications Engineering Technology at Technological University of The Philippines - Manila in 2016. She continued studying and graduated after taking up the ladderized program -- Bachelor of Science in Electronics Engineering in the year of 2020. She passed the Electronics Technician Board Exam on October 2018

Rochelynne E. Baron graduated from Caloocan High School as the top of her class. She entered Technological University of the Philippines -Manila to study Electronics Engineering and graduated in the year of 2020. She was the Senior Scholastic Committee Head of the Organization of Electronics Engineering Students (OECES) that mostly handles policies affecting the quality of education of the students and was responsible for assisting Quizzers with their participation on various quiz bees on the SY2017-2018. She is a PhilNITS Passer of the batch October 2018

Romeo Jorda Jr is a Professional Electronic Engineer who teaches basic and advance electronic subjects at Technological University of the Philippines - Manila. Romie believes that electronics is one of the reasons if not the main reason why we have sophisticated technologies now a days. In addition to teaching, he also signs electronic design such as fire detection and alarm systems (FDAS), Closed Circuit television (CCTV), Door Access and Controls System (DACS), and other Building Auxiliary components. He has successfully satisfied the qualification requirement demanded by the AFEO Governing Board and has been awarded the status of ASEAN Engineer (AE 6637) on June 2015. He has been the board director for membership on 2014 and vice governor for education on 2013 of the Institute of Electronic Engineer (IECEP) Manila chapter. Romie holds BS in Industrial Education and BS Electrical Engineering from TUP and BS Electronics and Communications Engineering from FEATI University.

Ronnie S. Concepcion II is an associate professor and research faculty at the De La Salle University, Manila, where he completed his Doctor of Philosophy degree in Electronics and Communications Engineering with specialization in artificial intelligence, vision systems, and biosystems. His research interests are focused on applied artificial intelligence for sustainable and precision agriculture in controlled environment engineering to have clean terrestrial and space food production system, integrated computer vision and computational intelligence (bioinspired and evolutionary computing) for industrial crop phenotyping as affected by biotic and abiotic stressors, plant electrophysiology and optical imaging, plant intelligence and unconventional computing, organic circuits, biosensor, and underground imaging using capacitive resistivity. He is a science research specialist of internally and government-funded R&D projects. He received local and international research awards with the Young Researcher Award (ISCIIA China, 2020), Best Paper in Agriculture and Food Security (IEEE R10HTC India, 2021) and Best Paper in Electronics (IEMTRONICS Canada, 2022) as the latest. He developed two novel vegetation indices for computational plant imaging and lettuce phenotyping using evolutionary computing. He is a Fellow of the European Alliance for Innovation, Fellow of the Royal Institute of Electronics Engineer in Singapore, an Associate Member of the National Research Council of the Philippines, member of Institute of Electrical and Electronics Engineers (IEEE) – Philippine Section, and member of the Crop Science Society of America. Currently, he has more than 100 Scopus-indexed publications with a total citation of 681 and an h-index of 14.

Ryan Rhay P. Vicerra finished his degree in Doctor of Philosophy in Electronics and Communications Engineering and Master of Science in Electronics and Communications Engineering at De La Salle University. He received the Outstanding Young Scientist Award by the National Academy of Science and Technology of the Philippines

last 2019. He already published more than 100 scientific papers in technical journals and international conferences in the field of robotics, artificial intelligence, and control systems with 460 citations and h-index of 9. He leads various internal and government-funded projects that are related to non-invasive underground monitoring of road artifacts, plant root systems, and underwater applications through automations, computer vision and swarm robotics for environmental monitoring and controlled environment engineering.

Stephen Andrew A. Galang is a Grade 12 student from Philippine Science High School - Central Luzon Campus. He majored in Biology and took Technology and Computer Science for his electives. His interests are Biology, writing, Mathematics, and Computer Science.

Tanya Faye S. Nivera finished her Bachelor of Science in Electronics Engineering at Technological University of the Philippines – Manila in 2020. She is a licensed Electronics Technician. She is also a PhilNITS Information Technology Passport Certification Exam Passer last October 2018. She is a DOST Scholar of S.Y. 2015-2019.

Timothy M. Amado is a faculty member of the Electronics Engineering Department at the Technological University of the Philippines-Manila. He earned his bachelor's degree at the same university where he graduated as Magna Cum Laude. He is also a recipient of the DOST Academic Excellence Award, Special Award in Engineering and TUP Academic Excellence Award. He pursued his post-graduate studies at Mapúa Institute of Technology where he earned his master's degree in Electronics Engineering. Currently, he is taking up his doctorate degree in Electronics Engineering at Mapúa University. His field of specialization is Data Analytics, Artificial Intelligence and Machine Learning. He is now the current head of the electronics engineering department of TUP-Manila.